CHAPTER 10

Analysis of Trade Pattern, Market Access and Trade Potential in Bangladesh

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10.1 Introduction

Bangladesh's trade performance, after 2000, has been very impressive which is thought to be the result of trade liberalization and increased trade capacity of the country. The share of trade in gross domestic product (GDP) has increased significantly from about 12 percent in 1991 to about 50 percent in 2015, showing the growing importance of trade in the economy. The success in stimulating trade in recent years can be described by the fact that Bangladesh has managed to carve out an export niche in the global division of labor by exploiting its comparative advantage derived from particular resources, such as ready-made garments (RMG). The country has been able to diversify its exports—shifting from agricultural products in the 1970s and 1980s to RMG in the 1990s onward, thanks to preferential market access to the US and the EU markets. However, exports remain highly concentrated in garment products for more than a decade, and therefore diversification of export basket is a concern, particularly from the point of safeguarding the country's export from any external shock. Apart from this fact, rapid growth of apparel export has triggered the growth of accessories and packaging

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industries, most of which benefited from import liberalization policies (Bakht 2001). Easier access to imported inputs facilitated the growth of some other industries such as plastic, processed food, footwear, chemicals, printing, and so on, and the growth of exports of these items is gradually increasing. Still the share of trade in GDP is far from satisfactory compared to some Southeast Asian countries. The reasons of such retreat could be the lack of export diversification, market access, lack of trade infrastructure, anti-export bias, technological innovation and inability of creating production networks, nationally and internationally.

On average, during 2006–2010, exports of goods and services grew by an annual average rate of 15.1 percent, whereas imports grew by an average of 25 percent. However, during 2010–2015, export growth has slowed down, mainly due to shrinkage of global demand for apparels emanating from global economic recession and to some extent, local political uncertainities. The most spectacular thing is that global financial crisis, in 2007–2008, could not hurt export performance immediately as was expected, which is thought to be the result of product specialization (particularly low-end products-base) and timely taken stimulus measures by the government.

Bangladesh made a successful transformation in trade composition by shifting its specialization from agricultural product to manufacturing commodities over time. Though agricultural trade dominated trade basket in the 1970s and 1980s, the share of agriculture in the overall trade volume started declining with the emergence of the RMG industry in the early 1980s, particularly when liberalization process started. The major exporting agricultural commodity was jute and jute goods, which has lost attractiveness because of fierce competition from synthetics as well as lack of proper research and development for jute and jute goods. While agriculture constituted around 21 percent of total trade in the 1980s, the share dropped to 11.1 percent in 2011. Food grain production, particularly rice production, has increased threefold since Bangladesh's independence, mainly due to increased availability and affordability of agricultural inputs because of import liberalization policies. This has decreased import dependency on food substantially nowadays. The average unweighted nominal protection level in agriculture fell from more than 76 percent in 1991–1992 to 31 percent in 1999–2000 and 18.5 percent in 2008; on the contrary, the average weighted protection rate fell from more than 33 percent in 1990–1991 to 12 percent in 1998–1999 and 5.5 percent in 2008 (Ahmed et al. 2007).

Regional trade integration has come to the forefront in the face of global financial crisis in 2007–2008. South Asian Free Trade Arrangement

(SAFTA) has not been proved effective and, therefore, some South Asian countries have signed bilateral free trade agreements, though Bangladesh has not signed any bilateral free trade agreements yet. The South Asian Association for Regional Cooperation (SAARC) countries' share of trade in the world is very small and insignificant (around 3.6 percent) compared to other regions, such as East Asia (around 20 percent) and the EU area (around 25 percent). Despite being a highly liberalized region, intra-regional trade in South Asia is also negligible. One of the reasons for this unsatisfactory situation is that these countries have similar trade structure and they compete each other in the global market with similar products. Further, existence of some non-tariff and para-tariff barriers also restrict the growth of intra-regional trade to some extent. Greater cooperation in different areas of trade is expected to contribute to greater intra-regional share of trade among the SAARC countries in the future, which will help encounter any global economic or financial crisis.

This chapter thus addresses the following pertinent research questions regarding trade pattern and performance in Bangladesh: How the trade patterns of Bangladesh, both in terms of composition and volume, have been changing over time? Are trade patterns including agricultural trade consistent with trade and exchange rate policies? Is there any change in spatial pattern of trade over the period? And what is the status of intra-regional trade? To this end, this chapter examines the trade pattern including export and import pattern of Bangladesh over time, analyzes evolving markets and explores the possibilities of trade opportunities for Bangladesh, discusses various aspects of international trade and food security of Bangladesh and provides policy recommendations on trade policies and pattern. For the analysis, revealed comparative indices (RCIs) for products as well as geographies and a trade potential index (TPI) for selected countries have been estimated.

The chapter is organized as follows. After the introduction, Sect. 10.2 discusses the trade pattern and provides an analysis of exports and imports. Section 10.3 provides an analysis of evolving markets and opportunities for Bangladeshi exports. It also estimates a trade potential index. Section 10.4 provides conclusions and policy recommendations.

10.2 Trade Pattern in Bangladesh

Trade openness (intensities) is the prime indicator of trade pattern and trade performance of a country reflecting the extent of integration of a country with the global economy. Trade intensity (trade to GDP ratio) has

reached about 50 percent of the country's GDP, and its average figure is around 44 percent (excluding trade in service) in recent times. It is interesting to note that in the two phases of structural adjustment program and privatization program under New Industrial Policy of 1982 and 1986, trade intensity remains stagnated at only 16.7 percent. Gradually, it increased to 23 percent in 1991–1995 due to substantial liberalization move. In fact, trade intensity of Bangladesh made a phenomenal growth in 2006–2010 despite global economic crisis during that period. It is worth noting that during 1981–2010, export intensity has made a steady progress, increased from about 4 percent in 1981–85 to about 17 percent in 2006–10. At the same time, the difference between export and import intensities had also increased. Widening of the gap between export and import intensities can be explained by the increase of import dependence as well as increased global price of imports relative to its exports.

