Navigating LDC graduation: Modelling the impact of RCEP and CPTPP on Bangladesh

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Abstract

Bangladesh will graduate from the LDC list by 2026. Currently Bangladesh's exports of readymade garments (RMG) benefit from international support measures which allows preferential trade in major export destinations, such as the EU. After graduation, Bangladesh's exports, in particular RMG, will face competition from mega trading blocs, such as RCEP and CPTPP. This paper employs a CGE GTAP model to estimate the impact of Bangladesh's graduation from the LDC category and how mega FTAs are likely to affect Bangladesh's exports (sectoral and total) and potential welfare. The model also considers the scenarios of either USA or the UK, or both joining the CPTPP. The model results show that Bangladesh's graduation will lead to a fall in GDP and RMG exports by 1.53% and 11.8%, respectively. The negative impact is magnified when we factor in the mega-trading blocs. Further negative impacts are observed when either USA or the UK, or both join the CPTPP.

JEL Classification: F0, F13, F14, F15, F17
Keywords: Bangladesh; LDC graduation, mega trading blocs, RCEP, CPTPP, GTAP, CGE Model

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1. Introduction

Bangladesh, a Least Developed Country (LDC) in South Asia, met the graduation thresholds in 2018, it was included in the LDC list in 1975.[1] In the 2021 triennial review, Bangladesh successfully met the recommended threshold for graduation, and is expected to graduate from the LDC list in 2024 after a three-year preparatory period. Considering the impact of the COVID-19 pandemic and its consequences, the United Nations has recommended Bangladesh for a five-year preparatory period (UN, 2021).[2] If approved, Bangladesh will graduate from the LDC group within five years of United Nations (UN) resolution.[3] As an LDC, Bangladesh enjoys a range of International Support Measures (ISMs) for trade and development, including (i) preferential market access for goods, (ii) preferential market access for services and services suppliers, (iii) special treatment and flexibilities under WTO rules, (iv) special treatments under regional agreements, and (v) trade-related technical assistance and capacity building (UNDESA, 2020). After graduation, Bangladesh will not be eligible for ISMs.

Currently Bangladesh's major exports benefit from zero tariff preferences and flexible rules of origin (ROO) in major export destinations such as the European Union (EU), Australia, Canada, Japan, amongst others. After graduation, Bangladeshi exports to the EU and other major markets will lose preferential treatment and face higher tariffs as well as more binding regulations, including a stringent ROO.[4] The existing mechanism allows a three year period after graduation. Further, Bangladesh's exports are likely to face competition in the regional and international markets from the mega trading blocs, such as Regional Comprehensive Economic Partnership (RCEP) and Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), also termed TPP-11. These new arrangements are likely to make Bangladesh's exports less competitive (Razzaque, 2018a). Studies exploring the impact of LDC graduation on Bangladesh economy use partial equilibrium (Razzaque and Rahman, 2019; Rahman and Bari, 2018, UN DESA, 2020) and country computable general equilibrium (CGE) models (General Economics Division, 2020). For example, Aprilianti (2021) examines the effects of RCEP and CPTPP on Indonesia; Li and Moon (2018) examine the impact of RCEP on China and South Korea; Hieu (2021) explores the impact of CPTPP for Vietnam; Itakura (2015) and Suvannaphakdy (2021) examine the impacts of the RCEP on the ASEAN member states; Petri and Plummer (2020) examine the impacts of RCEP and CPTPP for East Asia; Itakura and Lee (2019) and Kawasaki (2015) estimates the impacts of the RCEP and CPTPP for member

[1] The Least Developed Countries (LDCs) are low-income countries with high vulnerabilities to economic and environmental shocks and have low levels of human assets (UN, 2020). Graduating from the LDC list requires improvement in two of the three dimensions, namely income criterion, human asset index (HAI), and Economic Vulnerability Index (EVI), for two consecutive triennial reviews.

[2] Such extension in the preparatory period is not unusual. For instance, in 2015 the General Assembly extended the preparatory period of Angola's LDC graduation by five years (UN DESA, 2018). Maldives, Samoa, and Vanuatu also saw an extension in their graduation period due to natural calamities.

[3] As such, if the UN resolution is adopted on 14 December 2021, the date of graduation for Bangladesh will be 14 December 2026.

[4] Assuming Bangladesh graduates in December 2026, it will be eligible for EBA until December 2029.

countries in the Asia-Pacific, among others. Others examine the impacts of trade blocs on non-member countries, such as Pakistan (Khan, Zada and Mukhopadhyay, 2018), India (Kumar and Chatterjee, 2016) and even South Asia as a region (Rahman and Ara, 2015). None of these studies examine the impact of mega-trading blocs or Bangladesh's LDC graduation with a global CGE model.

This study examines the impact of graduation and mega FTAs on Bangladesh's exports and GDP. In particular, we focus on the new constellation of members in the CPTPP (e.g. United Kingdom) but exclude the United States (USA), as these may substantially alter the trade effects for Bangladesh. This study has a two-fold focus. First, how is the impending graduation likely to impact Bangladesh's sectoral and total exports and the welfare impacts on the economy? Second, what are likely macroeconomic impacts of the new trade regimes in the scenario of LDC graduation and mega-trading blocs such as RCEP and CPTPP.

This study uses CGE analysis with the Global Trade Analysis Project (GTAP) model (GTAP version 10). Five scenarios are simulated. The first examines the impact of LDC graduation. The impact of RCEP has been studied in the second simulation. In the third simulation, alternative scenarios have been considered, such as (a) impact of CPTPP only; (b) impact of CPTPP if the USA re-joins the bloc; (c) impact of CPTPP if the UK joins the group; and (d) impact if both USA and UK join the CPTPP. The fourth simulation includes the impact of RCEP and LDC graduation, while the last examines the impact of both CPTPP and LDC graduation on Bangladesh.

The paper is organised as follows. Section two contextualises the mechanics of LDC graduation and the changing trade landscape for Bangladesh due to mega-trading blocs. Section three discusses the methodology, including the global CGE model, the underlying assumptions, and the simulation scenarios. Section 4 presents the simulation results. Section 5 concludes and suggests a set of policy recommendations for Bangladesh.

2. Background and context

2.1. LDC graduation and Bangladesh

As part of the preferential market access, merchandise exports enjoy duty-free, quota-free market access with favourable ROO (UN, 2020). Bangladesh is a beneficiary of the Generalised Systems of Preference (GSP) scheme in 13 different countries/territories (Annex Table A.1).[5] After graduating, Bangladesh will have access to the standard GSP schemes. Products not included under the GSP will face most favoured nation (MFN) tariffs or applicable preferential tariffs under multilateral or bilateral agreements (UNDESA, 2020).

Global imports from Bangladesh increased from $6.7 billion in 2001 to $47 billion in 2019 (Table 1). However, Bangladesh's major export market is highly concentrated around a few countries/regions. In 2019, more than half of Bangladesh's total exports were to the EU (56%) only. The other major export destinations include the United States (17%), Japan (3%), Canada (3%), India (3%), China (2%), and Australia (2%). The total volume of exports to other countries

[5] https://www.un.org/ldcportal/preferential-market-access-for-goods/; accessed on 10 May 2021

that provides LDC specific preferences account for another 5% of Bangladesh's total exports under 1707 tariff lines (UNDESA, 2020).

Table 1: Trend of Import from Bangladesh by country (US$, million)

Year	Australia	Canada	China	EU	India	Japan	UK	USA	World
2001	28	123	17	3,373	64	115	845	2,359	6,683
2002	28	105	32	3,480	56	112	908	2,286	6,780
2003	32	251	33	4,682	72	132	1,201	2,213	8,179
2004	38	378	57	6,116	69	142	1,545	2,465	10,139
2005	39	405	79	5,840	104	152	1,372	2,881	10,454
2006	32	479	99	7,638	224	160	1,696	3,497	13,374
2007	35	507	114	8,114	233	175	1,759	3,635	14,264
2008	49	612	132	9,736	330	200	1,895	3,983	17,133
2009	125	711	141	10,107	234	264	1,903	3,886	17,615
2010	141	813	269	11,179	358	375	2,072	4,541	20,680
2011	251	1,072	449	15,202	579	563	2,795	5,083	27,001
2012	387	1,132	480	14,697	567	719	2,700	4,916	27,436
2013	448	1,157	602	16,904	531	892	2,913	5,353	30,855
2014	502	1,109	761	19,067	517	937	3,140	5,475	33,660
2015	636	1,159	817	19,630	640	1,081	3,540	6,226	35,705
2016	660	1,224	869	21,438	677	1,216	3,521	6,120	37,892
2017	665	1,270	875	23,416	592	1,168	3,568	5,890	40,482
2018	735	1,326	985	26,318	1,080	1,443	3,718	6,329	45,228
2019	798	1,484	1,036	27,015	1,214	1,474	3,927	6,918	46,951
2020	754	1,182	800	23,602	1,024	1,314	3,052	6,308	39,350

Source: WITS database

The largest gains were in the EU (European Commission 2018a, 2018b). Between 2001 and 2010, EU imports from Bangladesh increased from US$3.4 billion to US$20.7 billion. However, following change in the EU regulations on the ROO for LDCs which required single-stage transformation for RMG Bangladesh's export jumped to $47 billion in 2019 (European Union, 2020b). Bangladesh is the largest exporter amongst the EBA receiving countries. Of all imports under EBA, 61.8% were from Bangladesh in 2018. Bangladesh's overall utilisation rate was 96.8% in 2018. But more than 90 per cent of Bangladesh's exports to the EU constitute RMG only (Annex Table A.3).[6]

Under the current EU-GSP framework, Bangladesh will be eligible for the GSP scheme after the preparatory period (UNDESA, 2020), i.e. Bangladesh will face stringent rules of origin and higher tariff lines for the major export items (Annex Table A.5). Bangladesh could enjoy zero tariffs on current export items if it gets the GSP+ benefits in the EU.[7]

A similar situation is expected in other major markets. For instance, in Canada, Bangladesh will face standard GSP, which does not cover Bangladesh's current major exports (UN DESA, 2020; Razzaque, Akib and Rahman, 2020). The average tariff ranges between 16%-18% for the HS chapters 61, 62, 63, and 64. In Japan, RMG (HS 61, 62) is not covered by the standard

[6] Other major export items from Bangladesh to the EU include footwear, jute and jute goods, fish, leather and leather goods, etc. The pattern is identical in Australia, China, India, Japan, the UK and the USA (Annex Table A.4).

