

Competitive Position of Bangladesh and China in the Global Clothing Export Market: An Analysis of Revealed Comparative Advantage

ATM Adnan, Dr. Ayub Nabi Khan, Dr. Mohammad Shahidul Islam

Abstract

Purpose of the article: The Ready-Made Garment (RMG) industry remains the most crucial segment of Bangladesh's economy besides the agricultural sector in terms of foreign currency earning via export and employment generation. Several international studies predict that Bangladesh will be the next apparel sourcing hotspot after China due to the availability of reasonably priced labour force and other factors of production. This paper intends to exhibit the relative competitive position of China and Bangladesh for the ready-made garment industry in the global made-up clothing market and how its pattern has changed over the period of 2001–2017.

Methodology/methods: Balassa's RCA indices have been used to calculate for all the 34 product groups under HS 61 and HS 62 for up to four digits level of the study period of 2001 to 2017 of both countries. Descriptive statistical techniques have been applied to reveal the sustainability and predictability of the comparative advantage of both countries.

Scientific aim: The findings of the study would be beneficial for the policy-makers and researchers in developing export promotion policies for generating industry competitiveness considering the valuable factors of both countries such as factors of production and geological position.

Findings: The analysis has revealed that Bangladesh has achieved a significant comparative advantage over China in 26 product categories out of 34 product categories in 2017, whereas China has able to gain the RCA on only 8 product groups in the same study period. The findings also reveal that although Bangladesh has achieved significant RCA in most of the product types, its volatility remains on the higher side.

Conclusion: This paper is one of the trivial pursuits to perform an organized analysis of revealed comparative advantage of Bangladesh and China on clothing (RMG) trade to major global markets.

Keywords: ready-made garments industry, export, revealed comparative advantage, Bangladesh, China

JEL Classification: F14, L60

Introduction

The Ready-Made Garments Manufacturing industry (RMG) or apparel manufacturing industry is considered to be the classical tool of primary industrialization in the least-developed economy, as the apparel manufacturing industry requires comparatively lower technological orientation and an abundance of the reasonably priced labour force. It is usually described as the primary exporting industry, devoted to the gaining of foreign currencies in lower income nations (Alam, Natsuda, 2016). During the last three decades, the RMG industry of Bangladesh has achieved a tremendous development, and by 2011 it had become the world's second biggest exporter of made-up apparels (Staritz, 2012).

At the point of discontinuation of Multi-Fiber Arrangement (MFA) in December 2004, it was envisioned by several economists and global researchers that quota depended countries such as Bangladesh would lose their advantage as well the international market position in the case of open and severe competition with big players such as China and India (Zohir, 2001; Dowlah, 1998; Arndt *et al.*, 2002; Sobhan, 2003). It has been also anticipated that the phase-out of the MFA or quota access is not the sole threat but also severe local challenges needed to be taken into consideration such as infrastructural development, scarcity of skilled labour force, labour unrest and political turbulence (Dowlah, 1999; Rahman, Razzaque, 1998; Shrimali, 2003). In some instances, those predictions were accurate for African countries (Morris, Barnes, 2009; Rolfe, Woodward, 2005). On the other hand, several Asian nations, specifically Bangladesh, Vietnam and Cambodia, have gained astonishing development by raising their proportion of the global exports of RMG products after the MFA phase (Bakht *et al.*, 2009; Chowdhury *et al.*, 2006; Joarder *et al.*, 2010; Hasan, 2013; Yunus, Yamagata, 2012).

In the case of Bangladesh, the RMG sector has accomplished remarkable escalation in the post-MFA period. Having the favour through the decade lasting quota restraint enforced from the North American market (USA) in the early stages along with the continuing duty-free access provided by the European Union under its Generalized System of Preference (GSP) from the mid 90s, the textile and apparel or RMG sector has turned out to be the biggest manufacturing sector, as well the top export earner of the country, contributing 10 per cent of total GDP (Tribune, 2017; Akter, 2016) and formed a noteworthy employment source of four million employees (Chakraborty, 2017) of which female make up almost 90 % (Dey, Basak, 2017). The total value added of the RMG sector has also increased significantly as the industry facilitates other subsequent backward industries to grow with it apart from the supply of cheap labour only. Whereas at the beginning, the sector's value addition was around 35% (Habib, 2016; Bhattacharya *et al.*, 2002), it became almost 75% in 2017 (Chakraborty, 2017).

Bangladesh's exports have experienced a substantial transformation since the 1990s to a more ready-made garment oriented one, which comprises of almost 84% of the export earnings. This extraordinary growth from a minor segment in the 1970s to the most essential provider of apparels in the international scenario is largely contributed by the MFA (USA), GSP (EU), government policy supports (BD), and mostly due to highly motivated and enthusiastic entrepreneur group (BD) (Islam *et al.*, 2016). In fiscal year 2004–2005, the apparel sector held about 74.15% of the total export revenue, whereas it was merely 1% in FY 1981–1982 followed by frozen food with only 5.13% share followed by jute goods, leather, and chemical products with their respective shares of 3.24%, 2.78% and 1.59% in the fiscal year 2004–2005. The export earning composition in FY 2017–2018 has been

further dominated by the RMG sector. The sector almost contributed 83% of the total export earning whereas the jute, leather and frozen food contributed the rest (*i.e.* 15% to 16%).

In the world of the textile and clothing market, China has been a vital player for almost three decades. After having membership in the World Trade Organization, China's T&C production and revenue have raised even more noticeably (Li, Zhai, 2000). Chinese apparel and textiles can be found almost everywhere, especially in the advanced economies, such as the EU and the North American region (McCann, 2011; Adhikari, Yamamoto, 2008). The remarkable growth of the clothing export of China was stimulated by the national economic strategy that changed from import-substitution to export-orientation trade policy (Shen, 2008). By 2017, China exported almost USD 2,263,370 million worth of apparel and textile items to the international market among which Japan, the USA, and the EU are the leading markets. Propelled by robust global consumption, China's apparel manufacturers began to export in 1978 (US\$ 700 million) and turned in to the number one clothing and textile exporter internationally for the first time in 1994 (Nordås, 2004). Later, the export earning and volume continued to increase till achieving the top of US\$ 153 billion in 2011. From then, apart from a minor drop of export value in 2008 due to the global recession, Chinese apparel export has always been holding its prominent place in the world market by persistently increasing over last 30 years with an average yearly growth rate of 17.6% (Yue, Hua, 2002). Even though China's export value experienced a constant growth, the proportion of apparel export in gross export shows a quite inconsistent trend. The stake increased in late 1990s at 16.3% pursued by a constant fall to 11.86% in 2017 (WTO, 2018). The underline reason for this decline is the strong contest from other Asian economies such as Vietnam, Bangladesh,

and India and also as China is undertaking an economic conversion from labour-intensive industries to high-tech industries.