10.2.1 Analysis of Exports

10.2.1.1 Structure and Growth of Exports of Commodities

In general, consumer goods dominated the export basket overwhelmingly. Consumer goods along with materials for consumer goods constitute about 98.5 percent of exports during 2011–2015. The picture has not changed since the beginning of the 1980s. In terms of different categories of exports, such as high-tech products, primary products, intermediate products and capital equipment, picture has not changed much over time indicating a low level of export diversification (Table 10.1). Though proportion of primary products in the export basket decreased, proportion of intermediate products or capital equipment or high-tech products did not increase. The share of high-tech products and capital equipment remained stagnated at less than 1 percent indicating a low level of technological diffusion of the economy.

Bangladesh demonstrated a tremendous success in knitted and woven garments export since the 1990s. While in the 1970s, jute and jute goods constituted about 77 percent, in the period of 2006–2010, and afterwards, garments constituted about 80 percent of total exports (Fig. 10.1). From the very insignificant proportion of 7 percent in 1981–1996, garments and textiles export rose steadily to over 80 percent in recent times. In knitted garments, it occupies third place in the world, followed by Hong Kong and China. Though it made a remarkable success in both

Table 10.1 Structure of exports by types of commodities

	Percent share in exports			
Period	*Percent share of consumers goods in exports (average)*	*Percent share of material for consumer goods in exports (average)*	*Percent share of capital goods in exports (average)*	*Percent share of materials for capital goods (average)*
1981–1985	68.5	29.4	1.0	1.1
1986–1990	74.4	23.4	1.5	0.7
1991–1995	81.2	16.4	1.7	0.6
1996–2000	90.2	8.5	0.7	0.6
2001–2005	89.3	10.0	0.4	0.3
2006–2010	84.3	13.6	0.6	0.5
2011–2015	87.0	11.5	0.8	0.7

Source: Estimated from the data of Bangladesh Economic Review

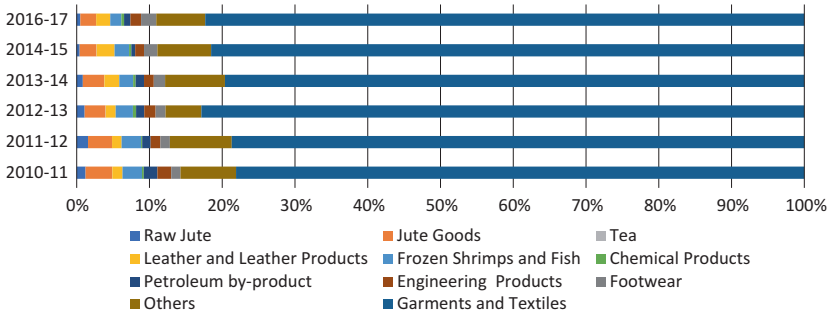

Fig. 10.1 Export concentrations. (Source: Bangladesh Bank)

knitted and woven garments, its main categories are not more than five. In knitted garments, T-shirts and pullovers (80 percent) and, in woven garments, shirts, jackets and trousers are the major products (86 percent). However, export potentials of RMG have not yet got exhausted, rather the sector can move forward comfortably with background experiences for a number of years with accumulated skill of about 5000 entrepreneurs and 4 million garment workers and thousands of accounting and managerial professionals.

There are many products yet to be developed. Again, in the same category of products, it can go for higher quality products. Aggressive mar-

keting drive with brand name of Bangladeshi companies is a feasible option. In this context, economic diplomacy and investment for international marketing need to be facilitated by the government. One note of caution is that it is very risky to rely on a single product, for which exports might become vulnerable in the face of any global market change.

Detailed structure of exporting commodities shows that the share of traditional exports has fallen, while the share of woven and knitted garments has substantially increased (Table 10.9 in Appendix). Knitted garments superseded woven garments in recent years and the share of woven garments has virtually declined from 50 percent in 1991–1995 to 38 percent in 2006–2010. It is worth noting that RMG has played a crucial role in uplifting the country's export earnings in the last two decades with greater diversification within the sector. However, as Ahmed and Sattar (2004) argued, existence of anti-export bias in trade policy also deters the expected export growth of other sectors.

It is interesting to see that the proportion of traditional exports has been growing rapidly in recent years. For example, jute goods and raw jute exports grew at the rate of 20.4 percent and 26.5 percent, respectively, in the period of 2006–2010. Though proportion of non-garments declined from 62 percent in 1981–1985 to 32 percent in 2006–2010, they depicted a positive growth of 13.4 percent during the same period. Thus, not only the performance of garments was noteworthy, performance of other sectors is also appreciable in the face of global economic crisis. Other products except paper board and tea seem to be still prospective despite decline in their growth of exports (Table 10.9 in Appendix).

10.2.1.2 Structure and Growth of Exports by Market Destinations

Only nine countries constitute about 75 percent share of total exports of Bangladesh during 1991–2010, which was 38 percent in 1981–1985 (Fig. 10.2). The share of other countries than these nine countries has declined from 62 percent in 1981–1985 to 25 percent in 2006–2010. In the period of 1996–2005, the share of other countries was abysmally lower at 19 percent only. A country like the USA alone accounts for 25 percent of total exports. Three European countries, the UK, Germany and France together buy 25 percent of total export products. Thus 50 percent of exports destined to just four markets show that exports in these four markets have been increasing over time. Bangladesh's export is thus concentrated not only in a very few commodities but also in a very few markets.