[7] Under the present scenario, Bangladesh does not qualify for the GSP+ schemes due to several reasons (UNDESA, 2020). First, the share of EU imports from Bangladesh of the GSP-covered items needs to be below 6.5%, which was 17% in 2018. And second, Bangladesh has not yet ratified the ILO's Convention concerning Minimum Age for Admission to Employment (No. 138, 1973), a prerequisite.

GSP, and the tariff lines range between 7.4%-12.8% under MFN. Under the GSP scheme, Bangladeshi RMG exports will face MFN tariff rates of 5% in Australia. Bangladesh will also lose preferential market access to other countries such as India, China, and Turkey (Planning Commission of Bangladesh, 2015). Tariffs on most exports would be 0-10% in India and 6-14% in China (UNDESA, 2020).

On ROO, the general threshold for non-originating materials for LDCs is 70% and 50% for the GSP beneficiaries. in textile and apparel products, the ROO permits single-stage processing for the LDCs while it requires double transformation for the developing countries. After graduation, Bangladesh will not be eligible for flexible ROO, garments produced with imported fabric will not qualify and face 12% MFN tariffs. However, Bangladesh could use the regional cumulation provision under EU regulations by sourcing inputs from SAARC countries (UNDESA, 2020). Bangladesh will also face stringent rules of origin in Canada (less than 40% import contents, double transformation) and Australia.

Further, Bangladesh will not enjoy preferential treatment for services and services suppliers, special and differential treatment (SDT) in the implementation of commitments under regional agreements, or special treatment on obligations and flexibilities under WTO rules. Given Bangladesh's participation in services trade is very low, the macroeconomic consequences will be minimal (UNDESA, 2020).

2.2. Current trade orientation and the mega-trading blocks

RCEP countries[8] accounted for nearly one-third of the global GDP ($26.2 billion) in 2020 and is the largest trading block in history. The RCEP will come into effect within 60 days after being ratified by at least nine member (six ASEAN and three non-ASEAN) countries. The pact aims at eliminating more than 90% of the tariff lines among the member countries within 20 years of coming into force (ADB, 2021). There are unified ROO with common rules on e-commerce, trade in goods and services, and intellectual property rights.

The CPTPP[9] has 11 members and came into force for the six ratifying countries on 30 December 2018. As of April 2021, eight signatories have ratified CPTPP (Australia, Canada, Chile, Japan, Mexico, New Zealand, Singapore, and Vietnam). The UK has applied to be a member. Further, USA, Taiwan, China, Colombia, Indonesia, South Korea, Thailand, and the Philippines have also expressed an interest in membership.

Table 2 presents the existing intra- and inter-regional trade for Bangladesh, China, UK, USA, ASEAN countries, members of RCEP and TPP countries. ASEAN countries trade with the RCEP and TPP countries. In 2019, RCEP countries accounted for more than 52% of total exports from the ASEAN region, and 24.7% exports are for CPTPP. The intraregional ASEAN trade is 23.3% of total exports.

[8] RCEP is a FTA between 10-member ASEAN countries, namely Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam and five major trading partners– Australia, China, Japan, New Zealand, and South Korea. The region

[9] The CPTPP is an agreement between four ASEAN countries (Brunei, Malaysia, Singapore, and Vietnam) and seven non-ASEAN countries (Australia, Canada, Chile, Japan, Mexico, New Zealand, and Peru) evolved from the Trans-Pacific Partnership (TPP) after the US withdrew from the negotiation.

Table 2: Bilateral trade between selected countries/regions in 2019 ($, billion) (% of the total – in parentheses)

		Importer country/region									
		ASEAN	**Bangladesh**	**China**	**EU except for the UK**	**RCEP**	**SAARC**	**CPTPP**	**United Kingdom**	**United States**	**World**
Source country/region	**ASEAN**	**328 (23.3)**	9 (0.6)	201 (14.3)	165 (11.7)	738 (52.3)	67 (4.7)	345 (24.4)	20 (1.4)	183 (13.0)	1,410 **(100)**
	Bangladesh	1 (1.7)		1 (2.2)	24 (49.8)	4 (8.3)	5 (9.8)	1 (2.7)	5 (10.6)	7 (14.6)	47 **(100)**
	China	360 (14.4)	17 (0.7)		411 (16.4)	668 (26.7)	115 (4.6)	510 (20.4)	62 (2.5)	419 (16.8)	2,499 **(100)**
	EU except UK	119 (2.1)	4 (0.1)	316 (5.5)	**3,021 (53.0)**	646 (11.3)	62 (1.1)	321 (5.6)	345 (6.1)	412 (7.2)	5,697 **(100)**
	RCEP	922 (16.9)	30 (0.5)	586 (10.7)	727 (13.3)	**2,198 (40.2)**	226 (4.1)	1,147 (21.0)	113 (2.1)	830 (15.2)	5,461 **(100)**
	SAARC	35 (10.2)	9 (2.6)	19 (5.6)	56 (16.2)	68 (19.6)	**26 (7.4)**	40 (11.6)	10 (3.0)	58 (16.8)	347 **(100)**
	CPTPP	354 (12.2)	9 (0.3)	436 (15.0)	254 (8.8)	1,090 (37.6)	75 (2.6)	**430 (14.9)**	56 (1.9)	953 (32.9)	2,897 **(100)**
	United Kingdom	13 (2.7)	1 (0.1)	30 (6.5)	218 (47.1)	62 (13.4)	8 (1.7)	34 (7.3)		72 (15.5)	464 **(100)**
	United States	75 (5.4)	2 (0.2)	94 (6.8)	253 (18.1)	318 (22.8)	35 (2.5)	602 (43.1)	61 (4.3)		1,394 **(100)**
	World	1,323 **(7.4)**	57 **(0.3)**	1,633 **(9.2)**	5,180 **(29.1)**	4,199 **(23.6)**	479 **(2.7)**	2,436 **(13.7)**	656 **(3.7)**	2,319 **(13.1)**	17,772 **(100)**

Source: Authors' estimation based on WITS data

A strong intra-regional trade is seen with RCEP countries, which accounts for over 40% in 2019, with prominent importers in ASEAN (US$922 billion or 16.9% of total RCEP exports), China (US$586 billion), EU (US$727 billion), CPTPP countries (US$1.1 trillion), and USA (US$830 billion). Bangladesh's imports from the RCEP countries was $30 billion in 2019, over 50% total imports.

Compared to RCEP, the CPTPP countries are less integrated with an intra-regional trade of around 15%. The largest export destinations for the CPTPP countries include the RCEP country bloc (US$1.1 trillion or 37.6% of total CPTPP exports), USA (US $953 billion), China (US $436 billion), ASEAN (US $354 billion), and EU (US $254 billion). Bangladesh's imports from CPTPP countries was US$9 billion (16% of total imports) in 2019.

In 2019, 49.8% of Bangladesh's total export was destined to the EU (excluding the UK), followed by 14.6% in the United States, 10.6% in the UK, and another 9.8% to the SAARC countries. Only 8% of Bangladesh's total exports were destined to RCEP countries, and 2.7% were to the CPTPP countries.

For the UK, the largest export destination is the EU, followed by the US. In 2019, more than 13% exports were to RCEP countries, while only 7.3% of exports were to CPTPP countries. For the US, the largest export destination was CPTPP accounting for more than 43.1% of total US exports, followed by RCEP (22.8%) and EU (18.1%) markets.

3. Literature Review

UNCTAD (2016) estimated that Bangladesh would face an estimated reduction of exports in the range of 5% to 7% under alternative scenarios upon the LDC graduation. Rahman and Bari (2018) estimate that Bangladesh will face 6.7% higher additional tariffs in the absence of LDC preferential tariffs. It will result in a contraction of exports worth US$ 2.7 billion, which is equivalent to 8.7% of Bangladesh's exports in 2014-15.

Razzaque (2018b) indicates that the approximate loss from preferential market access in the EU would result in a fall in exports worth US$1.6 billion in the EU, US$175 million in Canada, and US$29 million in Australia. Bangladesh's RMG exports are predicted to fall by US$1.81 billion. The paper applies a partial equilibrium model proposed by the commonwealth secretariat (Commonwealth, 2018). The model uses two steps. The first estimates the impact on exports as a result of price changes originating from the erosion of tariff preferences at the destination markets. The second estimates the potential increase in demand for goods exported by non-graduating countries since they become relative more competitive than the graduating country.