In this situation, both countries, Bangladesh and China, should know about their comparative advantage. As we know according to the comparative advantage theory, if there is the comparative advantage between two countries, they can engage in trade and can benefit (Grossman, Helpman, 1989). So, China and Bangladesh should know about the each other's factor of the comparative advantage and what extent they are prevailing so that they can engage a profitable business. In this study, we have applied Balassa's revealed comparative advantage (RCA) index (Balassa, 1965) to measure the comparative advantages. This study will find out the real comparative conditions of textiles and clothing export of both countries.

This paper is systematized and organized as follows. In the following segment, the exact objectives of this paper are presented. In later part, the review of the prominent literature is provided followed by the research methodology. The next part includes the in-depth revealed comparative advantage (RCA) analysis of Bangladesh and China for 34 product categories under HS 61 and HS 62 up to 4 digits level. And the last part offers conclusive remarks. The primary objective of this study is to underline the competitive market position of China and Bangladesh in major textile & apparel products.

1. Literature review

The changing pattern of Chinese competitiveness in the global market has been investigated in quite a few research projects. The empirical study of (Hinloopen, van Marrewijk, 2001) has had the prominent position among them. The study applied the Balassa's RCA index integrating some modifications to recognize the pattern. The form of China's RCA and its application in regard

to the rivalry with other trading nations has been scrutinized applying the market stake changes methodology. According to them, the Chinese enjoy more comparative advantage compared to Hong Kong and Taiwan in the trade world. Another finding is that the culture of those countries is almost similar so they should work with close collaboration with each other so that they can achieve a high level of comparative advantage in the service sector. (Ullah, Kazuo, 2011) used the normalized RCA index and product mapping to identify the RCA and export competitiveness of Bangladesh. The practical outcome revealed that Bangladesh enjoys the comparative advantage in major and labour-based commodities such as RMG. They have also found that competitiveness of the core traditional commodities such as jute has dropped whereas semi labour-based commodities proved to be more competitive. Moreover, there are several possible products that could gain competitiveness by providing policy support. In another study in this area by (Rahman *et al.*, 2004), it has been revealed that the trade performance of Bangladesh textile and clothing industry is based on some particular market. They compare Bangladesh's performance with some other country's performance like Sri Lanka, Mexico, China, Hong-Kong, and Thailand. But they just cover the trade volume. They do not cover the underlying factors of this performance. The study showed that China has a very big trade volume in major market like US and EU market. For Bangladesh, its main competitor is China, Turkey, India, Sri Lanka, Mexico even Thailand. For Bangladesh, the EU market is more flexible than US market. The US market is more competitive than any other market. In their study, (Karaalp, Yilmaz, 2013) in their study exhibited the comparative position of Bangladesh, China, Germany and Turkey. Comparative advantage of these nations is analysed in relation to the US and the EU textiles and apparels markets by applying Balassa's re-

vealed comparative advantage (RCA) index from the year 2000 to 2010. The results showed that Bangladesh along with Turkey and China possesses a strong competitive position in both textile and apparel trading in the US and the EU market, with an insignificant comparative advantage enjoyed by Germany in both of these markets. The findings showed that the significant RCA has been achieved by Bangladesh's apparel industry in all three markets in comparison to other competitors.

There are several prominent studies conducted in relation to the comparative advantage of a nation/product or industry prior to this study. (Hirsch, 1975; Thornhill, 1983; Edwards, Schoer, 2002; Batra, Khan, 2005; Kilduff, Chi, 2007) serves as the examples of some of the renown studies which have analysed the pattern of the countries comparative advantage and the relative changes in pattern due to the change in factors of productions such as labour and capital. (Thornhill, 1983) in his study on Irish economy, pointed out that with the development of economy, the requirement of natural resources is less prudent in determination of the comparative advantage. The research showed that the comparative advantage of the Irish trade pattern reallocated significantly from the early 1970s towards the track of high-expertise, capital-based manufacturing along with the rapid decrease in the significance of low-skill, labour-oriented industries. The findings of the research were consistent with the findings of other contemporary research studies related to global trade of different countries, for example (Hirsch, 1975). Additionally, (Yeats, 1992) found out that commodities in which developing countries have gained an RCA are exceedingly concerted in a wide cluster of labour-oriented commodities, whereas for other stuff, their RCAs are normally under unity.

The Regional RCA (RRCA) index was shown in a pragmatic work by (Yue, 2001) for China's trade as its export locations were

comparatively strenuous and the factors affecting the scale of trading with these associates were significantly dissimilar. The study revealed that, in comparison with the USA in terms of the factor of production, China has abundant labour force but has a shortage in the capital and geographical resources; the same comparison has been done with Japan and it has been found that China has the sufficient labour and natural factor of production whereas lacks in the capital factor. (Bender, Li, 2002) identified that in spite of rapid growth of East Asia's trade between the 1980s and 1990s, it is losing its competitiveness to the lower-tier major ASEAN and south American countries. (Kilduff, Chi, 2006), applying the RCA Index for calculating global competitiveness, found that long-term trend of specialism highly reflects the assumption of factor proportions theory and industry progression models. Economically advanced countries normally stand robust in more capital-oriented industries, while least developed countries have become strong in labour-oriented industries. (Ferto, Hubbard, 2002) examined the relative advantage of Hungarian farming in comparison to that of the European Union's (EU). The findings showed that the trend of the RCA was reasonably consistent in the EU market.

The country-specific comparative advantage and competitiveness analysis have been conducted by several researchers. Some of these research studies have focused on the textile and clothing industry. Moreover, the studies by (Bhuyan, Ray, 2006; Siriwardana, Yang, 2007; Rahman *et al.*, 2011) have made an important input by evaluating the competitiveness of Bangladesh at the bilateral and regional level. These studies were largely covering the SAARC countries. (Raihan, 1999) applied the RCA data for the selected countries and revealed the trend that as the countries become economically developed, its comparative advantage pattern changes. The study found that countries such as Bangladesh or Sri Lanka, which were in

comparatively disadvantageous position in terms of clothing trade in the late 1980s, were capable of successfully gaining a significant comparative advantage on clothing export by late 1990s. Nonetheless, the comparative advantages are concentrated on low value-added merchandise. (Havrila, Gunawardana, 2003) revealed Australia's competitiveness position in the textile & clothing sector by applying Vollrath's measures of comparative position and Balassa's RCA Index. The examination showed that Australia's comparative advantage in major textile and clothing merchandises remains on the negative side; however, the competitive position in sub-classification such as special textile commodities remain on the positive side. (Wysokińska, 2004), in her paper on Polish T&C industry in the EU, found that some Polish T&C merchandise is still sufficiently competitive to contend in the EU domestic market due to their fairly high comparative advantage.

After the review of the prior prominent empirical literature on the comparative advantage, it has been found that there are so few prior studies conducted with the view to reveal the comparative advantage of Bangladeshi clothing export industry, as well as the product groups. Additionally, examinations that involve the Balassa's RCA index have the limitation in uncovering change in the RCA trends over time. Moreover, there has been no significant attempt to examine the relative comparative advantage that Bangladesh's apparel trade may pose against Chinese clothing trade in the global market. Considering the valuable factors of both countries, such as the factors of production and geological position, a study of comparative advantage of both countries is essential for textiles and clothing trade which will help both Bangladesh and China in global context. This paper is one of the trivial pursuits to perform an organized analysis of the revealed comparative advantage of Bangladesh and China on clothing (RMG) trade to major global markets.