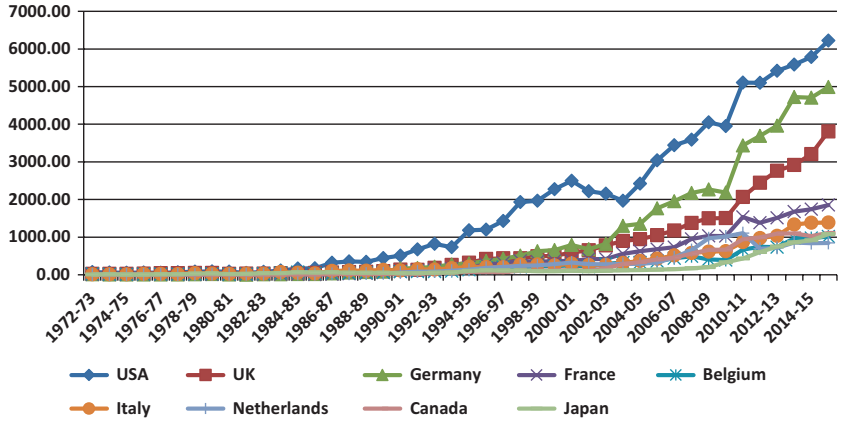

Fig. 10.2 Exports to important market destination (million US dollar). (Sources: Bangladesh Bank; Export Promotion Bureau)

This calls for diversification of markets too, to avoid instability and vulnerability of export earnings.

In order to minimize the risk of export concentration, diversification of export commodities in the currently accessible developed markets is definitely a possible option to pursue. For this, the import demand of these developed countries needs to be studied closely at detailed product categories in order to get access to these markets. Further, Bangladesh needs to explore new markets including emerging economies like China, India, Brazil, Russia and Korea and African countries. As currently exports are concentrated in only nine markets, there is an immense potential for market expansion for Bangladeshi exports (Fig. 10.2).

10.2.2 Analysis of Imports

10.2.2.1 Composition and Growth of Imports by Commodities and Countries

The composition of imports has changed substantially over time with significant shifts from primary goods to consumer goods. The share of consumption goods increased from 31 percent in 1981–1985 to 57 percent

Table 10.2 Structure of imports by commodity (in percent)

Category (average)	*1981–85*	*1986–90*	*1991–95*	*1996–00*	*2001–05*	*2006–10*	*2011–15*
Primary goods Import	27.9	19	12.1	12.3	12.3	13.8	11.5
Rice import	3.1	2.1	2.0	3.0	1.5	1.8	0.7
Wheat import	11.5	9.3	3.5	2.5	2.3	2.9	2.2
Oil seeds import	0.1	0.6	1.2	1.0	0.6	0.6	0.9
Raw cotton import	9.9	4.5	3.1	2.4	3.0	2.7	2.0
Crude petroleum	3.4	2.6	2.3	3.3	4.9	5.8	5.7
Major intermediate goods	23.3	16.2	16.4	14.5	19.0	21.9	22.7
Edible oil	9.5	5.3	3.1	3.0	3.6	4.3	3.7
Petroleum products import	6.6	4.7	4.1	4.8	8.5	9.0	8.4
Fertilizer import	4.0	1.9	2.5	1.4	1.9	3.4	3.2
Clinker import	1.3	2.5	2.6	1.2	1.4	1.5	1.5
Staple fiber import	0.2	0.2	0.6	0.5	0.5	0.5	1.8
Yarn import	1.4	1.6	3.6	3.6	3.1	3.2	4.1
Capital machinery import	29.6	34.2	29.7	9.3	8.4	6.9	6.6
Other imports	19.0	31.0	42.0	64.0	60.0	57.0	59.2

Source: Bangladesh Economic Review (various issues), Ministry of Finance

in 2006–2010. Next important item of import is intermediate goods constituting about 22 percent in the recent period. Its share was 23.3 percent in 1981–1985. The share of primary goods has substantially declined from 28 percent in 1981–1985 to 12 percent in 2011–2015. The share of capital goods in import basket has also substantially declined to about 7 percent in 2011–2015 from 30 percent in 1981–1985 (Tables 10.2 and 10.10). Bangladesh has comparative advantage in exporting non-rice products and, therefore, the commercialization of non-rice food products could be an important policy agenda for agricultural diversification and food security (Dorosh and Shahabuddin 2005).

10.2.3 Composition and Growth of Imports by Sources of Their Supply

A major portion of imports of Bangladesh comes from only nine countries (Table 10.3). Two suppliers, India and China, together constitute one-third of imports of Bangladesh. Though India and China constituted only 6.2 percent in 1986–1990, they have come up strongly to outbid other suppliers in the subsequent periods, mainly because it is relatively cheaper to import consumer goods from these markets. The share of imports from

Table 10.3 Growth of imports (average) by sources of their supply

Country	*Fiscal year*					
	1986–90	*1991–95*	*1996–00*	*2001–05*	*2006–10*	*2011–15*
India	3.0	8.8	13.2	13.9	13.8	18.6
China	3.2	5.6	7.9	10.4	15.9	17.7
Singapore	6.7	6.1	5.8	8.7	5.9	6.9
Japan	13.3	9.8	7.9	6.2	4.1	1.7
Hong Kong	3.3	6.9	5.7	4.6	3.6	4.3
Taiwan	0	2.8	4.3	3.6	2.3	4.2
S. Korea	2.9	5.8	4.5	3.8	3.3	3.7
USA	7.2	5.2	4.1	2.5	2.1	1.7
Malaysia	1.2	1.1	1.8	1.9	3.5	3.5
Others	59.1	50.2	44.8	44.4	37.5	32.5
Total	100	100	100	100	100	100
Top nine sources of imports	40.9	49.8	55.2	55.6	62.5	67.5

Source: Estimated from the data of Bangladesh Economic Review, Ministry of Finance

top nine countries has increased from 40.9 percent in 1986–1990 to 67.5 percent in the 2011–2015 period. The share of imports from other countries compared to these nine countries has sharply declined from 59 percent to 32 percent during the period. A compound annual growth of imports is also reported in Table 10.8.