UNDESA (2020) predicts the impact would be lesser for other major export items, such as fish and jute products. First, for many of the product lines in this category, the non-LDC tariff lines are zero or relatively low. And second, exports of jute have very low rates of utilisation of the EU-EBA, meaning the existing export follows non-LDC tariff lines.

General Economics Division (2020) use partial equilibrium techniques to estimate that the erosion of trade preferences could lead to exports decline by US$1.0 billion (with the assumption of low-price elasticity) - US$4 billion (high price elasticity) for 2018 exports. The exercise shows that export decline could be in the range of 2.8% to 11.1%. With the CGE model the study finds that export earnings could fall by US$7 billion in 2027.

In the context of RCEP and TPP, studies investigate the impact from global and country contexts. With the CGE model, Petri and Plummer (2020) estimated that the world real income would increase by US$147 billion and US$186 billion, respectively. RCEP members gains are projected to be US$174 billion in real income by 2030, s equivalent to 0.4% of the member countries' aggregate GDP. Given the high degree of regional cooperation between the ASEAN countries, the gains would be small for ASEAN members, but higher gains for China (US$85 billion), Japan (US$48 billion), and South Korea (US$23 billion).

The results are in line with an earlier study by Itakura (2015) that reported significant and positive impact of RCEP on ASEAN countries using dynamic CGE model. A closer economic integration might increase China's gain by US$100 billion annually (Petri and Plummer, 2020). Based on the anecdotal simulation-based estimates, it is observed that, while the member countries gain from the RCEP, non-member countries might lose (Kawasaki, 2015; Itakura and Lee, 2019; Petri and Plummer, 2020).

Others investigate the impacts of CPTPP and RCEP on non-member countries. Khan, Zada and Mukhopadhyay (2018) estimated the economic implications of CPTPP on Pakistan with CGE analysis. The paper reports significant losses for Pakistan due to adverse impacts on textiles

and apparel. This could be from the likely 'yarn forwarding rule', which states that the CPTPP countries will have to import all components of manufacturing products from other member economies which can significantly impact the global supply chain and other countries.

In the case of the South Asian economies, Rahman and Ara (2015) use CGE analysis to estimate the TPP and RCEP for tariff elimination. They observe a strong negative impact on the South Asian economies. Kumar and Chatterjee (2016) found a similar result in the context of India by combining CGE with POVCAL poverty analysis tool. The results show considerable trade diversions originating from the RCEP and TPP.

To the best of our knowledge, no paper models the impact of the impacts of LDC graduation, RCEP or TPP for Bangladesh's economy with the GTAP model. This paper bridges this gap with a comprehensive analysis of the impact of the LDC graduation on Bangladesh economy along with the impact of the newly emerging mega trading blocks.

Some caveats are worth highlighting. First, the rules governing the EU's GSP will cease in 2023, and it is anticipated that there could be significant changes in the new rules (UN DESA, 2020; Razzaque and Rahman, 2018). The current assessment is carried out with the assumption that the existing system will prevail. Second, with the graduation from the LDC group, there will be non-trade impacts, such as static losses due to increased UN budgetary contributions, loss of preference in receiving soft loans and aids, etc. Such losses have not been accounted for in the existing model. Third, this exercise only explores the impact of tariff increases and does not consider the impact on trade due to the changes in the ROO regulations.

4. Data and methodology

This paper applies the CGE model to identify the effects of changes in trade policies (WTO, 2012). CGE represents the global economy and simulations explain the directions and magnitudes of policy interventions on economic indicators (Ratna and Sharma, 2016). We use standard GTAP version 10 database[10], a multi-region, multisector model applying CGE model, with reference year 2014.

4.1. Aggregation of the countries and sectors

The GTAP version 10 database has 65 sectors, and 121 countries and 20 aggregate regions.[11] This study includes 20 regional groupings (Annex Table A.6). These include: Bangladesh, EU 27 (except the UK), India, China, Canada, Japan, Australia, New Zealand, Brunei, South Korea, Malaysia, Vietnam, Singapore, Rest of the RCEP, USA, Mexico, Chile, Peru, and rest of the world.

[10] The GTAP database includes sectors such as: households, industrial sectors, governmental and global sector for the covered countries. In the model, equilibrium prices and quantities are determined simultaneously both in the factor and commodity markets. There are some underlying assumptions such as utility maximising behaviour of households, perfect competition, profit maximising behaviour of firms, constant returns to scale, etc.

[11] https://www.gtap.agecon.purdue.edu/databases/v10/index.aspx; accessed on 1 May 2021

For the RCEP simulation, RCEP member countries included in the dataset were Australia, Brunei, China, Japan, Malaysia, New Zealand, Singapore, South Korea, Vietnam, and the Rest of RCEP (Cambodia, Indonesia, Laos, Myanmar, the Philippines, and Thailand).
For the CPTPP simulations, the country group included were Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam.
All the GTAP sectors were aggregated into six sectors, namely (i) agriculture including livestock and jute, (ii) processed food including fish, (iii) textiles and wearing apparel, (iv) leather and leather goods, (v) other industries and (vi) other services.

4.2. Model specification

Following the Armington structure[12], the model assumes that the domestically produced goods and imports are imperfect substitutes. Moreover, the impacts of the trade policy (tariff barriers) are modelled as ad valorem equivalents. The impact of the changes in the trade policies can be obtained by changing the model's trade and tariff parameters. The impact of the policy changes is observed from the differences in the outcome variables in baseline and simulation results. Some changes were done to the standard model closures. For instance, we change the assumption in the labour market closure to allow a flexible supply of unskilled workers.

Simulation scenarios

Simulation 1: impact of Bangladesh's LDC graduation in 2026. The scenario considers the impact of LDC graduation on Bangladesh economy. Bangladesh will lose preferential treatment in the EU and other countries. simulation results show the impact of preference erosion on Bangladesh's exports and GDP.

Simulation 2: impact of RCEP on Bangladesh. The scenario considers the impact of RCEP irrespective of Bangladesh's LDC graduation. It shows the net impact on Bangladesh economy if the RCEP becomes fully operational. A FTA is assumed for the RCEP members.

Simulation 3: impact of CPTPP on Bangladesh. The impact on Bangladesh's economy and exports is considered if the CPTPP becomes fully operational, i.e. a FTA for the member countries is assumed. The US and the UK, have shown interest in joining the CPTPP which are Bangladesh's major exports destinations, hence three sub-scenarios are explored:

- *(i)* ***simulation 3A*** explores the impact of USA joining the CPTPP
- *(ii)* ***simulation 3B*** explores the impact of the UK joining the CPTPP
- *(iii)* ***simulation 3C*** explores the impact of both the UK and USA joining the CPTPP

All simulations assume that UK and USA will follow the existing CPTPP trade arrangements.

Simulation 4: impact of LDC graduation and RCEP on Bangladesh economy. This considers the impacts of LDC graduation and the RCEP coming into force.

[12] In the GTAP model, a change in trade policy can affect the equilibrium prices and quantities of the traded goods and domestically produced goods. However, the magnitude of the impact depends on the degree of substitutions between the domestically produced commodity and the imported goods – a relationship known as Armington elasticity (Rahman and Ara, 2015).

Simulation 5: impact of LDC graduation and CPTPP on Bangladesh economy. This explores the joint impact of LDC graduation and CPTPP on Bangladesh economy.

Since several countries in the RCEP and CPTPP are common, a simulation exercise combining all three events - LDC graduation, RCEP and CPTPP, has not been examined.

5. Simulation results

The impact analyses the impact on: (i) exports, (ii) sectoral exports, and (iii) welfare. The results for different simulation scenarios are in Annex Table A.7 to A.9.

Simulation 1: Impact of LDC graduation

After graduation, Bangladesh will face higher tariffs - 9.6% for RMG. Results show that Bangladesh's total exports would fall by 11.8%, equivalent to US$3.9 billion (Table A.7). This is higher than some of the earlier estimates (UNCTAD, 2016; Rahman and Bari, 2018), and the CGE framework used are in line with General Economics Division (2020) predictions.

Sectors show varying levels of impact. Processed and frozen food exports would see 11.3 % decline (Table A.8) from over 10% tariffs under MFN rates. Leather and leather goods exports see a fall of 3.1%. The largest decline in exports is for the textiles and apparel sector - 14.7% decline, equivalent to US$4.3 billion in terms of Bangladesh's export volume in 2014 – the base year for the GTAP 10 database. The exports of jute and jute goods may increase by 14.2 %. Note that, Bangladesh's jute and jute goods exports to the EU do not benefit from the EU-EBA, and the utilisation rate is only 15% (European Commission, 2020). This may explain why the sector may remain unscathed after the preference erosion. The same analogy explains the reasons behind the growth in exports observed in other industries (37.1%) and other services (19.4%). Graduating from the LDC would result in a welfare loss of $2.64 billion for Bangladesh (equivalent to 1.53% of real GDP in 2014) (Annex Table A.9).