2. Research methodology

In this study, the Balassa’s RCA index has been applied to identify the relative competitiveness of Bangladesh and China in terms of global clothing export. A similar methodology has been used by several prominent studies with different product groups and in different contexts, such as (Laursen, 2015; Sarker, Ratnasena, 2014; Ishchukova, Smutka, 2013) and (Karaalp, Yilmaz, 2012). The RCA index is calculated as shown in (1):

$$RCA_{ij} = \frac{X_{ij}/X_{it}}{X_{nj}/X_{nt}}, \quad (1)$$

where:

- X_{ij} stands for the export of commodity/industry j of country i ,
- N means the world or a specific region, *i.e.* North America or the EU,
- t defines the total commodity traded.

The RCA index shows whether the ratio of the export of a particular product category in terms of the country’s whole exports is larger than the ratio of global export of that particular commodity in terms of total world export of all commodities. A country is acknowledged to achieve a comparative advantage if the RCA is greater than 1 and a comparative disadvantage if the RCA is found to be less than 1. The index can be used for calculating the RCA either for a particular market or for the whole world.

The calculation has done on the basis of annual time series data of apparel trade which has been collected from International Trade Centre Trade Map (ITC, 2018) and database

of the World Trade Organization (WTO, 2018) over the period of 2001 to 2017. These databases hold comprehensive information on Bangladesh’s and China’s trade, as well as the global trade. The RCA indices have been calculated for all 34 product categories under HS 61 (“Articles of apparel and clothing accessories, knitted or crocheted”) and HS 62 (“Articles of apparel and clothing accessories, not knitted or crocheted”) product categories up to four digits level.

3. Results and Discussion

This part of the paper shows the comparative position of apparel exports of Bangladesh and China on the Basis of RCA indices at the HS 61 & 62 up to the four-digit level for the years from 2001 to 2017. Table 1 reflects a comparison summary of a total number of products, for which China and Bangladesh have gained comparative advantage throughout the period of 2001 to 2017. In 2001 China had the RCA in 12 apparel categories out of 34 categories up to four-digit level of the HS code 61 and 62 taken jointly. Measured independently, China was competitively ahead in 7 products in the HS code 61 out of 17 products at four-digit level and 5 products in the HS code 62 out of 17 products. In the year 2017, China lost the comparative advantage in some of its products and retained the RCA in only 8 products out of 34 products totally. Under the HS code 61, China retained comparative advantage in 3 products out of 17 products, while; under the HS code 62 China apprehend comparative advantage in 5 products out of 17 products.

Table 1. Comparative Summary of BD vs. China (2001–2017).

Year	2001		2017		Difference		Growth (%)	
	6101-17	6201-17	6101-17	6201-17	6101-17	6201-17	6101-17	6201-17
Bangladesh	10	12	14	12	4	-1	0.40	Nil
China	7	5	3	5	-4	1	-0.57	Nil

Source: Authors’ calculation on the basis of (ITC, 2018).

In the case of Bangladesh, in 2001, the country had the comparative advantage in 24 products out of 34 products taken for total under the HS code 61 and 62. In the HS code 61, Bangladesh retained the RCA in 10 products in 2001, which increased to 14 products in 2017 out of 17 products. Under the HS code 62, there were 12 products in which Bangladesh enjoyed the RCA, which remains the same as 12 products out of 17 products in 2017. The analysis reveals that, from 2001 to 2017 Bangladesh's RCA in both HS code 61 and 62 increased by 40% and 0% consecutively, whereas China's position is just the opposite with the negative growth of 57% and 0% for the HS code 61 & 62 consecutively. The main contributing factor for rapid escalation of Bangladesh's RMG was the abundance of cheap labour (Lu, 2018) compared to other emerging economies, nil or significantly low tax levies, and fewer import restrictions (Ahmed, 2009). All these stated factors made Bangladesh achieve an advantageous position while exporting to EU countries.

Noteworthy components determining Bangladesh's competitiveness in global RMG trade have been the low labour cost

and growth of backward linkage industry (Habib, 2016), resulting in both increased competitiveness as well as value addition. A study by (Lu, 2018) reveals that labour costs in Bangladesh are still in the lowest side, and considerably lower than other apparel exporting countries in the region. Alongside Bangladesh, India, Pakistan, Cambodia, and Vietnam, as other clothing exporters, are also taking advantage of the extremely low labour costs. On the other hand, Chinese industry is facing high utility cost and increased finance costs, whereas Bangladesh has a cost advantage over China in respect to raw material, labour, and utility, which results in their cost competitiveness in RMG export. Additionally, it is worth mentioning the free market access available to Bangladesh for exports to EU27 and Japan, so Bangladesh has an added cost competitiveness over China (Curran, Nadvi, 2015).

The graphical presentation of the revealed comparative advantage of Bangladesh and China in all 34 product category under four digit HS code 61 and 62 has been done by using Balassa's RCA index (Balassa, 1965) and presented below for analysis. The analysis reveals that in the product category under



Figure 1. Men's or boys' overcoats etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

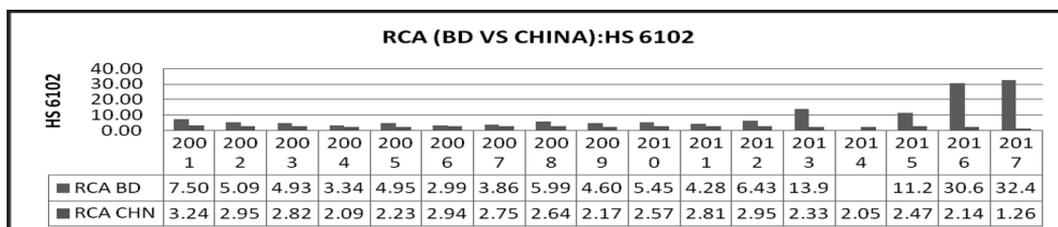


Figure 2. Women's or girls' overcoats etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

HS6101 and HS6102, Bangladesh has been enjoying the significant comparative advantage since 2001. However the pattern of the RCA has been very inconsistent throughout the period for Bangladesh in comparison to China. For the last two years, the RCA gap between Bangladesh and China has widened to a large extent.

For the product category HS6103, China was ahead of Bangladesh in the year 2001 but after that Bangladesh took over China in terms of the comparative advantage, although Bangladesh has been experiencing a declining pattern from 2005 in the RCA. In

the case of HS 6104 from the year 2002 to 2013 the RCA gap between these two countries was very competitive, however from 2015 to 2017, the RCA gap significantly broadened with a negative growth of China's export in this product category while the opposite took place in Bangladesh.

