Analyzing the Evolving Trade Dynamics of Bangladesh with India and China: An Empirical Study

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Abstract

This study uses annual time series data to investigate the trade dynamics between Bangladesh and its two primary trading partners, India and China. Our analysis employs various metrics, including export and import intensity indices, intra-industry trade index, Export Specialization Index, and the revealed comparative advantages (RCA) approach. Finally, we use the ARDL approach to examine the long-run relationship between the structural transformation of the economy and trade dynamics. The trade intensity indices reveal a nuanced pattern in Bangladesh's trade relationship with India and China. The Export Specialization Index indicates that Bangladesh exhibits significant export specialization in commodity groups such as animal or vegetable fats and oils and their cleavage products with India, and live animals and animal products, as well as raw hides and skins-leather and articles thereof with China. Furthermore, our examination of the impact of changes in the structure of the Bangladeshi economy on trade dynamics underscores a notable shift. As Bangladesh undergoes industrialization, China emerges as a prominent trade partner, supplying capital machinery and related products, thereby replacing India's role as a source of primary goods and food items. The comprehensive analysis of these indices underscores the need to enhance intra-industry trade levels with major partners. Additionally, there is

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a call for emphasis on sectors with high specialization that possess the potential to reduce the trade deficit. Diversifying Bangladesh's export baskets is also crucial for achieving a more favorable trade balance. The study provides a comprehensive understanding of the trade dynamics of Bangladesh with India and China, aiming to inform policy decisions, facilitate business strategies, and contribute to a broader understanding of economic interactions in the region.

Key Words: Trade Indices, Revealed Comparative Advantage, Exports, and Imports.

4.1 Introduction

Over the past few decades, the trade dynamics of Bangladesh have undergone a remarkable transformation, marked by a shifting focus from its traditional trading partner, India, to a burgeoning economic relationship with China. This shift has redefined the contours of Bangladesh's international trade and has had profound implications for the country's economic growth, industrialization, and geopolitical standing in the South Asian region. The analysis of this shift in trade dynamics explores the multifaceted factors that have driven Bangladesh to pivot its trade strategies towards China and the consequent impacts on its economy and diplomatic engagements.

Historically, Bangladesh has shared strong trade ties with India, which were shaped by geographical proximity, shared culture, and historical factors. Those realities gave rise to intricate trade relationships that India predominantly influenced for a long time. However, as the world entered the 21st century, Bangladesh began reorienting its trade policies and priorities, seeking new avenues for economic expansion and development. Nonetheless, Bangladesh's robust economic growth, particularly in the ready-made garments (RMG) industry, pharmaceuticals, and agriculture, has made it an attractive trading partner for India and China.

With the progress of the Bangladesh economy, the structure of the economy changes, which leads to changes in the foreign trade. In the last two decades, the service sector has led the economy with more than 50 percent of the share. Moreover, the industry sector becomes the second largest contributor. Industrialization of the economy results in growth in the imports of capital machinery and other related goods. As a result, the country's import basket changed, which contributed to the change in major trade partners.

Since 2004, China has increasingly become a significant participant in Bangladesh's shifting trade dynamics. Its swift economic advancement and the amplification of the Belt and Road Initiative (BRI) have opened up new avenues for Bangladesh in terms of trade, investments, and infrastructure development. Consequently, China has surpassed India in Bangladesh's foreign trade, mainly due to a substantial increase in imports of industrial goods from China and a decline in imports of similar goods from India. China's competitive edge lies in its reasonable pricing, streamlined trade procedures, and swift shipment of goods, granting it a comparative advantage over India in Bangladesh's import market.

This research investigates Bangladesh's changing trade dynamics with India and China, focusing on a detailed analysis of comparative advantages across different commodity groups. Additionally, the study delves into the factors driving the significant shift in Bangladesh's major trade partnership from India to China. The exploration extends to identifying challenges and opportunities arising from this transition, encompassing issues such as trade imbalances, non-tariff barriers, trade diversification, and the potential for increased regional cooperation.

This study has been structured around the following sections. The following section will discuss the study's related literature. Sections 3 and 4 contain the methodology and empirical results, respectively. Finally, we conclude the analysis in the last section.