The impact of Bangladesh's LDC graduation on other countries is insignificant. A fall in exports for the UK (-0.02%), India (-.03%), Canada (-.01%), and Singapore (-.01%) is seen. This may stem from Bangladesh's existing trade relationship with these countries. India is the largest sources of Bangladesh's imports. A fall in exports and GDP in Bangladesh may contribute to its lesser imports from India. In Singapore, UK and Canada, this is indirect and due to global value chains linkages. Countries such as Vietnam benefit from higher exports due to trade diversion from Bangladesh. Bangladesh's graduation will not have any impact on global welfare gains/losses.

Simulation 2: Impact of RCEP on Bangladesh economy

A larger fall is observed for non-members with increased exports for member countries. The scenario shows a 3.4% fall in exports for Bangladesh from RCEP and 1.76% for the UK. For the EU, the decline is 2.8%, and 2.7% for India. This is due to increased regional trade between RCEP countries. The largest exports increase are in China (17.7%), Australia (24.70%), Japan (25.24%), South Korea (25.86%), New Zealand (18.28%). The gains for ASEAN member countries are lower than non-ASEAN RCEP members, in line with Petri and Plummer (2020). For Bangladesh, compared to simulation 1, RCEP has lesser impacts on overall export contraction as under this simulation given no change in preferential tariffs for Bangladesh obtained in the EU or elsewhere. Therefore, the change in the exports obtained under this

simulation only comes from the changes in the preferential tariffs within the RCEP region. Since EU, USA or the UK – three major markets for Bangladesh remains out of this trade block – the 'RCEP only' simulation does not portray a larger fall in overall exports. The RCEP would result in a decline - 2% in food and frozen fish exports, 3.1% in RMGs, 10.4% in leather and leather goods, and 10% in other industrial exports.

The export decline could be directly attributed to the increased intraregional trade among the RCEP countries and increased competitiveness from comparators such as China and Vietnam. As such, some RCEP member countries being a leading export destination for Bangladesh's leather and leather goods could contribute to the larger fall in this sector's exports. Also, the fall in the RMG exports may originate due to the adverse impacts on the RMG global supply chain (Khan, Zada and Mukhopadhyay, 2018).

Overall, the RCEP shows a 0.9% decline in welfare (as % of real GDP) for Bangladesh. Most non-RCEP member countries, including the UK, European Union, India, Canada, the US, Mexico, Chile, Peru, are expected to see a contraction in GDP. In contrast, all RCEP countries have significant positive impacts on GDP. The largest welfare gain is for Vietnam (27.4% of GDP), Singapore (19.9% of GDP), Malaysia (16.1% of GDP), Brunei (11.3% of GDP) and South Korea (10.9% of GDP). A robust regional value chain further strengthened by the RCEP FTA is the reason for welfare gains in member countries.

Simulation 3: Impact of CPTPP on Bangladesh economy

In the CPTPP scenario, Bangladesh's export loss is much lower than the RCEP scenario: Bangladesh loses 1.12% of the exports compared to the base year. The magnitude of adverse impact is also lower for other non-member countries compared to the RCEP scenario. All the RCEP member countries have increased exports from 6.3% (Vietnam) to 15.4% (Australia). In this simulation, Bangladesh's welfare loss is estimated at 0.22% of GDP while this would be 0.1% for the UK, .2% for the EU, and .42% for China, and .26% for the US.

The results significantly change if the US or UK, or both of them joins the CPTPP. A significant shift is observed if the US enters the CPTPP bloc (Simulation 3A). With the inclusion of the US in the bloc, CPTPP would become the largest trading region in the world with a combined GDP of $34.8 trillion (equivalent to almost 40% of global GDP) in 2019 estimates. The USA being a prominent export destination for most countries, its joining with the CPTPP increases intra-CPTPP trade. The largest increase in exports is observed for Vietnam, Mexico, and Canada. In the CPTPP scenario (simulation 3), where Vietnam's export increases only by 6.3%, in the CPTPP+US scenario, the export increases by 16.6%. For Canada and Mexico, exports rise by 13% and 14.8%. Also, USA's export volume increases by 16.2%, whereas under the CPTPP only scenario (Simulation 3) USA's exports contract by 1.8%. This is because Vietnam, Canada, and Mexico trade with the USA. With the CPTPP+USA, a larger volume of trade will be diverted from other regions primarily because of preferential access to the US market. Moreover, USA's exports could originate from its increased competitive market access to East Asian markets rivalling China and South Korea.

An increase in intra-regional exports partly explains the observed fall in exports in non-CPTPP member countries. For instance, Bangladesh's exports fall by 2.7%, attributed to significant trade diversion from Bangladesh to Vietnam or other CPTPP countries. UK's global export falls

by nearly 5%, and EU's export falls by 5.9%. China and South Korea also see a large fall in total exports by 5.2% and 10.6%, respectively.

In this scenario,– Bangladesh's GDP is adversely affected with a welfare loss of 0.62% of GDP. The UK and EU also suffer from a higher welfare loss amounting to 0.47% of GDP and 0.52% of GDP, respectively. Nonetheless, the US observes a positive impact with welfare gains equivalent to 1.71% of GDP.

With the UK joining the CPTPP (simulation 3B), Bangladesh's export sees a modest fall of 1.2%. But, compared to the CPTPP scenario, there will be a large fall in the total exports for the EU (4.9%), India (7.1%), China (6%), South Korea (8.5%), or USA (3.8%) depicting significant trade diversion from these countries to the CPTPP member countries. UK's export in this scenario improves, showing 0.1% increase in total exports. However, the impact on UK welfare gain is much larger, equivalent to 1.84% of GDP. Bangladesh's welfare loss is modest (0.26%).

A big fall in exports for the non-member countries is observed where both the USA and UK joins the CPTPP (simulation 3C). Bangladesh loses as much as 2.7% of exports, while exports from the EU, India, China and South Korea see larger falls (6.4%, 7.9%, 7.4%, and 10.9%, respectively). In contrast, joining the forum, UK exports increase by 3.7% while US exports increase by an impressive 18%. Compared to the 'CPTPP only' scenario, the export volume increases for almost all CPTPP member countries. Analogous to the CPTPP+US scenario, the largest increase in exports is observed for Vietnam (17.2%), Canada (15%), and Mexico (13%).

Among the three sub-scenarios, the largest impact in terms of welfare loss for Bangladesh is observed when both UK and the USA join the CPTPP (-0.66% of GDP). Results show a more extensive welfare loss for the EU, India, China, amongst others. However, the results show a significant welfare gain for the UK (3.3% of GDP) and the US (1.9% of GDP).

The sectoral impacts largely remain the same across all simulations. In the CPTPP only scenario (simulation 3), Bangladesh's textile and apparel sector see a fall of 1.3%, while the leather exports fall by 1.8% and other industrial exports would fall by 0.5%. Compared to this, Bangladesh's textile exports see a more considerable fall (-3.4%) when the USA joins the trade bloc (simulation 3A). In the case where both the UK and USA joins the CPTPP (simulation 3C) – Bangladesh's RMG and leather sectors see a fall of 3.2% and 1.4%, respectively. The results depict that the USA joining the trade deal would more negatively affect Bangladesh than the UK's joining it. Since Bangladesh already receives duty-free quota-free market access to the UK as an LDC, UK's joining any FTA would not cause significant trade diversions from Bangladesh. However, in the USA market, Bangladesh and its major competitors like China and Vietnam face the same tariff schedules on textile and leather products. Therefore, the USA's joining the trade block would result in significant diversions in trade from Bangladesh's textile and leather sectors to Vietnam and other CPTPP member countries.

Simulation 4: Impact of LDC graduation and RCEP on Bangladesh economy

With both RCEP and LDC graduation in place, Bangladesh's exports would fall by 15%, which is 3.2 percentage points lower than the LDC graduation only scenario (simulation 1). The change in exports for other countries is almost identical to RCEP only scenario (simulation 2).

A comparison of the three simulations (1, 2, and 4) reveals that around 12% fall is due to LDC graduation. The rest three percentage points fall is from the RCEP.

The impact of LDC graduation gets ramified with a simultaneous initiation in the RCEP on all major Bangladeshi export items. The processed food and frozen fish exports see a fall of -13%, RMG and leather and leather goods exports fall by 17.3% and 16.4%, respectively. Analogous to the LDC graduation scenario, there will be positive exports growth in industrial and services sectors though the magnitude of growth is lower than 'LDC graduation only' scenario.

The impact of the LDC graduation along with an effective RCEP on the welfare loss of Bangladesh is estimated at 2.4% of GDP. The welfare gains/losses for all other countries remain almost the same as in the 'RCEP only' scenario (simulation 2).

Simulation 5: Impact of LDC graduation and CPTPP on Bangladesh economy

Compared to the 'LDC graduation only' scenario, the impact is larger on Bangladesh in the case of joint impact of LDC graduation and CPTPP. Bangladesh's exports drop by 12.7 per cent compared to the earlier scenario. The impact on other economies remain almost the same in the case of 'CPTPP only' (simulation 3).

Compared to the 'LDC graduation only' scenario, a larger fall is observed in the RMG (-15.7%) and leather and leather goods exports (5%). The impact would remains the same for all other export sectors. Overall, the loss in welfare for Bangladesh is slightly higher (-1.72% of GDP) than simulation one scenario.

This study does not include simulations on the impacts of LDC graduation along with CPTPP where the USA or UK or both of them joins the CPTPP. Nonetheless, it can be argued that the effect under these scenarios would be significantly higher than observed in simulation 5.