Bangladesh has achieved absolute comparative advantage for the product category under HS 6105, HS 6106, 6107 and HS 6108. In all of these product categories, especially for HS 6105 & HS 6106, the RCA gap has been significantly large since 2001, as these products are the low value-added products

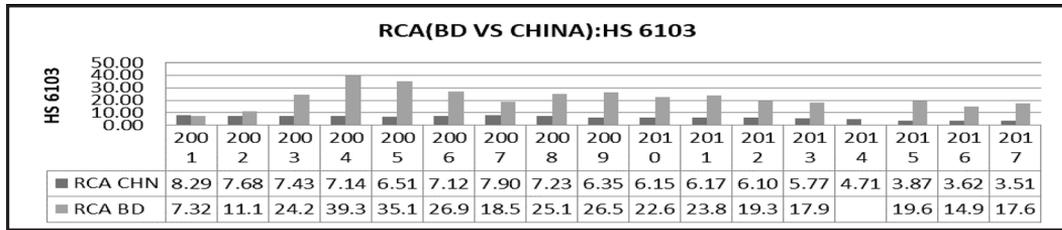


Figure 3. Men's or boys' suits etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

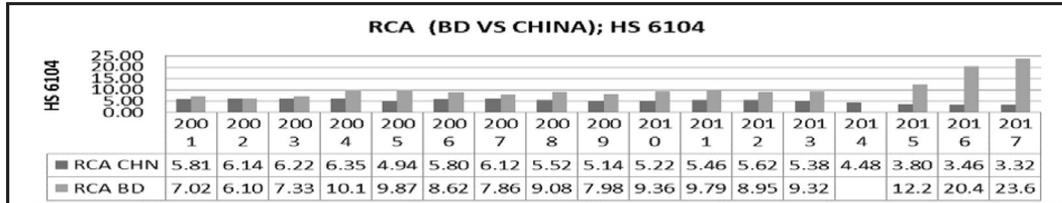


Figure 4. Women's or girls' suits etc. Source: Authors Calculation based on the ITC Trade Map (ITC, 2018).

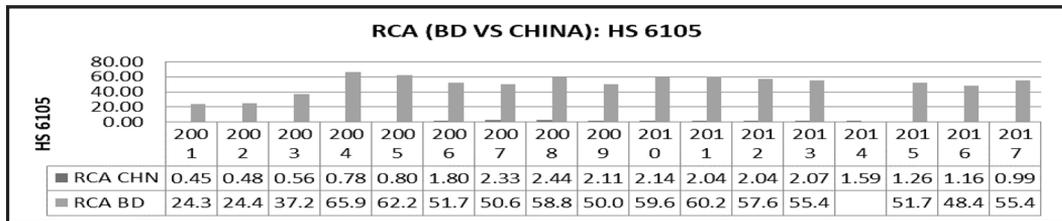


Figure 5. Men's or boys' shirts etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

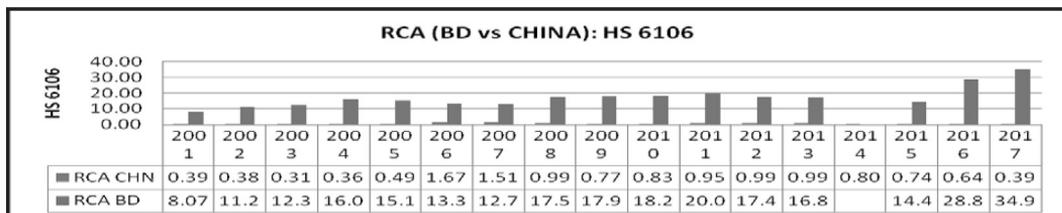


Figure 6. Women's or girls' blouses etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

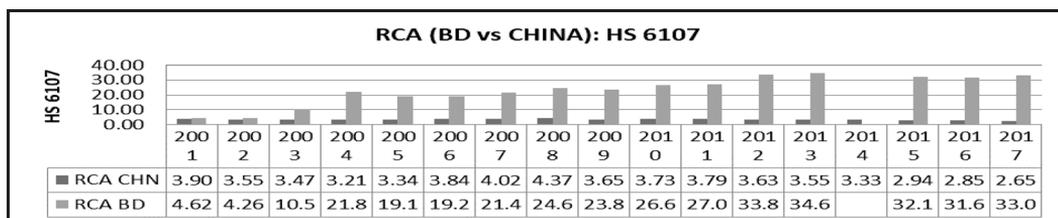


Figure 7. Men's or boys' underpants etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

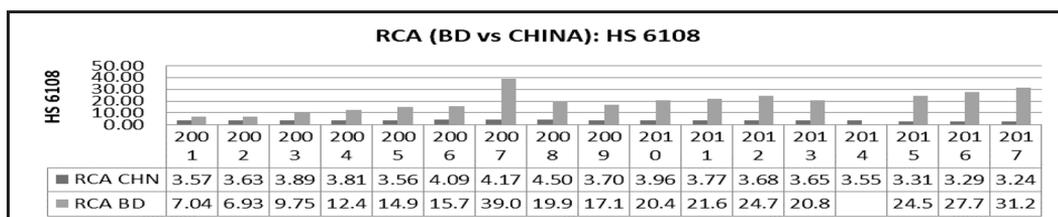


Figure 8. Women's or girls' slips etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

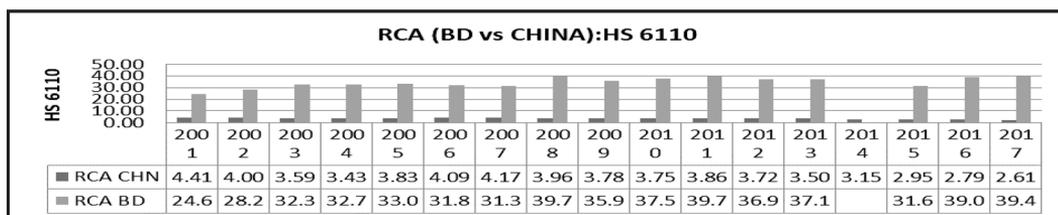


Figure 9. Jerseys, pullovers, cardigans, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

and Bangladesh has been experiencing a strong knit-based product export in the EU due to the favourable rule of origin for knit-based products. Figures 7 and 8, which show the RCA of HS 6107 and HS 6108 between Bangladesh and China, indicate a clear advantageous position for Bangladesh. Although the RCA gap between two countries was more competitive in early years in 2001 to 2002, in recent years, the gap has significantly widened. A similar scenario has been seen in the case of HS 6109 and HS 6110. In both product types, Bangladesh has gained a superior RCA over China.

Bangladesh's knit merchandise export, with the superior local value-addition close to eighty percent, can mostly meet the obligation of rules of origin through fifty one percent local and region wise value-addition to be qualified for privileged admittance.

Whereas its woven-based apparel export, due to the reliance of import raw material, faces a disadvantageous position in crediting GSP facilities, keeping in mind that almost 50% of export of Bangladesh to the EU composed of woven garments, providing a valuable insight in determining the country's competitive position in woven garments in the EU (Mlachila, Yang, 2004).