4.2 Rationale of the study

Trade plays a significant role in the economic development of countries. Analyzing how trade patterns evolve between Bangladesh, India, and China can provide significant insights into economic trends, opportunities, and challenges for Bangladesh. Side-by-side studying the trade dynamics among these neighboring countries can shed light on the prospects for regional economic integration and cooperation. Governments formulate trade policies based on various factors, including trade relations with neighboring countries. By empirically studying the trade dynamics, policymakers can make informed decisions to enhance trade relations, address trade imbalances, and promote economic growth. The study delves into specific commodities that are significant contributors to the trade between these countries. Analyzing commodity-wise trade dynamics can help identify opportunities for specialization, cooperation, and competitiveness. Besides, investigating the evolving

trade relationships can provide insights into the effectiveness and impact of bilateral and multilateral agreements.

Overall, this research aims to provide a comprehensive understanding of the evolving trade dynamics between Bangladesh, India, and China, which is essential for policymakers, economists, and businesses operating in the region.

4.3 Bangladesh's foreign trade with china and india: an overview

China stands as Bangladesh's primary trading partner, making a significant contribution of USD 17.8 billion in FY23 (26.0 percent of total imports), which was 12.1 billion in FY20, with imports accounting for USD 11.5 billion. This import-heavy trade relationship, constituting 25.2 percent of imports in FY20, primarily involves capital machinery, nuclear machinery, cotton, man-made staple fibers, and knitted or crocheted fabrics. India follows as the second-largest trading partner, with a trade volume of USD 9.5 billion in FY23 (13.9 percent of total imports), which was 6.9 billion in FY20, of which USD 5.8 billion was attributed to imports, forming 12.7 percent of the total in FY20. India's exports mainly consist of food items, consumer goods, and intermediate goods.

While exports to China and India have seen incremental growth, their overall share remains modest, at 1.89 percent and 3.18 percent, respectively. Bangladesh's trade balance with these nations is heavily tilted towards imports, warranting attention towards enhancing bilateral trade agreements, particularly in the export of ready-made garments to these significant partners.

Over the past decade, Bangladesh has executed 46 projects under India's three line of credit schemes, with 14 completed projects, primarily focused on buses, trucks, and other vehicles. Simultaneously, China has played a pivotal role in Bangladesh's infrastructure development through various bilateral cooperation agreements and its Belt and Road Initiatives (BRI) strategy. The Padma Bridge Rail Link project, backed by the Chinese government's preferential loan, is the most expensive initiative with a cost of USD 3.14 billion, exemplifying China's substantial involvement. Additionally, China has contributed to other noteworthy projects, including the Bangabandhu International Conference Center, Payra Power Plant, Karnaphuli Multi-Channel Project, and the IV Tier National Data Center.

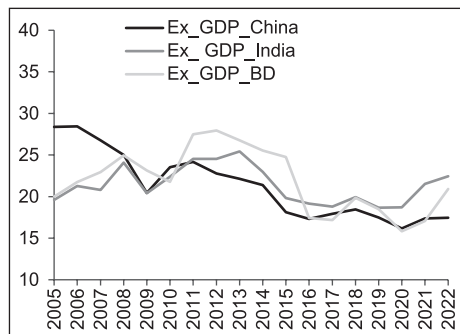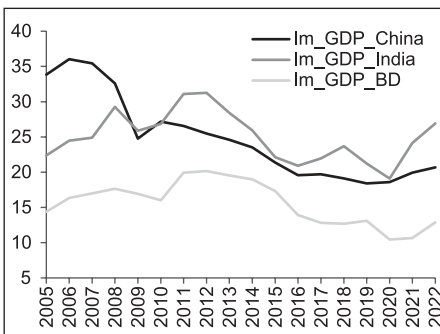Figure 4.1: Exports as percentage of GDP   Figure 4.2: Imports as percentage of GDP

Source: Authors' calculation based on Bangladesh Bank data.

The exports and imports (as a percentage of GDP) of Bangladesh, along with its major trade partners China and India, are shown in the above figure. The chart shows that very recently, the foreign trade of the countries has been decreasing following the China-US trade war, together with the outbreak of the COVID-19 pandemic.

4.4 Review of literature

Several studies have delved into Bangladesh's foreign trade relations with India and China, with a particular focus on understanding the shifts in trade dynamics from India to China. For instance, Alam et al. (2009) conducted research on the impact of changes in price levels on the exchange rate, employing purchasing power parity (PPP) as the analytical framework. Their study encompassed an examination of Bangladesh's trade patterns with both India and China. However, the study fell short of providing a comprehensive justification for the causes behind the observed changes in the trade pattern.

In a separate investigation, Datta (2021) explored trilateral cooperation among Bangladesh, India, and China. The analysis primarily centered on various trade-related series. Notably, this study placed a greater emphasis on institutional and diplomatic factors rather than delving deeply into economic factors as key determinants of the observed trade dynamics.