While the share of nine countries in import basket has increased, the growth of imports from other countries has also increased considerably in the recent period (Table 10.3). Imports from countries like Malaysia, South Korea and Japan have increased along with predominant supply from India and China. A high growth of imports can be observed from India, China and Malaysia. Growth of imports from the USA is also stably high. Major contribution to import growth of Bangladesh has come from top nine suppliers (67.5 percent). However, India and China alone accounted for 37 percent growth of imports.

10.3 Evolving Markets and Opportunities: An Analysis

This section analyzes evolving markets and opportunities for Bangladesh through estimating different sets of standard indices, like revealed comparative advantage (RCA), geographic RCA and TPI. The findings based on these indices will help identify potential products and markets.

10.3.1 Indicator of Revealed Comparative Advantage and Specialization Pattern

The RCA index reflects a country's comparative advantage or disadvantage in terms of different products and regions. The RCA indices are popularly used in the trade literature for evaluating the trade performance and specialization of a country. A quantitative comparison can be made between different products of a country and the rest of the world. A change in the indicator of comparative advantage may reflect both a shift in specialization and a variation in trade performance. Therefore, in the context of highly concentrated export basket and escalating trade deficits, Bangladesh needs to invest along the lines of its dynamic comparative advantage to expand and diversify exports.

The modified Balassa revealed comparative advantage (BRCA) index and standardized revealed comparative advantage have been estimated as analytical tools to uncover changes in comparative advantage patterns over time and of the products. We further estimated trade specialization index to see whether the products are specialized in the lines of their comparative advantage. The analysis uses time series data of a wider range of commodity groups and market destinations to make a dynamic assessment of comparative advantage of Bangladesh in the global market.

BRCA can be expressed as:

$$\mathrm{BRCA_i} = \frac{bX_i / bX_T}{wX_i / wX_T}$$

where bX_i = Bangladesh's export of product i, bX_T = total export of Bangladesh, wX_i = world export of product i and wX_T = world total exports.

Using the RCA, a symmetric RCA, namely the symmetric Balassa index (SBI) can be estimated as follows:

$$\mathrm{SBI} = \left(\mathrm{BRCA} - 1\right) / \left(\mathrm{BRCA} + 1\right).$$

A country would be considered to have a comparative advantage or disadvantage in products depending on whether the ratio of BRCA is greater or less than 1. It ranges from 1 to infinity when it enjoys comparative advantage, but zero to one when it has comparative disadvantage for

the products. To address asymmetric values of the index, symmetric RCA indexes for different products are calculated. The SBI ranges from −1 to 1. The estimated index and changes in pattern of index are shown in Table 10.11.

The estimated RCA and SBI indexes show that Bangladesh has been enjoying high RCA in knitted garments, woven garments, jute and jute goods, other textile articles, frozen fish, leather, footwear and headgear and parts (Table 10.4). Our estimates show that about one-fourth (24.7 percent) of 1571 products at four-digit level enjoy comparative advantage in the world market as their average RCA is around 20 and average symmetric RCA is around 0.90. Trade specialization index of these products is on average around 0.75 (Table 10.5). But these product categories reflect are subject to high concentration in terms of products (88 percent share for three products) and market destination (55 percent for three markets). The analysis indicates that attention needs to be given not only on RCA of products for specialization, but also on diversification of export items and market destinations. This is important for ensuring sustainability of export earnings on a long-term basis.

During the same period, traditional export commodities including tea and leather lost their previous comparative advantage. The sectors which came into dynamism were footwear, ceramic products, household articles including tableware and kitchenware, light engineering, pharmaceuticals, bicycle, tent, home textiles, and vegetables.

Table 10.4 Pattern of changes of revealed comparative advantage of 98 products at 2-digit level during 2005–2009

Type of changes in comparative advantage	*No of products*	*Percent*
Stably high and increased	5	5.10
Advantage lowered	4	4.08
Shift from disadvantage to advantage	3	3.06
Disadvantage reduced	7	7.14
Shift from advantage to disadvantage	8	8.16
Increased disadvantage	24	24.49
Shift from advantage to disadvantage	47	47.96
Total	98	100.00

Source: Authors' calculation

Note: Though the data are somewhat outdated, the situation has not changed much over time as discussed in previous sections. Data are taken from United Nations Conference on Trade and Development (UNCTAD)

Table 10.5 Revealed comparative advantage (RCA), trade specialization index, and concentration ratios for Bangladeshi exports (out of 1571 Products), 2009

Products having comparative advantage	*RCA*	*Symmetric RCA*	*No of products*	*percent total products*	*Exports in thousand US$*	*Percent of total*	*Trade specialization index*	*Product concentration*	*Concent. ratio of markets*
Knitted garments	36.00	0.95	102	6.49	7,754,376	45.42	1.03	69	44
Non-knit garments	30.00	0.94	114	7.26	6,381,134	37.37	1.01	67	64
Other textile articles	12.20	0.85	49	3.12	688,265	4.03	0.99	51	41
Headgear and parts	14.50	0.87	10	0.64	98,200	0.58	0.96	100	83
Vegetable fibers and fabrics	113.50	0.98	15	0.95	387,707	2.20	0.87	91	49
Leather	6.10	0.72	19	1.21	167,457	0.98	0.71	94	61
Fish	5.10	0.67	45	2.86	482,667	2.87	0.96	91	49
Footwear	2.00	0.33	22	1.40	226,449	1.33	0.74	85	51
Tobacco and manufactured thereof	1.10	0.05	5	0.32	49,238	0.29	0.69	98	43
Fertilizer	1.10	0.05	2	0.13	59,378	0.35	−0.74	100	81
Mating materials	1.00	0.00	5	0.32	2727	0.02	1.00	98	43
All	20.24	0.91	388	24.70	16,297,598	95.00	0.75	86	55
Potential products									
Ceramic products	0.80	−0.11	16	1.02	34,579	0.35	−0.03	95	50
Pharmaceuticals	0.10	−0.82	15	0.95	36,253	0.21	−0.56	92	37
Plastic products	0.10	−0.82	39	2.48	38,742	0.23	−0.86	68	58
Non-woven,, felt, twine	0.70	−0.18	20	1.27	15,787	0.09	−0.30	71	76
Leather goods	0.40	−0.43	19	1.21	20,158	0.12	0.24	59	69
Meat, fish and food prep.	0.40	−0.43	7	0.45	20,344	0.12	0.88	99	50
Carpets and other floor cover	0.60	−0.25	11	0.70	7769	0.05	0.61	90	49
Artificial flowers	0.30	−0.54	7	0.45	1071	0.01	0.41	96	88