An interesting scenario has been observed in the case of the HS 6111 and HS 6112 category of products (see Figures 10 & 11). In the early stage from 2001 to 2007, China's RCA was larger than Bangladesh in the case of HS 6111 (babies' garments and clothing accessories, knitted garments, etc.) but after 2007, there was an opposite trend, where Bangladesh's RCA experienced a positive growth, while China's was declining. The latest scenario suggests Bangladesh has achieved

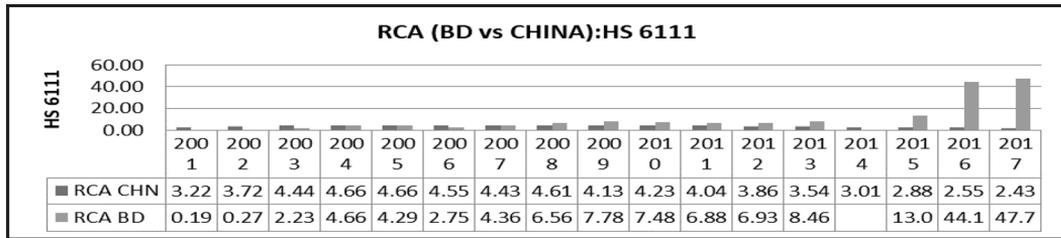


Figure 10. Babies'garments, clothing, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

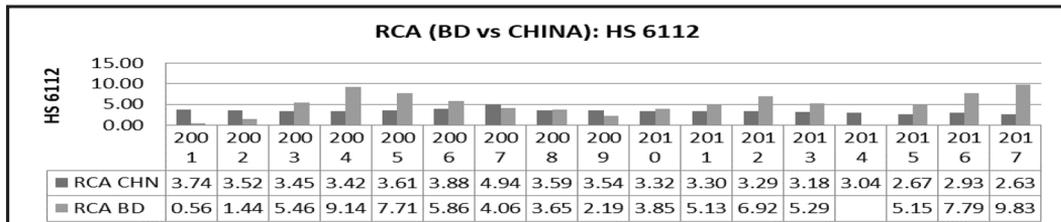


Figure 11. Tracksuits, and swimwear; etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

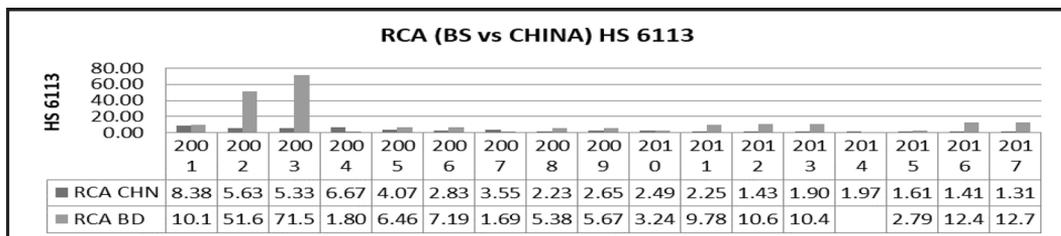


Figure 12. Garments knitted or crocheted. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

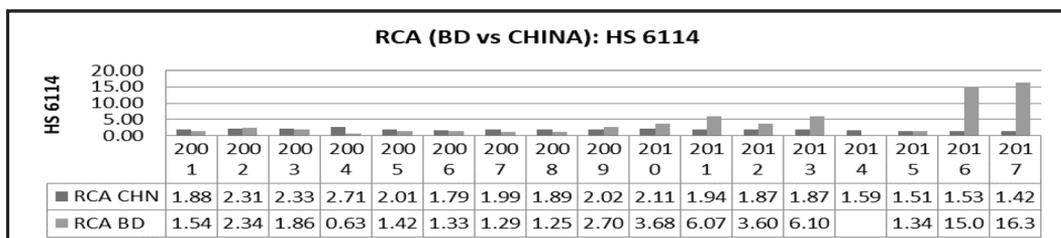


Figure 13. Special garments for professionals etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

the significant RCA over China in HS 6111. There was almost a similar pattern for HS 6112. Till 2007 China's RCA was greater than Bangladesh but after that Bangladesh took over China. However, the yearly RCA and RCA gaps suggest more competitiveness and instability for both countries. HS 6113 shows variability in terms of RCA between China and Bangladesh. Bangladesh achieved

a momentous comparative advantage over China in the year 2002 and 2003, followed by a drastic drop in 2003 and loss of the position to China. Since 2008 Bangladesh has been securing the comparative position over China. The HS 6114 category shows a relatively constant picture, where China held the comparative market position over Bangladesh from 2001 to 2018, while since then

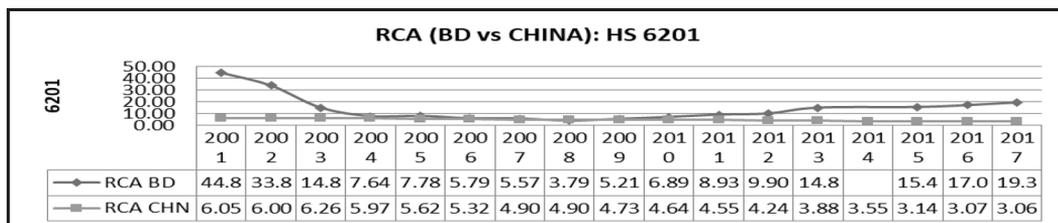


Figure 14. Men's or boys' overcoats etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

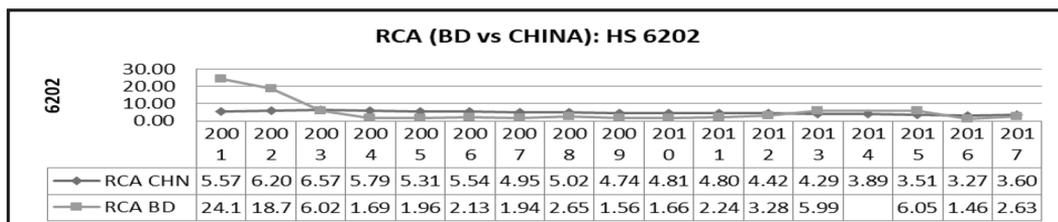


Figure 15. Women's or girls' overcoats etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

Bangladesh has been constantly superseding China in terms of the RCA, apart from 2015, when Bangladesh lost its comparative position to China. For the product categories HS 6115, HS 6116 and HS 6117, China was consistently holding the significant comparative advantage over Bangladesh throughout the time frame between 2001 to 2017 while Bangladesh has a comparative disadvantage in all of these three product categories. Although the recent trend (2016 and 2017) shows a notable positive growth for Bangladesh in all of these three product categories, reflecting the comparative advantageous position ($RCA > 1$). Bangladesh's export in these products categories is not very significant, which seems to be the main reason for the comparative disadvantage.