Basu and Datta (2007) utilized various trade-related indices to investigate the persistent bilateral trade deficit between Bangladesh and India. Their study revealed similarities in the exports of both countries, highlighting a competitive environment with a random nature of exports. Additionally, the research identified remittance inflows and exchange rates as significant

factors influencing exports. In a separate analysis spanning from 1995 to 2018, Hossain (2021) scrutinized the structure and trends of the bilateral trade deficit between Bangladesh and China. The findings underscored the importance of enhancing intra-industry trade between the two nations, suggesting diversification of Bangladesh's export basket to China.

Examining bilateral trade between Bangladesh and India, Islam (2019) employed aggregated and disaggregated data, utilizing the Revealed Comparative Advantage (RCA) for different commodity groups to explain inter-industry trade. The results indicated that India possessed a comparative advantage in a greater number of product groups compared to Bangladesh. Kabir (2017) delved into the bilateral trade between Bangladesh and China, using various trade indicators for the period of 2012-2015 and offering insights into the trade relationship. Prabir et al. (2012) employed trade-related indices and the Gravity model in both static and dynamic frameworks to examine trade relations between India and Bangladesh. Their findings suggested mutually beneficial trade opportunities by opening markets to each other.

Sahoo (2013) analyzed parameters influencing the increasing merchandize trade of China and the declining trend with India in Bangladesh. Results revealed that China had overtaken many industries from India in Bangladesh's foreign trade, and the author proposed policies to address the imbalance in India's position.

However, none of the aforementioned studies analyzed trade dynamics at the commodity group level; instead, they focused on overall trade. Additionally, the causes behind these trade dynamics were not explored. The current study aims to contribute to existing literature by analyzing the comparative advantage of Bangladesh with India and China, focusing specifically on the commodity group level, which will guide policy decisions and support business. Furthermore, the analysis seeks to uncover the reasons behind China's growing trade with Bangladesh in comparison to India.

4.5 Methodology

This study relies on secondary data from the Bangladesh Bank. By utilizing data spanning from FY07 to FY22, various indices related to trade were computed to scrutinize trade dynamics. The decision to limit the data until FY20 is driven by the intention to mitigate the influence of the COVID-19 pandemic on trade patterns. It's noteworthy that FY20 data incorporates

information until June 2020, thereby allowing for the exclusion of the COVID-19 impact through the chosen sample period ending at FY20.

Trade Intensity Index: The trade intensity index, a widely utilized metric for assessing bilateral trade (Brown, 1949; Komija, 1964), offers a means of gauging trade relations without the influence of comparative trade size biases. The index comprises two distinct segments: export and import intensity indices. With values either exceeding or falling below one, a reading greater than one signifies trade surpassing expected levels, while a value less than one suggests trade is relatively weaker or below anticipated levels.

Export intensity index: The export intensity index is calculated as the ratio of a trading partner's share in a country's total exports to the share of world exports directed to that trading partner. The calculation is performed using the following formula:

$$\text{EXII} = \frac{\frac{X_{bj}}{X_b}}{\frac{M_j}{(M_w - M_b)}}$$

where X_{bj} is Bangladesh's Export to j country. Here, j indicates two major trade partners (China & India) of Bangladesh. X_b is the total export of Bangladesh, M_j is the total import of j country, M_b is the total import of Bangladesh, and M_w is the global import.

Import intensity index: It can be measured by the ratio of a trading partner's share to a country's total imports to the share of world imports to the trading partner. It is calculated by using the formula given below:

$$\text{IMII} = \frac{\frac{M_{bj}}{M_b}}{\frac{X_j}{(X_w - X_b)}}$$

where M_{bj} is Bangladesh's Import from j country. Here, j indicates two major trade partners (China & India) of Bangladesh. M_b is the total import of Bangladesh, X_j is the total export of j country, X_b is the total export of Bangladesh and X_w is the global export.

Intra-Industry Trade: Intra-Industry Trade (IIT) takes place when a country is involved in both importing and exporting similar types of products within a specific industry or sector. This strategy allows a country to streamline its production of similar goods, taking advantage of economies of scale. Elevated IIT ratios signify effective utilization of these potential gains. The IIT index quantifies the extent of overlap between a

country's imports and exports within the same commodity category. A value of 1 (one) denotes pure intra-industry trade while a value of 0 (zero) signifies pure inter-industry trade, reflecting the exchange of goods across different industries between countries. Intra-industry trade of a particular industry 'j' can be measured by the formula given below:

IIT$_j$= 1- [$\|X_{bj} - M_{bj}\|/(X_{bj} + M_{bj})$]

M_{bj} is the Import of commodity group j by Bangladesh and X_{bj} is the export of commodity group *j* by Bangladesh.