6. Conclusion and policy recommendation

If allowed a five-year preparatory period, Bangladesh will graduate from the LDC group by 2026. Bangladesh's graduation from the LDC group will impact export-led economic growth, while arguably, the high concentration of the export basket puts it at a higher risk of potential trade volatilities (Razzaque, 2018). If the export basket concentration remains the same in the post LDC graduation period, the impact of the graduation would be translated through the impact on the RMG sector (Razzaque and Rahman, 2019). This paper estimates the impact of the LDC graduation on Bangladesh's sectoral (RMG) and total exports, as well as potential welfare losses. The article also investigates the effects of fully operationalised mega trading blocs such as RCEP and CPTPP on Bangladesh’s economy.

The findings show that graduation may lead to a 11.8% fall exports along with potential losses in welfare, equivalent to 1.53% of the GDP. At the sectoral level, RMG exports could fall by 14.7%, while processed food and frozen fish is estimated to have a fall by 11.3%, and leather by 3.1%. The magnitude of the impact becomes forceful when coupled with scenarios of mega-trading blocs. In the case of LDC graduation and RCEP coming into force, Bangladesh's

exports could fall by 15%, and the welfare loss could be as high as 2.4% of real GDP. Compared to RCEP, the impact is smaller in the case of CPTPP that is likely to lead to contract export by 12.7% and welfare loss of 1.72% (of the real GDP). As our study reveals, the RCEP may have broader industry-wide adverse impacts compared to the CPTPP. Nonetheless, we see that if the USA or UK or both join the CPTPP, there will be huge negative impact for Bangladesh.

The findings present several policy directives. First, Bangladesh must diversify the export basket and markets, as also highlighted by earlier studies (Razzaque, 2018; UN DESA, 2020; General Economics Division, 2020). A diversified product basket and export destinations will reduce the magnitude of the impact and lessen external vulnerabilities. Second, Bangladesh must engage in bilateral negotiations for exploring FTAs with selected countries or even some mega trading blocs. Such negotiations take substantial time to process and implement. Therefore, early engagement would benefit the country. Currently, Bangladesh is a member of the South Asian Free Trade Area (SAFTA), Asia Pacific Trade Agreement (APTA), and Preferential Tariff Arrangement-Group of Eight Developing Countries. However, although signed and in effect, issues such as technical barriers to trade, non-tariff barriers, etc., hinder the practical realisation of the potential benefits from these agreements (Taneja, Prakash and Kalita; 2013). Several FTA or preferential trade agreements between Bangladesh and Bhutan, Brazil, China, India, Pakistan, Malaysia, Sri Lanka, Thailand, Turkey, amongst others, are still under consultation (ADB, 2021). A more proactive venture in FTA negotiations would be required from Bangladesh in this regard. Third, Bangladesh must aim to meet the EU GSP+ eligibility. This will essentially eliminate the potential welfare losses and export contractions identified. Thus, the government must take measures, such as ratifying the ILO's convention concerning the minimum age for admission to employment (No. 138, 1973). Fourthly, Bangladesh must strengthen the regional value chain in the SAARC region. After graduation, Bangladesh will not be eligible for flexible ROO in the EU even with r GSP+. However, Bangladesh can use the regional cumulation provision provided by the EU (UNDESA, 2020). Thus, Bangladesh must focus on increasing infrastructural and institutional capacity enhancement on trade negotiations, tariff structure reformation, redesigning customs protocols, etc.

References

ADB. (2021, August 1). *Tracking Asian Integration*. Retrieved from Asia Regional Integration Center: https://aric.adb.org/fta-country

Asian Development Bank. December 2020. "Regional Comprehensive Economic Partnership: Overview and Economic Impact". Retrieved May 2021

Dawar, K., Ubaldo, M. d., Holmes, P., & Mendez-Parra, M. (2019). *Bangladesh-EU Trade Policy Options.* Dhaka: TAF2.

Duc Hieu, Phan. (2021). "Impact of the CPTPP on Vietnam". *The Comprehensive and Progressive Agreement for Trans-Pacific Partnership*, edited by Cassey Lee and Pritish Bhattacharya, Singapore: ISEAS Publishing, 2021, pp. 218-252. https://doi.org/10.1355/9789814818889-012

European Commission. (2016). Bangladesh Sustainability Compact: Technical Status Report. Available at: http://trade.ec.europa.eu/doclib/docs/2016/august/tradoc_154841.pdf

European Commission. (2018a). "The Implementation of the Bangladesh Compact – Technical Status Report", September. Available at: http://trade.ec.europa.eu/doclib/docs/2018/september/tradoc_157426.pdf

European Commission. (2018b), "Mid-Term Evaluation of the EU's Generalised Scheme of Preferences (GSP) – Final Report". July. Directorate-General for Trade. European Commission.

European Commission. (2020). *Trade: 2019 Biennial Report on the Generalised Scheme of Preferences.* Available at: https://trade.ec.europa.eu/doclib/docs/2020/february/tradoc_158618.pdf

European Commission. (2020b). *Report on the Generalised Scheme of Preferences covering the period 2018-2019.* Available at: https://trade.ec.europa.eu/doclib/docs/2020/february/tradoc_158619.pdf

European Union. (2021). *Short* overview of the Regional Comprehensive Economic Partnership (RCEP). Retrieved from: //www.europarl.europa.eu/RegData/etudes/BRIE/2021/653625/EXPO_BRI(2021)653625_EN.pdf; accessed on 1 May 2021

Kumar, A. G., Chatterjee, T. (2016). *Mega external preferential trade agreements and their impacts on Indian economy*. Foreign Trade Rev 51(1)

General Economics Division. (2020). *Impact Assessment and Coping up Strategies of Graduation from LDC Status for Bangladesh.* Bangladesh Planning Commission. Ministry of Planning. Government of the People's Republic of Bangladesh. Dhaka.

Gay, Daniel (2017), "What LDC graduation will mean for Bangladesh's drugs industry", UN LDC Portal. Available at: https://www.un.org/ldcportal/what-ldc-graduation-will-mean-for-bangladeshs-drugs-industry/

Gilbert, J. (2013). The economic impact of new regional trading developments in the ESCAP region. Asia Pacific Development Journal, 20(1), 1-32.

Itakura, K.(2015), 'Assessing the Economic Effects of the Regional Comprehensive Economic Partnership on ASEAN Member States',in Ing, LY (ed.), East Asian Integration. ERIA Research Project Report 2014-6, Jakarta: ERIA, pp.1-24.

Itakura, Ken and Hiro Lee (2019). Estimating the effects of CPTPP and RCEP in a general equilibrium framework with Global Value Chains. GTAP Resource 5712, Global Trade Analysis Project.

Kawasaki, Kenichi (2 01 5) . "The relative significance of EPAs in Asia-Pacific". Journal of Asian Economics, vol. 39, pp. 19-30.

Planning Commission of Bangladesh (2015), "7th Five-Year Plan FY2016-FY2020 – Accelerating Growth, Empowering Citizens". Retrieved from: http://www.plancomm.gov.bd/site/files/2eb8022b-d4fb-42e1-a67d-67bccabd8fe9/7th-Five-Year-Plan-(English).

Petri, P. and M. Plummer. 2020. East Asia Decouples from the United States: Trade War, COVID-19, and East Asia's New Trade Blocs. PIIE Working Paper. June. Washington, DC: Peterson Institute for International Economics. https://www.piie.com/system/files/documents/wp20-9.pdf.

Mahadevan, R.; Nugroho, A. (2019). "Can the RCEP minimise the harm from the US-China trade war?" The World Economy, vol. 42, no. 11, pp. 3148–67 .

Khan, M. A; Zada, N.; Mukhopadhyay, K. (2018). *Economic implications of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) on Pakistan: A CGE approach*, Journal of Economic Structures, ISSN2193-2409, Springer, Heidelberg, Vol. 7, Iss. 2, pp. 1-20,http://dx.doi.org/10.1186/s40008-017-0103-x

Li, Q. and Moon, H.C. (2018), "The trade and income effects of RCEP: implications for China and Korea", Journal of Korea Trade, Vol. 22 No. 3, pp. 306-318. https://doi.org/10.1108/JKT-03-2018-0020

Rahman, M. (2014). *Trade Benefits for Least Developed Countries: the Bangladesh Case.* CPD Background Paper No. 18. ST/ESA/2014/CDP/18. UN DESA.

Rahman, M. M., Ara, L.A.(2015). *TPP, TTIP and RCEP: implications for South Asian economies*. South Asia Economic Journal 16(1):27–45

Rahman, M., and Bari, E., 2018. Pathways to Bangladesh's sustainable LDC graduation: Prospects, challenges and strategies. *In*: D. Bhattacharya, ed. *Bangladesh's Graduation from the Least Developed Countries Group: Pitfalls and Promises*. London: Routledge.

Rahman, M., Farin, S. M. (2018). "Research Report 2: WTO Decision on TRIPS and Public Health – A Window of Opportunity for Bangladesh's Pharmaceutical Industry", Centre for Policy Dialogue (CPD), Dhaka.

Razzaque. (2018). *Revitalising Bangladesh's export trade: Policy issues for growth acceleration and diversification.* Bangladesh Enterprise Institute (BEI). Dhaka.