Bangladesh and China's comparative advantage on the export of the product category under the HS code 62 up to four digits have been graphically presented for further analysis. Figure 14 for HS 6201 shows a mixed scenario of competitiveness between China and Bangladesh. In the early part of the analysed period, Bangladesh had the absolute RCA over China, although it reduced at a severe pace and eventually came very close to China's in 2006. In 2008, China took

over Bangladesh in terms of the RCA. Then the RCA of Bangladesh has experienced a steady growth while China's trend has been negative. In 2017, the RCA gap between China and Bangladesh is considered to be very significant. Figure 15 shows the RCA of the product category under HS 6202 between BD and China. The whole picture has been very competitive between these two countries. At the beginning of the analysis period, Bangladesh was significantly ahead of China but it did not persist so long. China's RCA crosses BD's in 2003 and continues the advantageous position until 2012. In 2013, BD took over China and it prolonged till 2015 then again it lost its position to China in 2017.

Figures 16 to 21, describing HS 6203 to 6208, show the significant comparative advantage carried out by Bangladesh over China throughout the study period. Although the pattern of the RCA has been very volatile with respect to China's RCA, Bangladesh's RCA always remain above China's in the global export markets. Figure 23 shows the RCA of the product under the HS code 6210 between Bangladesh and China. The trend has been a blend of ups and downs for Bangladesh. At the beginning of the analysed

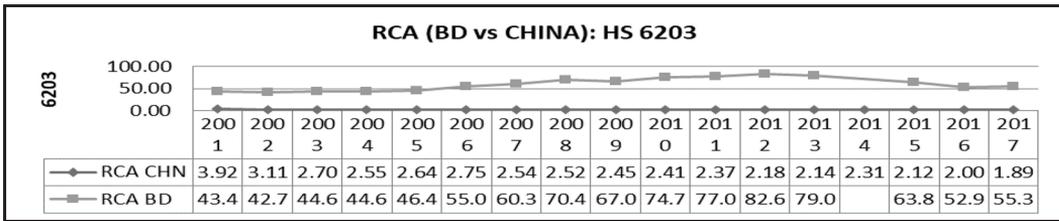


Figure 16. Men's or boys' suits, jackets, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

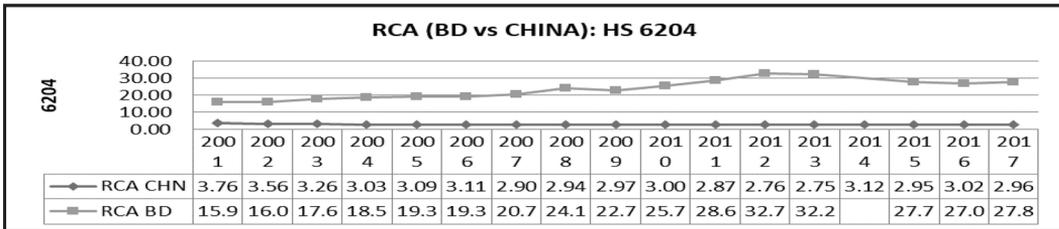


Figure 17. Women's or girls' suits, jackets, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

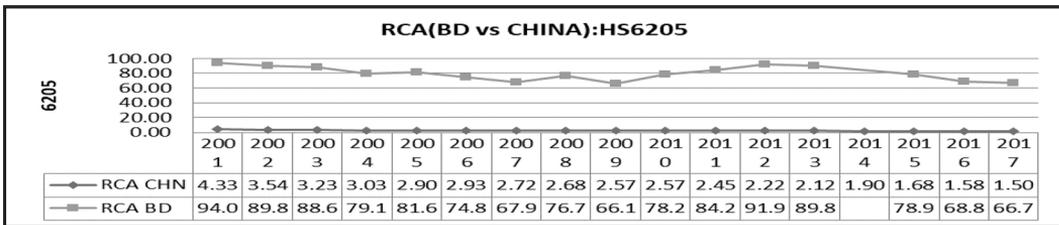


Figure 18. Men's or boys' shirts, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

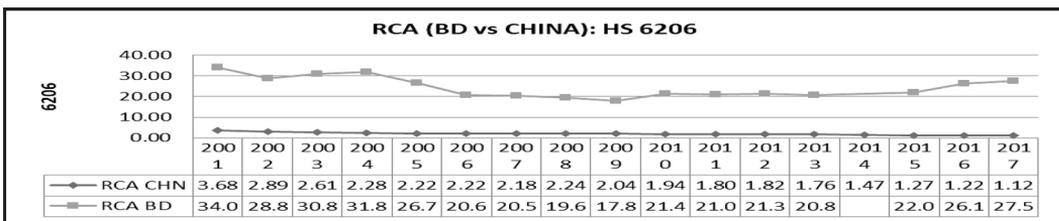


Figure 19. Women's or girls' blouses, shirts, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

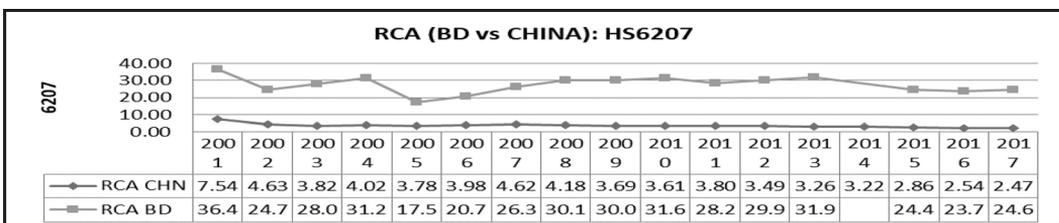


Figure 20. Men's or boys' singlets, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

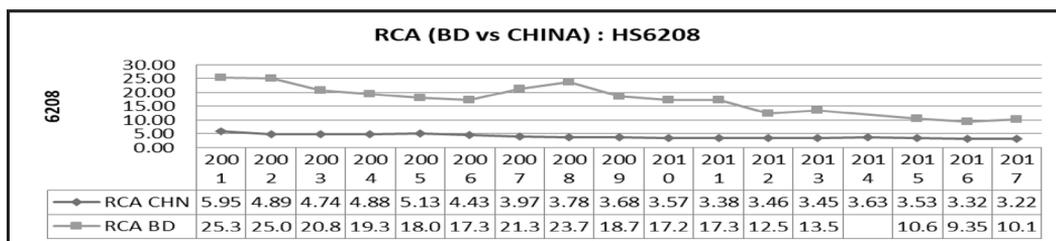


Figure 21. Women's or girls' singlets, slips, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

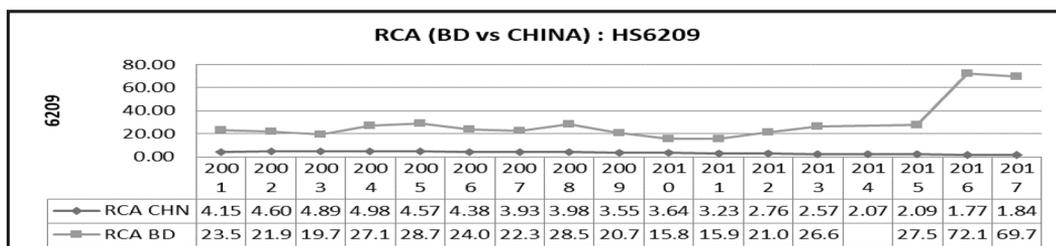


Figure 22. Babies' garments and clothing, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