Source: Authors' calculation. Calculated from United Nations International Trade Statistics Database (UN Comtrade) data

The challenges for Bangladesh are to increase price and non-price competitiveness and find new potential industries and markets for promoting exports of the country in the face of global competition. Since comparative advantage is a major determinant of trade expansion, the country's trade policy should be consistent with the dynamics of comparative advantage. As the analysis of aggregate trade data cannot uncover exactly which products are resembling better competitiveness, a TPI has thus been estimated in the next section to identify trade potentials of the locally produced commodities.

10.3.1.1 Geographic RCA or Specialization Index

Geographic specialization index (GSI) is estimated to identify the RCA in a particular market and geographic specialization. The most commonly used index for this is Balassa geographic specialization index, which is expressed as follows:

$$GSI = \frac{bX_a / bX_w}{wX_a / wX_w}$$

where wXw = export of the world, wXa = export of the world to the market 'a', bXa = Bangladesh export to market 'a' and bXw = Bangladesh export to the world.

A country is said to have specialized with comparative advantage in the exports in region 'a', if GB is greater than 1. A symmetric Balassa (SGB) index is estimated as:

$$SGB = \frac{GB - 1}{GB + 1}$$

The estimated symmetric Balassa geographic specialization index for Bangladesh reveals that Bangladesh has comparative advantage in export to the North America and the Western Europe (Table 10.6). The standardized trade specialization index (STSI) has been estimated for both the commodity and the geographic specialization of a country (Table 10.5). Bangladesh had comparative advantage in 19 percent of products at two-digit level and 10 percent at four- and six-digit levels in 1998, which increased in 2009 indicating that some products having disadvantages in

Table 10.6 Geographic revealed comparative advantage of Bangladesh's exports, 1988–2009

Geographical area	*Balassa RCA*				*Symmetric Balassa index*			
	1988	*1993*	*1998*	*2009*	*1988*	*1993*	*1998*	*2009*
North America	1.620	1.900	1.770	2.300	0.230	0.310	0.270	0.390
Western Europe	0.710	0.990	1.090	2.400	−0.170	−0.001	0.046	0.410
Other industrialized countries	0.790	0.400	0.380	0.400	−0.110	−0.420	−0.440	−0.420
Africa	1.870	0.570	0.192	0.320	0.300	−0.270	−0.670	−0.510
Developing Asia	1.090	0.540	0.430	0.650	0.050	−0.290	−0.400	−0.210
Other developing America	0.120	0.080	0.810	0.135	−0.770	−0.850	−0.850	−0.070

Source: Authors' calculation

1998 transformed into advantageous position in 2009. As far as geographical trade specialization is concerned, Bangladesh has been geographically specialized in two regions: the EU and North America, especially the US. They are the two most specialized regions for Bangladesh's international trade reflecting the RMG export destinations (Table 10.6).

Bangladesh does not enjoy geographic comparative advantage in Asian countries except Thailand; however, it enjoys slight geographical advantage with Vietnam, Laos and Cambodia among other South Asian countries. The gravity of Bangladesh's disadvantage with the Philippines and the Middle East is small but high for Asian giants like Japan, China, India and Korea Republic. This raises question regarding effectiveness of export promotion efforts in these countries.

10.3.2 Trade Potential Index

As was discussed in the previous section, the analysis of comparative advantage cannot fully uncover the potentiality of products or markets. Therefore, it is necessary to analyze trade potentials in a different setup. There are different approaches to estimate trade potential for a country. For example, gravity analysis is used to assess trade potential at aggregate level, whereas TPI helps calculate potential at disaggregated product level.

TPI is a scoring system which allows the analysis to focus on trade potential while taking cognizance of import demand, import trends, growth rates and unit values rather than focusing solely on trade potential values (Rensburg and Letswalo, 2010). Following the methodology used by Rensburg and Letswalo (2010), we have estimated TPI for Bangladesh. However, we have modified the criteria of calculating "indicative trade potential" for our estimation. First, we assign a score of either 1 or 0 according to the trade indicators contained in the database. This score is, then, summed up to obtain a total score. A score of 0 would indicate the least trade potential, while a score of 5 would indicate the greatest trade potential (see Box 10.1).

Box 10.1 Calculation of the Trade Potential Index

- **Import growth**: If imports by Bangladesh to any of the selected country happened in 2015, a score of 1 is allocated. The absence of import is allocated a score of 0. The existence of any trade relationship (import or export) is considered a significant factor in furthering trade.
- **Export growth**: A positive growth rate in the value of exports over a five-year period will be awarded a score of 1, while no or negative growth will be awarded a score of 0.
- **Growth in export demand**: A positive growth of exports to the rest of the world measured over a five-year period will be allocated 1. No growth or negative growth rates are awarded a score of 0.
- **Growth in import demand**: A positive growth of imports from the rest of the world measured over a five-year period will be allocated 1. No growth or negative growth rates are given a score of 0.
- **Indicative trade potential**: A rule of thumb is set for this purpose: if the country's total import on that particular product line is 10 times higher than Bangladesh's export of that product to that specific country, a score of 1 is allocated. Trade potential with a lower value or with no or negative trade potential values are allocated a score of 0.

Source: Rensburg and Letswalo (2010).