Razzaque, M (2018b), "Bangladesh's Export-Oriented Apparel Industry and LDC Graduation". Case study prepared at the request of the United Nations Department of Economic and Social Affairs.

Razzaque MA and J Rahman (2019), Bangladesh's Apparel Exports to the EU: Adapting to Competitiveness Challenges Following Graduation from Least Developed Country Status' *International Trade Working Paper* 2019/02, Commonwealth Secretariat, London.

Razzaque, M. Akib, H. Rahman, J. (2020). *Bangladesh's Graduation from the Group of LDCs: Potential Implications and Issues for the Private Sector.* In Razzaque (ed.) *"Navigating New Waters: Unleashing Bangladesh's Export Potential for Smooth LDC Graduation*". Bangladesh Enterprise Institute (BEI). Dhaka.

Suvannaphakdy, Sithanonxay. (2021). "Assessing the Impact of the Regional Comprehensive Economic Partnership on ASEAN Trade." Journal of Southeast Asian Economies, vol. 38, no. 1, 2021, p. 133.

Taneja, Nisha; Prakash, Shravani; Kalita, Pallavi. (2013). India's rolein facilitating trade under SAFTA, Working Paper, No. 263, Indian Council for Research onInternational Economic Relations (ICRIER), New Delhi

UN (2020). *Least Developed Country Category.* Retrieved from*:* https://www.un.org/development/desa/dpad/least-developed-country-category.html; accessed on 18 May 2021

UN (2021). UN letter dated 26 February 2021. Available at: https://erd.portal.gov.bd/sites/default/files/files/erd.portal.gov.bd/page/6a8b7921_fc4e_4742_9ed8_cc1bae50eaa1/CDP%20Triennial%20Review%20Bangladesh%20Feb%2026%20(1).pdf

UNCTAD (United Nations Conference on Trade and Development) (2016), The Least Developed Countries Report 2016. Sales No. E.16.II.D.9.

UNDESA (2020). *Ex ante assessment of the impacts of the graduation of Bangladesh from the category of Least Developed Countries (LDCs) (Revised).* Available at: https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/Bangladesh.pdf

World Economic Forum. (2021). *The Global Gender Gap Report 2021.* Available at: http://www3.weforum.org/docs/WEF_GGGR_2021.pdf

WTO (2017) "Utilisation rates under preferential trade arrangements for least developed countries under the LDC duty scheme – Note by the Secretariat", Committee on Rules of Origin, G/RO/W/168/Rev.1

Annex

Table A.1: List of PTA's Bangladesh eligible of as an LDC

Provider	Name	Type	Remarks	Initial Entry Into Force
Armenia	Generalised System of Preferences - Armenia	GSP	Preferential tariff for LDCs covers 22.4% of the tariff lines	4/6/2016
Australia	Generalised System of Preferences - Australia	GSP	100% coverage. DFQF since 2003.	1/1/1974
Canada	Generalised System of Preferences - Canada	GSP	Least Development Country Tariff Programme (LDCT) since 2000. Covers 98.6% if tariff lines excluding dairy and other animal products, meat, meat preparations, cereal products, etc. Extended till 2024.	7/1/1974
European Union	Generalised System of Preferences - European Union	GSP	EBA initiative under GSP since 2002 covering 99.8% of tariff lines (excluding arms and ammunition)	7/1/1971
Iceland	Generalised System of Preferences - Iceland	GSP	GS{ tariff preferences for the world's poorest countries since 2002 ciovering 91.8% tariff lines.	1/29/2002
Japan	Generalised System of Preferences - Japan	GSP	GSP enhanced DFQF market access since 2007 covering 97.9% tariff lines.	8/1/1971
Kazakhstan	Generalised System of Preferences - Kazakhstan	GSP	GSP scheme (in the context of Customs Union between Belarus, Kazakhstan and Russian Federation) covers 37.1% tariff lines.	10/10/2016
New Zealand	Generalised System of Preferences - New Zealand	GSP	GSP – Tariff Treatment for LDCs since 2001 covering all tariff lines (100%).	1/1/1972
Norway	Generalised System of Preferences - Norway	GSP	GSP-DFQF provides 100% coverage since 2002.	10/1/1971
Russian Federation	Generalised System of Preferences - Russian Federation (As of 10.10.2016)	GSP	GSP scheme (in the context of Customs Union between Belarus, Kazakhstan and Russian Federation) covers 37.1% tariff lines.	10/10/2016
Switzerland	Generalised System of Preferences - Switzerland	GSP	GSP – Revised Preferential Tariffs Ordinance since 2007 covering all tariff lines.	3/1/1972
Turkey	Generalised System of Preferences - Turkey	GSP	GSP for LDCs (harmonised with the EU)	1/1/2002
United Kingdom	Generalised System of Preferences – United Kingdom	GSP	Least developed countries framework within the GSP. DFQF on everything but arms and ammunition.	1/1/2021
India	Duty-Free Tariff Preference Scheme for LDCs	LDC-specific	DFTP covers 94.1% of tariff lines.	8/13/2008
Chile	Duty-free treatment for LDCs – Chile	LDC-specific	DFQF since 2014 covering 99.5% tariff lines (excluding cereals, sugar and milling products)	2/28/2014
China	Duty-free treatment for LDCs - China	LDC-specific	DFQF since 2010 covering 96.6% of tariff lines	7/1/2010
Chinese Taipei	Duty-free treatment for LDCs - Chinese Taipei	LDC-specific		12/17/2003
Kyrgyz Republic	Duty-free treatment for LDCs - Kyrgyz Republic	LDC-specific		3/29/2006
Montenegro	Duty-free treatment for LDCs – Montenegro	LDC-specific	Duty free access for LDCs on 93.8% tariff lines.	1/20/2016
Tajikistan	Duty-free treatment for LDCs – Tajikistan	LDC-specific		10/25/2003
Thailand	Duty-free treatment for LDCs – Thailand	LDC-specific	DFQF scheme for LDCs sicne 2015 covering 74.7% of tariff lines.	4/9/2015 12/31/2020
Korea, Republic of	Preferential Tariff for LDCs - Republic of Korea	LDC-specific	Presidential decree on preferential tariff for LDCs since 2000. Covers 89.9% of tariff lines.	1/1/2000

Source: WTO database on Preferential Trade Arrangements and UN LDC portal

Table A.2: Top 15 imports from Bangladesh (2016-2019) ($, million)

HS_code	Product group	2016	2017	2018	2019
'61	Apparel (knitted/crocheted)	16552	17998	20324	21089
'62	Apparel (not knitted/crocheted)	16475	16931	18922	19859
'64	Footwear	920	984	1053	1185
'63	Other textiles	1026	1135	1154	1053
'53	Other vegetable textile fibres	790	855	738	715
'03	Fish	612	617	544	542
'42	Leather goods	263	282	317	380
'65	Headgear	280	301	312	338
'41	Finished leather	216	153	176	149
'30	Pharmaceutical	91	112	113	120
'39	Plastic goods	83	95	109	119
'24	Tobacco	92	98	120	115
'90	Optical, photographic, cinematographic, measuring equipment	71	89	103	110
'67	Articles made of feathers/flowers	58	68	83	109
'15	Prepared edible animal fats	11	11	23	102
Top 15 total	Total (top 15 export items)	37540	39729	44090	45987
'TOTAL	All products	38601	40964	45531	47509

Source: UN COMTRADE

Note: The top 15 products have been sorted for 2019.

Table A.3: EU's top 15 imports from Bangladesh ($, million)

HS code	Products	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
'61	Apparel (knitted/crocheted)	1,492	1,650	2,314	3,145	3,158	4,212	4,611	5,763	6,053	6,974	9,122	8,295	9,322	10,516	10,475	11,519	12,557	14,153	14,501	11,871
'62	Apparel (not knitted/crocheted)	1,356	1,308	1,742	2,225	1,910	2,491	2,474	2,814	3,018	3,260	4,814	5,368	6,406	7,375	7,734	8,731	9,327	10,545	10,882	8,223
'64	Footwear	32	34	57	86	81	90	102	129	156	178	241	229	291	378	440	530	586	620	696	518
'63	Other textiles	81	95	110	193	186	249	309	373	354	400	565	422	499	482	418	414	477	509	470	472
'03	Fish	151	183	220	203	225	246	256	271	276	325	395	345	396	466	368	348	406	329	323	286
'42	Leather goods	4	5	5	7	7	7	9	12	15	19	24	33	45	56	90	109	99	104	108	78
'87	Automobile parts	17	17	21	23	29	38	39	50	60	71	65	67	76	87	87	75	75	75	89	97
'65	Headgear	2	2	2	3	6	10	7	7	7	9	12	16	20	30	35	44	57	61	60	46
'95	Toys, games and sports requisites	0	1	1	2	4	3	4	2	2	2	3	2	2	13	25	32	36	66	56	48
'24	Tobacco	4	3	7	9	10	8	10	10	14	30	37	26	27	44	56	40	54	65	52	37
'39	Plastics goods	9	7	8	7	10	9	9	13	9	8	16	14	26	32	26	24	27	36	39	31
'53	Other vegetable textile fibres	60	56	50	49	50	51	60	56	38	56	59	39	41	40	42	48	45	42	38	32
'94	Furniture	0	1	2	2	2	2	2	17	3	4	4	8	11	14	16	21	29	36	34	22
'41	Finished Leather	105	63	62	69	72	86	93	73	35	46	75	67	94	119	74	54	39	40	30	16
'69	Ceramic products	16	13	18	21	22	22	25	29	23	20	19	15	21	25	22	25	30	25	26	20
Top 15 total	Total (top 15 export items)	3,328	3,438	4,618	6,044	5,770	7,525	8,012	9,619	10,063	11,401	15,450	14,948	17,278	19,676	19,908	22,015	23,844	26,708	27,403	21,798
'TOTAL	All products	3,374	3,483	4,687	6,125	5,851	7,652	8,136	9,766	10,175	11,506	15,628	15,071	17,418	19,814	20,030	22,130	23,970	26,896	27,583	21,969

Source: UN COMTRADE

Note: The top 15 products have been sorted for 2019.