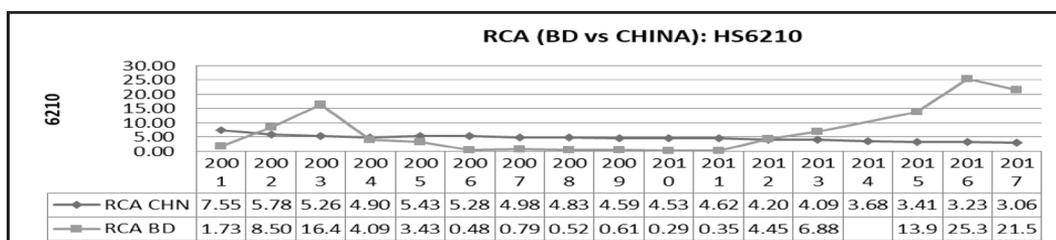


Figure 23. Garments made up of felt, etc. source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

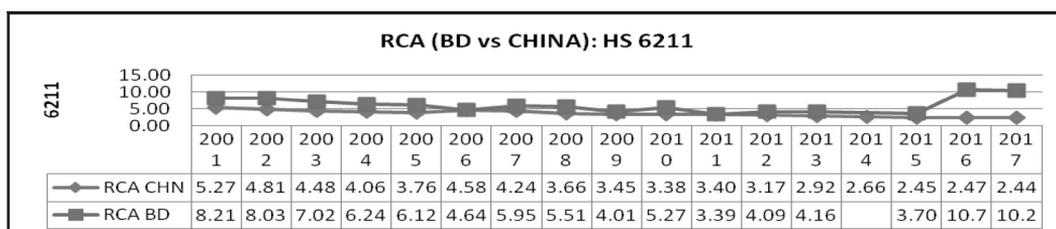


Figure 24. Tracksuits, ski suits, swimwear; etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

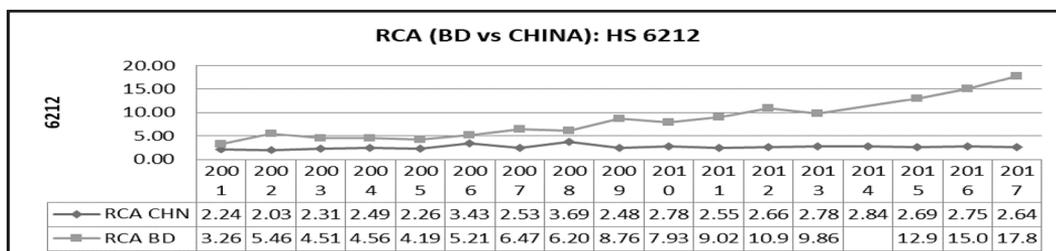


Figure 25. Brassieres, girdles, corsets, etc. Source: Authors' calculation based on the ITC Trade Map (ITC, 2018).

Table 2. Export Competitiveness between BD vs. China.

Export Competitiveness between BD vs. CHINA of Product category HS 61 & HS 62									
HS Code	Country	u			HS Code	Country	Export Specialization		
		Mean	SD	CV			Mean	SD	CV
HS 6101	BD	9.30	7.98	85.75	HS 6201	BD	13.86	11.20	80.77
	China	2.80	0.77	27.60		China	13.07	1.09	8.31
HS 6102	BD	9.23	9.16	99.23	HS 6202	BD	5.26	6.60	125.45
	China	2.50	0.48	19.22		China	4.84	0.94	19.46
HS 6103	BD	21.89	8.07	36.87	HS 6203	BD	60.03	13.85	23.07
	China	6.21	1.49	24.03		China	2.51	0.47	18.84
HS 6104	BD	10.49	4.78	45.55	HS 6204	BD	23.53	5.52	23.44
	China	5.22	0.94	18.09		China	3.06	0.26	8.54
HS 6105	BD	50.90	12.29	24.15	HS 6205	BD	79.85	9.34	11.70
	China	1.47	0.70	47.41		China	2.59	0.74	28.44
HS 6106	BD	17.21	6.59	38.32	HS 6206	BD	24.45	4.98	20.35
	China	0.78	0.39	50.54		China	2.04	0.64	31.34
HS 6107	BD	23.03	9.73	42.26	HS 6207	BD	27.49	4.74	17.23
	China	3.52	0.44	12.49		China	3.85	1.13	29.41
HS 6108	BD	19.64	8.75	44.54	HS 6208	BD	17.53	5.14	29.34
	China	3.73	0.33	8.78		China	4.06	0.79	19.52
HS 6109	BD	67.21	17.70	26.34	HS 6209	BD	29.11	16.81	57.75
	China	2.24	0.59	26.42		China	3.47	1.10	31.70
HS 6110	BD	34.47	4.42	12.83	HS 6210	BD	6.83	8.14	119.14
	China	3.62	0.50	13.78		China	4.67	1.08	23.18
HS 6111	BD	10.49	14.22	135.62	HS 6211	BD	6.08	2.25	37.04
	China	3.82	0.76	19.83		China	3.60	0.87	24.26
HS 6112	BD	5.25	2.63	50.01	HS 6212	BD	8.26	4.19	50.73
	China	3.42	0.52	15.33		China	2.65	0.41	15.37
HS 6113	BD	13.97	19.27	137.98	HS 6213	BD	11.34	17.33	152.83
	China	3.28	2.07	63.14		China	6.67	1.10	16.47
HS 6114	BD	4.16	4.79	115.23	HS 6214	BD	0.20	0.13	64.16
	China	1.93	0.33	16.88		China	3.47	0.27	7.91
HS 6115	BD	0.58	0.40	69.69	HS 6215	BD	0.27	0.31	113.74
	China	3.35	0.47	13.95		China	3.64	0.19	5.18
HS 6116	BD	1.15	1.04	90.46	HS 6216	BD	2.79	3.36	120.53
	China	5.05	0.70	13.90		China	5.30	1.69	31.94
HS 6117	BD	0.51	0.60	117.50	HS 6217	BD	5.72	4.45	77.92
	China	3.97	0.41	10.46		China	1.28	0.27	20.83

Source: Authors' computation.

period in 2001, China was ahead of Bangladesh in terms of the RCA but Bangladesh took over China soon in 2002 but just in the next year, Bangladesh lost its position to

China and it prevails till 2011. From 2011, Bangladesh achieved a significant positive growth in RCA over China, which reached to 21.5 compared to 3.06 of China.