The methods of calculating TPI is discussed in Box 10.1. For the purpose of calculating TPI for Bangladesh, first we have selected some countries based on top 30 export destinations of Bangladesh (at 2-digit HS level) for the period 2002–2007[1]. We have then selected the countries for which Bangladesh's export growth has registered a growth of more than 50 percent. We have ended up of a country group of 12 through this process (Table 10.7). Then, finally, we have calculated TPI with these countries at HS-6-digit level using the UN Comtrade database through World Integrated Trade Solution (WITS). However, due to lack of sufficient information, TPI for Indonesia could not be calculated.

The summary of the estimated TPI for Bangladesh has been reported in Table 10.7. Highly potential commodities include garments and its

Table 10.7 Trade potential index for Bangladesh (number of items at 6 digit HS level)

SL no.	*Country name*	*TPI score*						*Share of 5 in total (percent)*
		5	*4*	*3*	*2*	*1*	*Total items*	
1	Australia	151	34	4			189	79.89
2	Austria	46	42	3			91	50.55
3	Canada	43	71	107	62	16	299	14.38
4	China	101	197	72	11		381	26.51
5	Denmark	63	50	23	6	1	143	44.06
6	Germany	177	151	74	16	3	421	42.04
7	India	221	130	79	15	2	447	49.44
8	Italy	187	109	44	14	2	356	52.53
9	Mexico	34	37	30	7		108	31.48
10	Pakistan	35	69	24	16	5	149	23.49
11	Spain	117	72	28	5	3	225	52.00
12	Turkey	57	51	18	2		128	44.53

Source: Authors' estimation based on 2007 data

Note: The TPI is measured against a potential score of 5. A score of 0 would represent the lowest end of the scale and the least trade potential whilst a score of 5 would indicate the greatest trade potential

[1] Since our objective here is to introduce a method in order to identify trade potential of a country, the method can be replicated to recent data. As Bangladesh's export basket has not changed that much since 2007, the results are assumed to be valid till now.

accessories, plastic, light engineering, pharmaceuticals, chemicals, tableware/kitchenware, frozen food, and so on.[2] Therefore, to harness the potentiality of these products, it is important to improve domestic production capacity, liberalized environment, international production network and efficient incentive structure.

Table 10.7 also reveals that a large number of products have immense potential for trade in a number of countries. In terms of number of items with very high trade potential, India ranks in the first place; countries like Italy, Germany, Australia, Spain and China are also very potential market for a number of products. Among these countries, Australia can be considered as the most potential market for Bangladesh as 80 percent of 189 items exported in the year 2007 have very high potential for Australia. The other promising markets where Bangladeshi exporters can explore are Austria, India and Turkey. However, the underlying condition is that despite potentials, Bangladeshi products must maintain importing countries quality standards, sanitary and phytosanitary restrictions in order to get access to these potential markets.

To summarize, the estimated RCA and SBI indexes show that Bangladesh has been enjoying high RCA in knitted garments, woven garments, jute and jute goods, other textile articles, frozen fish, leather, footwear, headgear and parts. But these product categories are facing high concentration in terms of not only of products (88 percent share for three products) but also of market destinations (55 percent for three markets). Therefore, more attention requires not only on RCA of products for specialization, but also on diversification of export items and market destinations. This is important for ensuring sustainability of export earnings on a sustainable basis.

On the other hand, TPI indicates that for Bangladesh a large number of products have vast potential for trade in a number of countries like India, Italy, Germany, Australia, Spain and China. However, to get access to these promising markets, a high quality of these potential products needs to be maintained in line with sanitary and phytosanitary restrictions in these countries. A review of tariff and para-tariff structures of these countries is also important to achieve competitiveness.

[2] The list of potential items is not given in this paper, but can be provided upon request.

10.4 Conclusions and Policy Recommendations

Bangladesh has made a good progress in gaining share of trade in GDP in recent years, but her share in global and regional trade is still insignificant. Her exports are less diversified concentrating to mainly ready-made garments, thereby exposed to external shocks. To enhance Bangladesh's share in global trade, more integration with sub-regional economies, diversification of exports, trade liberalization and greater market access would be the right policy options. Other than the RMG products, agro-processed food, pharmaceuticals, leather and footwear, plastic, ceramics, light engineering, electrical and electronics, and so on need proper attention and policy support in order to diversify exports of Bangladesh.

The estimated revealed comparative advantage (RCA) indices indicate that attention needs to be paid not only on RCA of products for specialization, but also on diversification of export items and market destinations. For diversification of export basket, the government has been providing cash incentives to exporters of certain traditional and non-traditional products since 1996. Both volume and value of exports of subsidized products (those enjoy cash incentives) have been on a rising trend over the period of time, albeit marginally. It is, thus, necessary to analyze the incentive and support structures in order to achieve maximum benefits out of it. Thus, streamlining of cash incentives is required both in terms of its amount and operational modalities.

Despite having potentials of many Bangladeshi products in various markets, they could not enter due to poor quality standard or poor institutional quality of the country. Therefore, for greater market access, the underlying condition is that Bangladeshi products have to maintain importing countries' quality standards by reviewing their sanitary and phytosanitary measures in detail. In this regard, development and capacity strengthening of relevant institutions, such as Bangladesh Standard and Testing Institution (BSTI) is in the center point of discussion.

The effective rate of protection suggests that though rice is strongly import substitutable, it is not strongly exportable. Among the non-rice crops, pulses, potato and vegetables are strongly exportable as well as highly import substitutable. Thus commercialization of non-rice food products may be an important policy issue in agricultural diversification and food security. There are two important factors determining the future prospects of such exports: one relates to the tariff barriers in the importing countries, and the other relates to sanitary and phytosanitary restrictions. Sanitary and

phytosanitary measures seem to be more important for Bangladeshi exporters of these products. It is important to ensure that Bangladesh undertakes necessary measures to meet sanitary and technical standards of the importing countries. Appropriate institutions and technical expertise need to be built up for ensuring the safety and quality of exports. Further study may be undertaken to examine what efforts have been made so far in Bangladesh to meet such requirements in the importing countries.