Table A.4: Top 15 imports from Bangladesh in 2019, by importing countries ($, million)

HS_Code	Australia	China	India	Japan	UK	USA
3	**4.05**	**103.76**	**24.85**	**15.60**	**76.90**	**20.01**
15	0.07	0.47	91.82	0.07	0.53	0.19
24	0.00	0.81	0.10	0.42	0.13	6.60
30	1.45	0.51	0.00	0.00	1.33	15.72
39	0.84	8.53	28.68	2.82	5.57	23.78
41	0.10	52.65	11.31	9.80	1.17	0.16
42	**16.36**	**38.88**	**27.91**	**54.52**	**2.95**	**76.65**
53	2.27	106.10	150.62	4.43	6.71	17.48
61	**406.53**	**261.52**	**103.29**	**632.16**	**1,984.48**	**1,686.19**
62	**300.72**	**328.35**	**295.96**	**536.35**	**1,657.95**	**4,242.43**
63	**37.76**	**9.96**	**84.99**	**50.76**	**78.56**	**212.34**
64	**9.02**	**36.12**	**15.95**	**45.13**	**20.02**	**160.47**
65	5.97	2.12	2.31	4.94	5.98	217.18
67	0.09	2.40	0.03	3.76	2.25	84.86
90	0.40	17.97	2.40	8.56	0.31	17.53

Source: UN COMTRADE

Note: The top 15 products have been sorted for 2019.

Table A.5: Non-LDC tariffs in the EU after graduation on Bangladesh's major export items

HS code	**Product**	**Share in exports to the EU (2018)**	**Tariffs after graduation under GSP**	**Tariffs under GSP+**	**MFN tariffs**
61	Knitwear	53%	6.4%-9.6% under GSP. For most of the products it would be 9.6%.	0%	12% for most products
62	Woven garments	38%	5.0%-9.6% under GSP. 9.6% for most products.	0%	12% for most products
64	Footwear	2%	0%-11.9% under GSP 4.5% on most products.	0%	12% for most products
63	Home textiles	2%	1.6%-9.6% under GSP 9.6% for most products	0%	12% for most products
03	Frozen Fish	1%	0%-18.5% 4.2% for most of the products	0%	12%-20% for most products

Source: UNDESA (2020)

Table A.6 Regional commodity aggregation of GTAP database

Sl.	Aggregate region	GTAP region
1.	Bangladesh	Bangladesh
2.	UK	United Kingdom
3.	EU 27	EU 27 countries (except UK)
4.	India	India
5.	China	China
6.	Canada	Canada
7.	Japan	Japan
8.	Australia	Australia
9.	New Zealand	New Zealand
10.	Brunei	Brunei
11.	South Korea	Republic of Korea
12.	Malaysia	Malaysia
13.	Vietnam	Vietnam
14.	Singapore	Singapore
15.	Rest of the RCEP	Cambodia, Indonesia, Philippines, Singapore, Thailand, Rest of ASEAN
16.	USA	United States of America
17.	Mexico	Mexico

Sl.	New code	Sector description	Comprising old sectors code
1.	Agri	Agriculture including livestock and jute	pdr, wht, gro, v_f, osd, c_b, pfb, ocr, ctl, oap, rmk, wol, frs, cmt, omt, pcr
2.	Food	Processed food including fish	fsh, vol, mil, pcr, sgr, ofd, b_t
3.	RMG	Textiles and clothing	tex, wap
4.	Leather	Leather and leather goods	lea
5.	OthInd	All other industries	coa, oil, gas, oxt, omn, lum, ppp, p_c, chm, bph, rpp, nmm, i_s, nfm, fmp, ele, eeq, ome, mvh, otn, omf
6.	Services	All services sector	ely, gdt, wtr, cns, trd, afs, otp, wtp, atp, whs, cmn, ofi, rsa, obs, ros, osg, edu, hht, dwe

18.	Chile	Chile
19.	Peru	Peru
20.	Rest of the world	Rest of the countries in the world of GTAP database

Source: GTAP version 10

Table A.7: Impact on exports

		Simulation 1		Simulation 2		Simulation 3		Simulation 3A		Simulation 3B		Simulation 3C		Simulation 4		Simulation 5	
		Impact of LDC Graduation		Impact of RCEP only		Impact of CPTPP only		Impact of CPTPP with USA		Impact of CPTPP with UK		Impact of CPTPP with USA and UK		LDC+RCEP		LDC+CPTPP	
Country/ Regions	Base export (billion, $)	New export (billion, $)	% change	New export (billion, $)	% change	New export (billion, $)	% change	New export (billion, $)	% change	New export (billion, $)	% change	New export (billion, $)	% change	New export (billion, $)	% change	New export (billion, $)	% change
Bangladesh	**33.1**	29.2	**-11.8**	32.0	**-3.4**	32.8	**-1.1**	32.2	**-2.7**	32.7	**-1.2**	32.3	**-2.7**	28.2	**-15.0**	28.9	**-12.7**
UK	**698.4**	698.2	**0.0**	686.1	**-1.8**	695.9	**-0.4**	664.3	**-4.9**	698.9	**0.1**	724.0	**3.7**	685.9	**-1.8**	695.7	**-0.4**
European Union 27	**6,407.1**	6,407.2	**0.0**	6,230.4	**-2.8**	6,369.7	**-0.6**	6,026.8	**-5.9**	6,130.4	**-4.3**	5,997.4	**-6.4**	6,230.6	**-2.8**	6,369.9	**-0.6**
India	**432.8**	432.6	**0.0**	421.1	**-2.7**	430.1	**-0.6**	411.6	**-4.9**	402.2	**-7.1**	398.5	**-7.9**	421.0	**-2.7**	430.0	**-0.6**
China	**2,526.3**	2,526.3	**0.0**	2,973.4	**17.7**	2,483.9	**-1.7**	2,395.5	**-5.2**	2,375.0	**-6.0**	2,338.7	**-7.4**	2,973.5	**17.7**	2,483.9	**-1.7**
Canada	**518.6**	518.6	**0.0**	510.9	**-1.5**	531.0	**2.4**	595.4	**14.8**	530.4	**2.3**	596.3	**15.0**	510.9	**-1.5**	531.0	**2.4**
Japan	**920.5**	920.6	**0.0**	1,152.9	**25.2**	1,012.6	**10.0**	1,028.2	**11.7**	966.7	**5.0**	1,034.2	**12.4**	1,153.0	**25.3**	1,012.6	**10.0**
Australia	**291.3**	291.3	**0.0**	363.2	**24.7**	336.2	**15.4**	338.4	**16.2**	339.1	**16.4**	341.6	**17.3**	363.2	**24.7**	336.2	**15.4**
New Zealns	**51.2**	51.2	**0.0**	60.6	**18.3**	58.7	**14.5**	58.5	**14.2**	58.8	**14.8**	59.6	**16.3**	60.6	**18.3**	58.7	**14.5**
Brunei	**9.4**	9.4	**0.0**	10.7	**13.9**	10.8	**15.0**	10.5	**12.1**	10.8	**14.5**	10.5	**12.1**	10.7	**13.9**	10.8	**15.0**
South Korea	**678.1**	678.2	**0.0**	853.5	**25.9**	669.2	**-1.3**	606.3	**-10.6**	620.2	**-8.5**	604.2	**-10.9**	853.5	**25.9**	669.3	**-1.3**
Malaysia	**269.1**	269.2	**0.0**	318.9	**18.5**	306.7	**13.9**	304.9	**13.3**	302.1	**12.2**	303.6	**12.8**	319.0	**18.5**	306.7	**14.0**
Vietnam	**167.2**	167.2	**0.0**	176.9	**5.8**	177.7	**6.3**	194.9	**16.6**	178.7	**6.9**	195.8	**17.2**	176.9	**5.8**	177.7	**6.3**
Singapore	**349.3**	349.3	**0.0**	409.5	**17.2**	395.4	**13.2**	349.1	**-0.1**	348.0	**-0.4**	348.4	**-0.3**	409.5	**17.2**	395.4	**13.2**
Southeast Asia	**622.1**	622.2	**0.0**	755.5	**21.4**	610.5	**-1.9**	592.0	**-4.8**	596.9	**-4.1**	582.8	**-6.3**	755.6	**21.5**	610.6	**-1.9**
USA	**2,006.5**	2,006.9	**0.0**	1,971.0	**-1.8**	1,969.7	**-1.8**	2,331.6	**16.2**	1,929.6	**-3.8**	2,371.6	**18.2**	1,971.4	**-1.8**	1,970.1	**-1.8**