The individual figures show the RCA indices of the nations selected in the world clothing market. The findings reveal a competitive scenario for both of the countries. Although Bangladesh has always been ahead of China in terms of the RCA throughout the examination period, the RCA gap is not significant. The notable findings include the negative trend of China whereas Bangladesh has achieved a significant positive growth in recent years. The tremendous growth of Bangladesh's RCA under HS 6212 (brasieres, girdles, corsets, braces, suspenders, or garters) is shown in Figure 25. The figure indicates that there has been a continuous growth in the RCA of BD compared to the stable RCA of China. China's dominance in clothing export in products under the HS codes 6213, HS 6214, HS 6215 & HS 6216 has been shown in the analysis of the RCA. In this entire product category, Bangladesh has a comparative disadvantage in the form of a very low RCA. The main reason behind this is the very insignificant amount of export of these items by Bangladesh to the world apparel market. China had a comparative advantage over BD in the earlier stages (2001 to 2004), when Bangladesh had a comparative disadvantage in products under HS 6217. The situation has just reversed in the current years, when China is experiencing a comparative disadvantage in this category. The trend has been positive for Bangladesh since textile and clothing quotas and restrictions were eliminated. Bangladesh with its reasonable priced labour force and lesser energy costs grasped up with China's comparative advantage in apparel (Adnan *et al.*, 2015).

Table 2 shows the export competitiveness of Bangladesh and China and their relative vulnerability of the comparative advantage in the world apparel export market for all 34 products under HS 61 and HS 62. The average (mean) value of the RCA reveals that Bangladesh is at the top for most product categories, *i.e.* 27 out of 34 product

categories, to be precise. China could maintain an advantageous position in only 7 product categories. The point here to consider is that in the case of Bangladesh, the volatility of the comparative advantage (measured by the SD and CV¹) is significantly higher than that of China. Bangladesh has a higher standard deviation for the all HS product categories than China. China has a relatively stable RCA pattern throughout the study period. Out of 34 products categories, Bangladesh has a high volatility 17 categories in HS 6101, HS 6102, HS 6111, HS 6113, HS 6114, HS 6115, HS 6116, HS 6117, HS 6201, HS 6202, HS 6210, HS 6212, HS 6213, HS 6214, HS 6215, HS 6216, and HS 6217 (see the SD & CV in Table 2), which indicates the growth of export competitiveness is not steady. The results indicate a moderate volatility in 8 (eight) product categories under HS 6103, HS 6104, HS 6106, HS 6107, HS 6108, HS 6112, HS 6209, and HS 6211 and lower volatility in 8 (eight) product categories under HS 6109, HS 6110, HS 6105, HS 6203, HS 6204, HS 6205, HS 6206, HS 6207, and HS 6208.

4. Conclusions and policy implications

This study observes the revealed comparative advantage of China and Bangladesh in the global apparel export market in the period from 2001 to 2017. The paper also examines different forces behind the fluctuations taking place in the export pattern and emphasises the several explanations for the underlying revolution of the apparel sector for China and Bangladesh during the analysed period. The Balassa's Revealed Comparative Advantage index was applied to calculate the RCA for both countries for products group under the HS 61 and HS 62 apparel products for up to the HS four-digit level for the period from 2001 to 2017 as these pro-

¹ The **coefficient of variation** (CV) is the ratio of the standard deviation to the mean.

ducts are the mainstream clothing export products of China and Bangladesh.

The results exposed that Bangladesh comparative advantage in the global clothing market has increased significantly over China in both HS 61 and HS 62 product categories. Out of the total 34 product categories, Bangladesh has achieved a higher RCA than China in 24 categories in 2017, which stood at 22 in 2001, whereas China's comparative advantage limits to 8 products in 2017, which stood at 12 in 2001. The trend suggests that after the phase-out of the MFA in 2005, China's comparative position in the world clothing market has been declining or constant. The severe competition from the other Asian countries, such as Bangladesh, Vietnam, Cambodia, and India, has been significantly successful in obtaining the benefits of the MFA phase-out due to the low production costs and competitive pricing. Although China's clothing export share in the global market is very significant (33%), the total portion of textile and clothing in its total global export is only close to 12%. It also suggests that as China is moving towards more capital-oriented industry like developed economies, more labour, and low-tech industries will be dominated by developing countries such as Bangladesh and Vietnam.

The outcomes also suggest that even though Bangladesh is comparatively ahead of China in most of the apparel merchandise, it has not been capable to increase its share in the global apparel export at a quicker speed due to high transaction costs, low labour productivity and less technological orientation than its counterparts in garment and made-ups manufacturing. Moreover, the pattern of achieving the RCA is not stable in the case of Bangladesh, as the standard deviation and the coefficient of variance is very high for most product categories, so predicting the competitiveness of Bangladeshi RMG in the world market is a daunting task.

Although reasonable payment can still provide developing economies a competitive

upper hand in the global export markets, *value addition per employee* is a substantially more significant consideration in determining global competitiveness. The comparative advantage generated from the low-cost manufacturing process of developing countries will not necessarily shift into a comparative advantage in running the whole supply chain while all services-oriented scope is considered. Value generation per worker is also significantly noteworthy associated with the country's ability to move towards high-end products in the market. Producers, exporters, and suppliers are required to put more importance on the education, training and skill development, *i.e.* designing, sourcing & negotiation, quality and cost management, logistics and supply chain management, as well as sales and distribution.

According to the International Labour Organization, the productivity of the Chinese workers in the GTF clothing sector was significantly lower than that of its other Asian competitors (Noe *et al.*, 2017). Ultimately, Bangladesh's relative benefit in reasonable wages is highly consumed by lower productivity. (Hinloopen, van Marrewijk, 2004) argued that the industry might have a latent comparative advantage which may not be revealed due to either unavailability of sufficient skills or lack of infrastructure, which made the industry non-competitive. Changes in the industrial policy could eradicate these barriers to competitiveness. To do so, the most significant task is to peruse the bases of competitiveness and build skill on those bases.

The phase-out of the quota system has changed the competitive scenarios of the world clothing market. For a developing country such as Bangladesh, it has been a tremendous opportunity for success as well as an intensive challenge to succeed. To be successful in this context, Bangladesh's labour productivity needs to be raised to global benchmarks with the active support of the government in skill development. Also, the

apparel industry should search for a new geographical market, such Russia, Brazil, Japan, and Middle East. The major strategic policy should focus on cutting down corruption and

transaction cost and increasing transparency, skill development, as well as the transformation of infrastructure facilities in the near future.

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ATM Adnan, Assistant Professor

BGMEA University of Fashion
and Technology (BUFT)
Department of Business Administration
Nishatnagar, Dhaka-1230
Bangladesh
Phone: +8801843770138
E-mail: atmadnan@buft.edu.bd

Dr. Engineer Ayub Nabi Khan, Professor

BGMEA University of Fashion
and Technology (BUFT)
Nishatnagar, Dhaka-1230
Bangladesh
Phone: +8801819245840
E-mail: provc@buft.edu.bd

**Dr. Mohammad Shahidul Islam,
Associate Professor**

BGMEA University of Fashion
and Technology (BUFT)
Department of Business Administration
Nishatnagar, Turag, Dhaka-1230
Bangladesh
Phone: +8801758075844
E-mail: mohammadshahidul.islam@buft.edu