The challenges for Bangladesh are to increase price and non-price competitiveness and find new potential industries and markets for vitalizing the exports of the country in the face of acute global competition. Drawing conclusions based on only analyzing comparative advantage index or trade potential index may be misleading if they are not matched with the country's overall trade policy and productive capacity. The trade policy of Bangladesh has long been criticized for various reasons, such as the lack of time-bound initiatives, unpredictable tariff structure, market distortionary policies and existence of anti-export bias. Therefore, a robust and well-analyzed trade policy needs to be devised to bring dynamism in the trade structure of a middle-income country context.

Increasing productive capacities, establishing production networks and linkages could be important policy stimuli for enhancing export diversification. In order to increase productive capacity, the following measures can be undertaken:

(i) Strengthening national capacity to undertake analysis of competitive potential at the product and subsector level
(ii) Establishing the quality and conformity assessment infrastructure required to increase exports
(iii) Providing special attention to productive sectors with high export potential to upgrade product and production quality and comply with standards and regulations
(iv) Allocating sufficient fund for research and development (R&D) of agro-processed products
(v) Developing troubleshooting mechanism in cases where export products encounter technical barriers and advising on technical solutions to problems
(vi) Building capacities of existing research institutions, such as Bangladesh Agriculture Research Institute (BARI), BSTI, Bangladesh Council for Scientific and Industrial Research (BCSIR), and so on.

Appendix

Table 10.8 Compound growth of imports by sources of supply (in percent)

Country	*Fiscal year*				
	1986–1990	*1991–1995*	*1996–2000*	*2001–2005*	*2006–2010*
India	24.7	39.7	−6.7	14.4	19.4
China	15.6	33.3	−5.3	23.4	22.9
Singapore	11.5	−4.7	19.6	1.9	8.3
Japan	16.8	15	−0.4	−9.8	12.4
Hong Kong	35.9	21.3	3.9	4.3	6.4
Taiwan			15.6	1.6	3.4
S. Korea	18.5	19.8	−3.4	0.9	14.9
USA	6.1	10.9	−0.4	7.3	10.2
Malaysia	11	6.4	11.9	16.9	35.2
Others	10.1	8.2	10.1	10.1	12.7
Total	12.3	13.5	4.8	8.9	16.4
Top nine sources	15.6	11.1	7.6	8.3	8.3

Source: Estimated from data of BBS

Table 10.9 Average percentage share of individual export items

Export items	1981–85	1986–90	1991–1995	1996–00	2001–05	2006–10	Observation
Raw jute	15.91	9.7	3.6	1.93	1.09	1.27	Substantial decline
Tea	6.72	3.34	1.66	0.73	0.25	0.07	Substantial decline
Frozen food	8.67	12.33	7.77	6.44	5.03	3.48	Stable and prospective
Agriproduct	1.03	1.68	0.51	0.54	0.51	0.97	Slight increase
Other primary commodities	1.1	0.8	0.69	0.35	0.29	0.58	Slight decrease
Total primary goods	33.43	27.84	14.23	10	7.16	6.38	Substantial decline
Jute goods	46.09	27.98	12.94	6.29	3.67	2.82	Substantial decline
Total jute and jute goods	62	37.68	16.54	8.22	4.76	4.08	Substantial decline
Leather	8.91	11.87	6.75	4.02	3.13	1.75	Substantial decline
Leather goods	0	0	0.49	0.67	0	0	Prospective
Footwear	0	0	0.41	0.59	0.29	0.58	Increased and prospective
Nathalie and furnace oil	4.69	1.36	0.97	1.66	7.16	6.38	Increased
Woven garments	3.9	34.26	50.41	53.14	48.42	37.6	Substantial increase
Knitwear	0	0.19	8.78	18.49	26.72	39.16	Substantial increase
Total garments	3.9	34.46	59.2	71.62	75.13	76.76	Substantial increase
Chemical products	1.06	2.11	2.22	1.86	1.6	1.35	Stable
Fertilizer	0.91	1.79	7.4	1.61	0	0	Declined
Pharma	0.02	0.01	0.07	0.1	0.05	0	Stably low
Paper prod	1.02	0.78	0.14	0	0	0	Decline
Handicraft	0.36	0.34	0.29	0.14	0.08	0.04	Stably low
Engineering products	0.29	0.46	0.4	0.27	0.36	1.52	Slight increase
Specific textiles	0.07	0.14	1.14	0.96	0	0	Stably low
Other mfg.	0.1	0.21	1.15	3.43	8	7.09	Increased
Total mfg exports	66.57	79.75	85.77	90	92.83	92.5	Substantial increase
Total exports	100	107.59	100	100	100	100	
Total export exec garments	96.1	73.13	40.8	28.38	24.87	23.24	Substantial decline
Total manufactured exports except garments	62.67	45.29	26.57	18.38	17.7	16.87	Substantial decline

Source: Calculated from the data of Export Promotion Bureau (EPB)

Table 10.10 Growth of imports by commodities (%)

Category	*1981–1985*	*1986–1990*	*1991–1995*	*1996–2000*	*2001–2005*	*2006–2010*
Growth rate of primary goods import	−9	4	19	14	27	−7
Growth rate of rice import	139	83	402	271	87	−71
Growth rate of wheat import	−4	3	−1	25	23	19
Growth rate of oil seeds import	8	664	28	−6	17	−1
Growth rate of raw cotton import	−21	9	−2	20	25	−12
Growth rate of crude oil	−5	20	23	15	26	9
Growth rate of major intermediate goods	−13	13	13	7	26	1
Growth rate of edible oil	−12	5	17	13	25	4
Growth rate of petroleum products import	−13	11	14	19	28	−1
Growth rate of fertilizer import	−12	61	1	1	49	13
Growth rate of clinker import	26	16	5	19	20	−2
Growth rate of staple fiber import	114	40	24	−3	23	4
Growth rate of yarn import	13	15	36	−3	21	3
Growth rate of capital machinery import	4	10	10	−2	27	−1
Growth rate of consumption imports	33	21	17	14	13	11