Export specialization index: It can be measured by the ratio of the share of the product in a country's total exports to that of its total imports of that country. It is calculated as

$$\textbf{EXSI} = \frac{\frac{X_{bj}}{X_{bt}}}{\frac{M_{ij}}{M_{it}}}$$

where X_{bj} is the export value of product *j* in Bangladesh and X_{bt} is the total export of Bangladesh. M_{ij} is the total export of country *i*, indicating two major trade partners (China & India) of product j, X_{it} is the total export of i countries (China and India). The value of the index can be from zero to one, where zero indicates no comparative advantage in the specific market and one indicates full specialization in the market.

RCA type index: The revealed comparative advantage of a particular product 'j' can be measured as the trade gap of the product divided by the total exports and imports of that product. Positive value indicates a comparative advantage, and negative value indicates a comparative disadvantage.

$$RCA_j = (X_j - M_j)/(X_j + M_j)$$

where X_j is the export values of Bangladesh in product j and M_j is the total import of the country Bangladesh in product *j*. The value of the index can be positive or negative, where a positive value indicates a comparative advantage in the specific product group and a negative value indicates a comparative disadvantage in the specific product group.

Visvizi-Wosiek RCA index: To overcome the limitations of the RCA index, Visvizi and Wosiek (2021) modified the index by using the formula given below.

$$\textbf{VWRCA} = \frac{EX_i^j}{IM_i^j} : \frac{\sum_{i=1}^{n} EX_i^j}{\sum_{i=1}^{n} IM_i^j}$$

EX_i^j are the exports of a j group of products of the economy **i** and IM_i^j is the imports of a j group of products of the economy i. The larger the value of the index, the greater the comparative advantage.

4.6 Influence of economic structure on trade dynamics

To explore the impact of economic transformation on the trade dynamics, we conduct a regression analysis, regressing the ratio of share of imports from China to India on the ratio of the industry's share in GDP to the share of agriculture in GDP, controlling for other macroeconomic variables. A positive relationship in the regression results would imply that as Bangladesh's economy undergoes industrialization, there is an increase in imports from China compared to India. The study uses time series data for Bangladesh's Economy covering 1989-2022. Data were collected from the World Development Indicators (WDI) data set of the World Bank and Bangladesh Bank (BB).

For the reliability of the result, we use both ADF and PP tests to check the unit root. Then we use the autoregressive distributed lag (ARDL) bound test method originated by Pesaran and Shin (1999) and expanded by Pesaran, Shin, and Smith (2001) to look at the long-term relationship. We shall calculate the effect of structural transformation on trade dynamics while accounting for some macroeconomic factors.

If the bound test shows that a long-term relationship exists, we can estimate that relationship using the equation below.

$$Chi\_Ind_t = \delta_0 + \sum_{i=1}^{p} \alpha_{1i}\ Chi\_Ind_{t-i} + \sum_{i=0}^{k} \beta_{1i}\ Ratio_{t-i} + \sum_{i=0}^{q} \gamma_{1i}\ LEx_{t-i} + \sum_{i=0}^{l} \theta_{1i}\ Lopen_{t-i}$$
$$+ \sum_{i=0}^{j} \varphi_{1i}\ Tariff_{t-i} + \varepsilon_{1t}$$

Here, p, k, q, l, and j are the optimal lags of the respective variables.

where,

Variable	Definition	Source
Chi_Ind	The Ratio of Import from China to Import from India	WDI
LEx	Log of Exchange Rate BDT per USD	WDI
LFDI	Log of FDI net inflow from China	Bangladesh Bank
Lopen	Log of Trade openness	WDI
Ratio	Ratio of the share of industry on GDP to share of agriculture on GDP	WDI
Tariff	Tariff Rate (simple mean)	WDI

4.7 Empirical results

This section presented the empirical findings of the study. Initially, we discussed various trade-related indices, including export and import intensity indices, including export and import intensity indices, export specialization index, and intra-industry trade indices. We then explored the analysis of revealed comparative advantage based on commodity groups. Finally, we examined the impact of economic transformation on trade dynamics using a standard regression model.

The data presented in Table 4.1 showed the export and import intensity between Bangladesh and two of its key trading partners, India and China, for the period 2007-2022. Bangladesh's export intensity to India gradually decreased and reached a minimum in 2014, after which it began to increase and became its highest in 2020. During the sample period, BD exports to India were below the expected level except for 2020 and 2021 (during the pandemic period).