Source: Estimated from the data of Bangladesh Bureau of Statistics (BBS)

Table 10.11 Pattern of changes in revealed comparative advantage of major items of 98 product categories of exports of Bangladesh

Commodities industry (Bangladesh)	*2005 RCA*	*2006 RCA*	*2007 RCA*	*2008 RCA*	*2009 RCA*	*Pattern of change*
00 All industries						
62 Articles of apparel, accessories, not knit or crochet	27.2	28.1	29.8	40	36	Stable; high
61 Articles of apparel, accessories, knit or crochet	30.9	30	29.1	32	30.1	Stable; high
03 Fish, crustaceans, mollusks, aquatic invertebrates nes	8.1	15	11	13.8	12.2	Increased
53 Vegetable textile fibers nes, paper yarn, woven fabric	115	9	121	7.7	5.1	Positive though declined
63 Other made textile articles, sets, worn clothing and so on	9.6	108	10.6	129.5	114	Increased substantially
41 Raw hides and skins (other than furskins) and leather	9.8	9.8	9.6	8.4	2	Declined though positive
87 Vehicles other than railway, tramway	0.1	8.8	4.5	2.1	6.1	Shift to high advantage
31 Fertilizers	4.4	1.5	0.1	0.1	0.1	Shift to disadvantage
64 Footwear, gaiters and the like, parts	1.6	0.1	1.8	18.3	14.5	Increased substantially
58 Special woven or tufted fabric, lace, tapestry and so on	6.6	8	0.1	1.2	0.1	Shift to disadvantage
07 Edible vegetables and certain roots and tubers	2.2	0.1	0.1	0.5	1.1	Lowered advantage
65 Headgear and parts thereof	16.5	13.3	7.5	0	1.1	Lowered advantage
52 Cotton	1.3	2.6	2	0.1	0	Shift to disadvantage
27 Mineral fuels, oils, distillation products and so on	0	0	0.1	0.1	0.1	Reduced disadvantage
56 Wadding, felt, nonwovens, yarns, twine, cordage and so on	4.2	3.4	12.8	1.1	0.1	Shift to disadvantage
39 Plastics and articles thereof	0.2	0.9	0.2	0	0.8	Reduced disadvantage
28 Inorganic chemicals, precious metal compound, isotopes	0.9	1.2	1.3	0.1	0	Disadvantage increased
72 Iron and steel	0.2	0.1	1.4	0	0.2	Stable; disadvantage

(*continued*)

Table 10.11 (continued)

Commodities industry (Bangladesh)	*2005 RCA*	*2006 RCA*	*2007 RCA*	*2008 RCA*	*2009 RCA*	*Pattern of change*
84 Boilers, machinery	0	0.6	0.1	0.9	0	Stable; disadvantage
08 Edible fruit, nuts, peel of citrus fruit, melons	0.9	0.1	3	0.7	0.4	Disadvantage increased
55 Manmade staple fibers	1.3	2.6	2.8	0.6	0.4	Shift to disadvantage
69 Ceramic products	1.1	0.2	0.5	0.2	0.2	Shift to disadvantage
06 Live trees, plants, bulbs, roots, cut flowers and so on	2.2	0.9	1.4	0	0.4	Shift to disadvantage
24 Tobacco and manufactured tobacco substitutes	1.1	0.1	0.1	0.1	0.1	Shift to disadvantage
09 Coffee, tea, mate and spices	1.4	0	0.3	0.4	0.3	Shift to disadvantage
90 Optical, photo, technical, medical and so on apparatus	0.1	0.1	1	0.2	0.7	Reduced disadvantage
49 Printed books, newspapers, pictures and so on	0.6	0.8	0.1	0.5	0.2	Disadvantage increased
30 Pharmaceutical products	0.1	0.5	0.9	0.6	0	Disadvantage increased

Source: Authors' calculation. Adapted from the data of UNCTAD of 2005–09

References

Ahmed, S., & Sattar, Z. (2004). Impact of trade liberalization: Looking at the evidence. *Economic and Political Weekly, XXXIX*(36), 4059–4067.

Ahmed, N., Bakht, Z., Dorosh, P. A. & Shahabuddin, Q. (2007). *Distortions to agricultural incentives in Bangladesh* (Working Paper 32). The World Bank, Washington D.C. Available at: http://documents.worldbank.org/curated/en/724601468177569404/National-spreadsheet-for-agricultural-distortions-in-Bangladesh

Bakht, Z. (2001). Trade liberalization, exports and growth of manufacturing industries in Bangladesh. In M. M. Huq & J. Love (Eds.), *Strategies for industrialization: The case of Bangladesh.* Dhaka: University Press Ltd.

Bangladesh Economic Review. (Various issues). Ministry of Finance, Government of the People's Republic of Bangladesh.

BBS. (Various years). Bangladesh Bureau of Statistics, Dhaka. Web: http://www.bbs.gov.bd/

Dorosh, P. A., & Shahabuddin, Q. (2005). Trade liberalization and food security in Bangladesh. In S. C. Babu & A. Gulati (Eds.), *Economic reforms and food security: The impact of trade and technology in South Asia*. New York: Haworth Press.

EPB. (Various years). Export Promotion Bureau, Government of the People's Republic of Bangladesh. Web: www.epb.gov.bd

Rensburg, G., & Letswalo, J. (2010). Country market study: Saudi Arabia. Retrieved from: http://s3.amazonaws.com/zanran_storage/www.nda.agric.za/ContentPages/110659005.pdf

UNCTAD. (Various years). United Nations Conference on Trade and Development, Geneva. Web: https://unctadstat.unctad.org/EN/