Figure 4.3: Import intensity   *Figure 4.4: Export intensity*
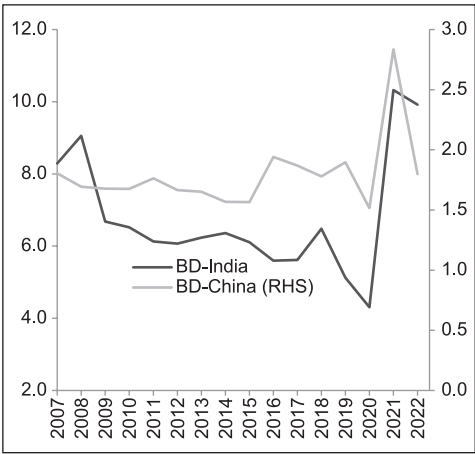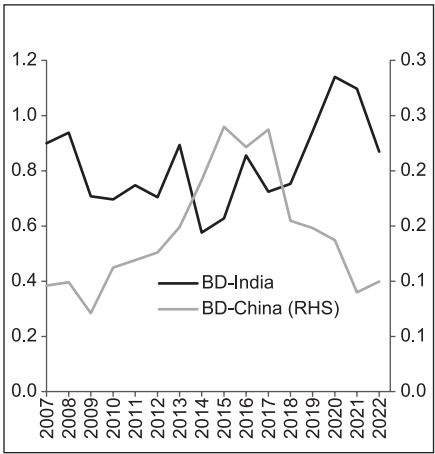
Source: Author's Calculation.   Source: Author's Calculation.

The export intensity value of Bangladesh to China is notably low, indicating that Bangladesh's export level to China lags behind China's global market share. Bangladesh's export intensity to China peaked in 2015 but has since declined, reaching 0.10 in 2022. This declining trend suggests a failure on Bangladesh's part to diversify its exports to the Chinese market.

On the other hand, the import intensity of Bangladesh from India has gradually decreased, hitting a minimum in 2020. Throughout the

observation period, Bangladesh's imports from India exceeded the expected level, with values greater than one. This indicates that Bangladesh's imports from India have gradually decreased, evidenced by a decline in the share of total imports from 15.65% in 2008 to 11.90% in 2020.

Meanwhile, the import intensity of Bangladesh from China surpasses one, indicating that Bangladesh's import level from China exceeds China's global market share. Bangladesh's import intensity from China has gradually increased, peaking in 2021 with a mixed trend over the sample period. The upward trend suggests a gradual increase in Bangladesh's imports from China, reflected in the rise in the share of total imports from 17.79% in 2007 to 25.6% in 2022. This trend implies that China is diversifying its exports to the Bangladesh market.

4.8 Commodity-wise analysis

Bangladesh has Intra-industry trade with India among the following groups of commodities: live animals and animal Products, wood and articles of wood, raw hides and skins—leather and articles thereof, footwear, headgear, umbrellas, and parts thereof, textiles and textile articles. Among them, the intensity of intra-industry trade of commodity groups, such as live animals and animal products, and wood and articles of wood, has decreased, and the intensity of other commodity groups has increased.

In bilateral trade with India, Bangladesh has high export specialization on Animal or Vegetable fats and Oils and their cleavage products and low specialization on commodity groups live animals and animal products, raw hides and skins—leather and articles thereof, footwear, headgear, umbrellas, and parts thereof.

Bangladesh has a comparative advantage in the two product groups, animal or vegetable fats and oils and their cleavage products, as well as footwear, headgear, umbrellas, and parts thereof, in the trade with India. Moreover, the comparative disadvantage of some product groups has decreased. These product groups are prepared foodstuffs, plastics & rubber articles, textiles & textile articles, and pulp of wood or other fibrous cellulosic material.

Bangladesh has intra-industry trade with China in the three groups of commodities, such as animal or vegetable fats and oils and their cleavage products, wood and articles of wood, raw hides and skins, and leather and articles thereof. Among them, the intensity of intra-

industry trade of commodity groups live animals and animal products, base metals and articles of base metals, and plastics and rubber articles thereof has decreased and that of the others commodity groups, such as textiles and textile articles and footwear, headgear, umbrellas, and parts thereof has increased.

In bilateral trade with China, Bangladesh has high export specialization on live animals and animal products and low specialization on commodity groups animal or vegetable fats and oils and their cleavage products, raw hides and skins—leather and articles thereof, textiles & textile articles, and wood and articles of wood.

Bangladesh has a comparative advantage in the product groups Live Animals and animal Products. moreover, the comparative disadvantage of some product groups has been decreased. these product groups are animal or vegetable fats and oils and their cleavage products, wood and articles of wood, and footwear, headgear, umbrellas, and parts thereof.

4.9 Relationship of trade dynamics with the changing structure of the economy

In the empirical analysis, we use time series data. First, we describe the basic characteristics of the data. Table 4.1 shows the descriptive statistics of each variable.

Table 4.1: Descriptive statistics

	CHI-IND	RATIOA-I	LEX	LNFDI	LOPEN	TARIFF
Mean	1.163	1.465	1.774	0.716	1.465	32.643
Median	1.242	1.295	1.822	0.424	1.469	15.290
Maximum	1.983	3.023	1.962	3.064	1.673	105.36
Minimum	0.172	0.647	1.508	-0.959	1.216	11.670
Std. Dev.	0.425	0.699	0.135	1.040	0.126	31.569
Skewness	-0.275	0.902	-0.443	0.641	-0.303	1.389
Kurtosis	2.418	2.637	1.831	2.370	2.386	3.239
Jarque-Bera	0.910	4.802	3.050	2.892	1.053	11.027
Probability	0.634	0.091	0.217	0.235	0.591	0.004
Observations	34	34	34	34	34	34

Before running the regression model, we have to check the stationarity of the time series data. We use the Augmented Dicky-Fuller (ADF) and Phillips-Parron (PP) tests to check the unit root.

Table 4.1 (Appendix) represents the result of the unit root tests. Among the six variables, the ADF test shows that two variables, Chi_Ind and Tariff, are stationary at a level that is integrated of order zero I(0). The remaining four variables, LEx, LFDI, Lopen, Ratio and Tariff, are stationary at the first difference, which is integrated into order one I (1). The results of the PP test also provide the same integration level of the variables.

Since some variables are I(0) and others are I(1), the appropriate econometric model to find the long-run relationship is the ARDL bound test approach. Table 4.3 (Appendix) reports the result of the bound test. The estimated value of the F-statistic is 7.55, which is larger than the Upper bound value at any significance level. The result indicates the existence of a long-run relationship among the variables.

Table 4.2: ARDL long run relationship

Variables	Coefficients	Standard Errors
LEx	13.9908	9.771
LFDI	0.596	0.478
Lopen	**7.375@**	**2.841**
Ratio	**3.888@**	**1.555**
Tariff	-0.004	0.007
Constant	-30.213	17.236
Trend	**-0.567***	**0.288**
ECT	**-0.955#**	**0.207**
Adjusted R2	**0.727**	

Note: *# indicate significant at 1 percent, @ indicates significant at 5 percent l and * indicates significant at 10 percent.*

The estimates of the long-run ARDL model with robust standard errors are reported in Table 4.4. The findings indicate that the structural transformation of the Bangladesh economy, measured by the ratio of the share of industry to the share of agriculture in GDP, resulted in a divergence of imports from India toward China. More specifically, an increase in the ratio of the share of industry to share of agriculture in GDP, on average, significantly increases the import from China compared to India by 3.9 percentage points.

In addition, trade openness promotes Bangladesh's import from China by 7.4 percentage points and is statistically significant at 5%. The coefficient of the time trend is also significant at even 1%. The coefficient of the Error correction term is -0.96 and statistically significant at 1% significance level.

That is, any short-run disequilibrium will be corrected within almost one year. The effects of other variables are not significant. The value of the adjusted R2 is 0.727, which indicates that 73 percent of the variation in the dependent variable can be explained by the regression model.

To check the reliability of the result, we use different diagnostic tests, and the results are shown in Table 4.5. The tests of heteroskedasticity and serial correlation indicate that both models are free from the problems of heteroskedasticity and autocorrelation at 5 percent level. Finally, the Ramsey RESET test results are statistically insignificant, which means the model is correctly specified.

4.10 Policy implications

Given the declining intensity of intra-industry trade in commodity groups such as Live Animals and animal Products, and Wood and Articles of Wood, Bangladesh needs to prioritize diversifying its export portfolio. Policies should encourage a broader range of products to reduce reliance on specific commodities. Notably, Bangladesh shows strong export specialization in Animal or Vegetable fats and Oils and their cleavage products in trade with India, and Live Animals and animal Products in its dealings with China. Strengthening this specialization requires targeted government support, including investment incentives, infrastructure development, and improved market access. While comparative disadvantages have lessened in some product categories over time, efforts should persist in addressing remaining weaknesses, particularly in Textiles & textile Articles and Wood and Articles of wood. Policies should promote collaboration within industries to enhance competitiveness and productivity. Moreover, measures to streamline trade procedures, reduce tariffs, and upgrade logistics infrastructure are crucial to capitalize on increasing intra-industry trade intensity. Diversifying export destinations beyond India and China is essential to mitigate risks associated with market dependence, with exploration of opportunities in emerging markets and bolstering trade agreements with other nations being key strategies. Through these policy measures, Bangladesh can optimize its trade relations, bolster export competitiveness, and drive sustainable economic growth.

4.11 Conclusion

Bangladesh's trade dynamics with India and China have undergone significant evolution, influenced by factors such as economic growth, infrastructure development, policy reforms, and geopolitical

considerations. Understanding these changes is crucial for policymakers to seize opportunities and tackle challenges in the evolving regional trade landscape. The empirical analysis revealed a shifting pattern of trade dynamics, with Bangladesh's exports to India gradually increasing over the sample period, albeit below expected levels, while exports to China peaked in 2017 before declining. Meanwhile, imports from India decreased gradually, reaching a minimum in 2020, whereas imports from China showed a steady increase, indicating China's growing export diversification into the Bangladeshi market. Export specialization indices highlighted Bangladesh's strengths in specific product groups with each country, reflecting comparative advantages in sectors like Animal or Vegetable fats and Oils and their cleavage products, as well as Live Animals and animal Products. The study also underscored the positive impact of structural changes in Bangladesh's economy on the shift from India to China as the leading trade partner. As Bangladesh strives to enhance its role in regional trade, emphasis on bilateral agreements with India and China, particularly in light of recent tariff exemptions, is crucial for further export growth. Positioned as a pivotal player in South Asia's evolving trade dynamics, Bangladesh's strategic realignment in trade relationships underscores its growing significance in regional and global affairs, making it imperative for stakeholders to grasp the reasons and consequences of this transformative shift.

Appendix

Table 1:   Unit root test

Variables	ADF Test			PP Test		
	Level (constant & trend)	First difference (constant & trend)	Decision	Level (constant & trend)	First difference (constant & trend)	Decision
Chi_Ind	-3.966**		I (0)	-3.740***		I (0)
LEx	-1.632	-4.626***	I (1)	-1.579	-5.029***	I (1)
LFDI	-3.051	-6.538***	I (1)	-2.921	-22.285***	I (1)
Lopen	-1.287	-5.813***	I (1)	-1.287	-5.891***	I (1)
Ratio	-0.259	-5.407***	I (1)	-0.284	-5.401***	I (1)
Tariff	-37.160***		I (0)	-2.911*		I (0)

Table 2:   Diagnostic tests

	Test Statistic	Baseline
Serial Correlation LM test	F-statistic	3.84 (0.0514)
Heteroskedasticity	F-statistic	1.593 (0.192)
Ramsey RESET Test	F-statistic	1.157 (0.302)

Table 3:   Cointegration/bound test for long run relationship

Test Statistic	Baseline	Significance Level	Lower Bound I (0)	Upper Bound I (1)
F-test	7.55	10%	2.75	3.79
		5%	3.12	4.25
		1%	3.93	5.23

Table 4:   ???????????

	Export Intensity		Import Intensity	
Year	BD-India	BD-China	BD-India	BD-China
2007	0.90	0.10	8.29	1.80
2008	0.94	0.10	9.05	1.69
2009	0.71	0.07	6.68	1.68
2010	0.70	0.11	6.52	1.67
2011	0.75	0.12	6.13	1.76
2012	0.70	0.13	6.07	1.67
2013	0.89	0.15	6.24	1.65
2014	0.58	0.19	6.36	1.57
2015	0.63	0.24	6.11	1.57
2016	0.85	0.22	5.59	1.94
2017	0.72	0.24	5.61	1.87
2018	0.75	0.15	6.48	1.78
2019	0.94	0.15	5.12	1.90
2020	1.14	0.14	4.31	1.52
2021	1.10	0.09	10.32	2.83
2022	0.87	0.10	9.92	1.80

Table 5:   Commodity group wise analysis

BD-INDIA	Intra-Industry Trade			ESI			VWRCA-INDIA			RCA		
	FY22	FY20	FY10	FY22	FY20	FY10	FY22	FY20	FY10	FY22	FY20	FY10
Live Animals and animal Products	0.62	0.76	0.87	0.12	0.14	0.17	0.64	1.14	1.23	-0.38	-0.24	-0.13
Animal or Vegetable fats and Oils and their cleavage products	1.98	0.02	0.00	22.05	24.04	0.00	121.8	202.1	0.00	0.98	0.98	-1.00
Prepared foodstuffs	0.25	0.29	0.08	0.04	0.04	0.01	0.20	0.31	0.06	-0.75	-0.71	-0.92
Mineral Products	0.06	0.11	0.24	0.01	0.01	0.03	0.05	0.11	0.22	-0.94	-0.89	-0.76
Products of the Chemical or Allied Industries	0.15	0.08	0.06	0.02	0.01	0.01	0.11	0.08	0.05	-0.85	-0.92	-0.94
Plastics & Rubber Articles Thereof	0.12	0.09	0.03	0.02	0.01	0.00	0.09	0.09	0.03	-0.88	-0.91	-0.97

(Contd.)

(Table 5 continued)

BD-INDIA	Intra-Industry Trade			ESI			VWRCA-INDIA			RCA		
	FY22	FY20	FY10	FY22	FY20	FY10	FY22	FY20	FY10	FY22	FY20	FY10
Wood and Articles of wood; wood charcoal; cork and articles of cork	0.44	0.24	0.52	0.07	0.03	0.08	0.41	0.25	0.56	-0.56	-0.76	-0.48
Pulp of wood or of other fibrous cellulosic material;	0.09	0.18	0.01	0.01	0.02	0.00	0.07	0.19	0.01		-0.82	-0.99
Textiles & textile Articles	0.28	0.50	0.35	0.05	0.07	0.05	0.24	0.61	0.34	-0.91	-0.50	-0.65
Footwear, Headgear, Umbrellas, and parts thereof	1.44	0.97	0.13	0.67	0.23	0.01	3.70	1.96	0.11	0.44	0.03	-0.87
Articles of stone, plaster, cement, Asbestos, mica or similar materials,	0.63	0.15	0.45	0.12	0.02	0.06	0.66	0.15	0.47	-0.37	-0.85	-0.55
Natural or Cultured pearls, Precious or semiprecious stones, and articles thereof,	00	0.03	0.07	0.00	0.00	0.01	0.00	0.03	0.06	-1.0	-0.97	-0.93
Base Metals & Articles of Base Metals	0.18	0.15	0.19	0.03	0.02	0.02	0.14	0.15	0.17	-0.82	-0.85	-0.81
Machinery and Mechanical appliances; electrical equipment; parts thereof;	0.06	0.01	0.02	0.01	0.00	0.00	0.04	0.01	0.02	-0.94	-0.99	-0.98

Table 6:   Commodity group wise analysis

BD-CHIN	Intra-Industry Trade			ESI			VWRCA			RCA		
	FY22	FY20	FY10	FY22	FY20	FY10	FY22	FY20	FY10	FY22	FY20	FY10
Live Animals and animal Products	0.36	0.12	0.81	1.68	6.77	0.38	6.58	28.69	2.36	0.64	0.88	0.19
Vegetable Products	0.06	0.07	0.06	0.01	0.01	0.01	0.05	0.06	0.05	-0.94	-0.94	-0.94
Animal or Vegetable fats and Oils and their cleavage products	0.03	0.47	0.00	0.01	0.13	0.00	0.03	0.57	0.00	-0.97	-0.53	-1.00
Prepared foodstuffs	0.01	0.02	0.04	0.00	0.00	0.01	0.04	0.02	0.03	-0.94	-0.98	-0.96
Mineral Products	0.05	0.01	0.11	0.01	0.00	0.02	0.04	0.01	0.10	-0.95	-0.99	-0.89
Products of the Chemical or Allied Industries	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.00	-0.99	-0.98	-1.00
Plastics & Rubber Articles Thereof	0.02	0.03	0.26	00	0.01	0.04	0.02	0.02	0.24	-0.98	-0.98	-0.75
Raw hides and Skins, Leather and articles thereof	0.98	0.74	0.63	0.35	0.26	0.56	1.38	1.09	3.51	-0.02	-0.26	0.37
Wood and Articles of wood; wood charcoal; cork and articles of cork	0.47	0.47	0.03	0.11	0.14	0.00	0.01	0.57	0.03	-0.54	-0.53	-0.97
Pulp of wood or of other fibrous cellulosic material;	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	-0.989	-1.00	-0.99
Footwear, Headgear, Umbrellas, and parts thereof	0.40	0.13	0.04	0.09	0.03	0.01	0.36	0.12	0.03	-0.601	-0.875	-0.960
Articles of stone, plaster, cement, Asbestos, mica or similar materials,	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.02	0.01	-1.0	-0.982	-0.985
Base Metals & Articles of Base Metals	0.08	0.00	0.11	0.02	0.00	0.02	0.06	0.00	0.09	-0.919	-0.998	-0.889

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