Mexico	**411.4**	411.5	**0.0**	404.6	**-1.7**	426.4	**3.6**	465.7	**13.2**	426.1	**3.6**	465.0	**13.0**	404.7	**-1.6**	426.4	**3.6**
Chile	**84.4**	84.4	**0.0**	79.8	**-5.5**	92.2	**9.2**	90.0	**6.6**	88.4	**4.7**	90.0	**6.6**	79.8	**-5.5**	92.2	**9.2**
Peru	**43.1**	43.1	**0.0**	41.1	**-4.7**	50.0	**16.1**	52.5	**21.8**	50.3	**16.6**	52.7	**22.3**	41.1	**-4.7**	50.1	**16.1**
Rest of World	**4,831.7**	4,832.6	**0.0**	4,600.9	**-4.8**	4,793.5	**-0.8**	4,576.9	**-5.3**	4,525.7	**-6.3**	4,410.3	**-8.7**	4,601.7	**-4.8**	4,794.4	**-0.8**

Source: Authors' estimates from the GTAP simulations

Table A.8: Sectoral Impacts

		Simulation 1		Simulation 2		Simulation 3		Simulation 3A		Simulation 3B		Simulation 3C		Simulation 4		Simulation 5	
		Impact of LDC Graduation		Impact of RCEP only		Impact of CPTPP only		Impact of CPTPP with USA		Impact of CPTPP with UK		Impact of CPTPP with USA and UK		LDC+RCEP		LDC+CPTPP	
Sector	**Base export (million, $)**	**New export (million, $)**	**% change**	**New export (million, $)**	**% change**	**New export (million, $)**	**% change**	**New export (million, $)**	**% change**	**New export (million, $)**	**% change**	**New export (million, $)**	**% change**	**New export (million, $)**	**% change**	**New export (million, $)**	**% change**
Agriculture including jute	**812.6**	928.3	**14.2**	819.7	**0.9**	825.4	**1.6**	859.3	**5.8**	826.3	**1.7**	857.6	**5.5**	930.4	**14.5**	939.8	**15.7**
Food including fish	**863.9**	766.2	**-11.3**	847.2	**-1.9**	867.6	**0.4**	868.7	**0.6**	866.5	**0.3**	868.0	**0.5**	751.7	**-13.0**	768.6	**-11.0**
Textiles and Clothing	**29,134.3**	24,853.4	**-14.7**	28,221.7	**-3.1**	28,767.9	**-1.3**	28,157.9	**-3.4**	28,732.2	**-1.4**	28,197.8	**-3.2**	24,085.6	**-17.3**	24,558.1	**-15.7**
Leather	**1,121.0**	1,086.3	**-3.1**	1,004.1	**-10.4**	1,101.1	**-1.8**	1,109.1	**-1.1**	1,099.8	**-1.9**	1,105.0	**-1.4**	936.9	**-16.4**	1,064.6	**-5.0**
Other industry	**893.7**	1,225.2	**37.1**	804.4	**-10.0**	889.1	**-0.5**	917.6	**2.7**	884.6	**-1.0**	905.6	**1.3**	1,101.6	**23.3**	1,214.0	**35.8**
All services	**306.8**	366.4	**19.4**	307.1	**0.1**	310.2	**1.1**	318.4	**3.8**	311.3	**1.5**	319.5	**4.1**	367.1	**19.7**	369.9	**20.6**
Total	**33,132.3**	29,225.8	**-11.8**	32,004.2	**-3.4**	32,761.3	**-1.1**	32,231.0	**-2.7**	32,720.8	**-1.2**	32,253.6	**-2.7**	28,173.4	**-15.0**	28,915.0	**-12.7**

Source: Authors' estimates from the GTAP simulations

Table A.9: Impact on GDP and welfare

		Simulation 1		Simulation 2		Simulation 3		Simulation 3A		Simulation 3B		Simulation 3C		Simulation 4		Simulation 5	
		Impact of LDC Graduation		Impact of RCEP only		Impact of CPTPP only		Impact of CPTPP with USA		Impact of CPTPP with UK		Impact of CPTPP with USA and UK		LDC+RCEP		LDC+CPTPP	
Country/ Region	**Base GDP ($,billion)**	Billion US$	**Welfare loss /gain as % of GDP**	Change in GDP ($, billion)	**Welfare loss /gain as % of GDP**	Change in GDP ($, billion)	**Welfare loss /gain as % of GDP**	Change in GDP ($, billion)	**Welfare loss /gain as % of GDP**	Change in GDP ($, billion)	**Welfare loss /gain as % of GDP**	Change in GDP $, billion	**Welfare loss /gain as % of GDP**	Change in GDP $, billion	**Welfare loss /gain as % of GDP**	Change in GDP $, billion	**Welfare loss /gain as % of GDP**
Bangladesh	**173**	-2.64	**-1.53**	-1.5	**-0.89**	-0.4	**-0.22**	-1.1	**-0.62**	-0.4	**-0.26**	-1.1	**-0.66**	-4.1	**-2.38**	-3.0	**-1.72**
UK	**2,990**	0.18	**0.01**	-12.7	**-0.43**	-2.8	**-0.09**	-14.1	**-0.47**	55.2	**1.84**	98.3	**3.29**	-12.5	**-0.42**	-2.6	**-0.09**
European Union 27	**15,542**	0.93	**0.01**	-63.1	**-0.41**	-15.7	**-0.10**	-80.9	**-0.52**	-30.7	**-0.20**	-109.8	**-0.71**	-62.2	**-0.40**	-14.8	**-0.10**
India	**2,042**	-0.05	**0.00**	-12.6	**-0.62**	-3.5	**-0.17**	-11.7	**-0.57**	-4.4	**-0.22**	-13.5	**-0.66**	-12.7	**-0.62**	-3.5	**-0.17**
China	**10,351**	0.11	**0.00**	355.6	**3.44**	-43.3	**-0.42**	-130.2	**-1.26**	-51.4	**-0.50**	-145.4	**-1.41**	355.7	**3.44**	-43.2	**-0.42**
Canada	**1,784**	0.05	**0.00**	-5.9	**-0.33**	41.8	**2.34**	192.8	**10.81**	54.9	**3.08**	194.2	**10.89**	-5.9	**-0.33**	41.8	**2.35**
Japan	**4,596**	0.06	**0.00**	238.3	**5.19**	90.6	**1.97**	142.5	**3.10**	97.5	**2.12**	145.7	**3.17**	238.4	**5.19**	90.6	**1.97**
Australia	**1,455**	0.02	**0.00**	77.5	**5.32**	44.9	**3.09**	47.0	**3.23**	48.9	**3.36**	49.6	**3.41**	77.5	**5.33**	44.9	**3.09**
New Zealns	**200**	0.00	**0.00**	12.2	**6.11**	8.4	**4.21**	10.3	**5.12**	10.2	**5.10**	11.8	**5.87**	12.2	**6.11**	8.4	**4.21**
Brunei	**17**	0.00	**0.00**	1.9	**11.31**	1.6	**9.10**	1.6	**9.09**	1.7	**9.70**	1.6	**9.52**	1.9	**11.32**	1.6	**9.10**
South Korea	**1,411**	0.01	**0.00**	153.9	**10.90**	-7.0	**-0.49**	-18.3	**-1.30**	-7.8	**-0.56**	-20.0	**-1.42**	153.9	**10.91**	-7.0	**-0.49**
Malaysia	**338**	0.00	**0.00**	54.4	**16.09**	33.5	**9.92**	39.5	**11.70**	35.9	**10.62**	41.3	**12.22**	54.4	**16.09**	33.6	**9.92**
Vietnam	**186**	-0.01	**0.00**	51.0	**27.40**	26.9	**14.42**	45.1	**24.22**	29.2	**15.69**	46.8	**25.13**	51.0	**27.40**	26.9	**14.43**
Singapore	**306**	-0.03	**-0.01**	60.9	**19.87**	36.7	**11.99**	49.4	**16.14**	40.9	**13.36**	52.3	**17.08**	60.9	**19.87**	36.7	**11.99**
Southeast Asia	**1,676**	0.00	**0.00**	144.8	**8.64**	-10.1	**-0.60**	-19.5	**-1.16**	-11.3	**-0.67**	-21.2	**-1.26**	144.9	**8.64**	-10.1	**-0.60**

USA	**17,348**	0.42	**0.00**	-68.9	**-0.40**	-45.7	**-0.26**	296.0	**1.71**	-55.1	**-0.32**	334.2	**1.93**	-68.5	**-0.39**	-45.3	**-0.26**
Mexico	**1,298**	0.03	**0.00**	-4.5	**-0.34**	31.2	**2.41**	133.8	**10.31**	32.5	**2.50**	131.5	**10.13**	-4.4	**-0.34**	31.2	**2.41**
Chile	**259**	0.00	**0.00**	-3.0	**-1.17**	8.7	**3.37**	13.2	**5.12**	9.3	**3.58**	13.5	**5.20**	-3.0	**-1.16**	8.7	**3.37**
Peru	**203**	0.00	**0.00**	-1.0	**-0.47**	4.3	**2.13**	6.2	**3.06**	4.6	**2.25**	6.3	**3.11**	-1.0	**-0.47**	4.3	**2.13**
Rest of World	**16,050**	0.35	**0.00**	-121.3	**-0.76**	-20.1	**-0.13**	-81.7	**-0.51**	-26.9	**-0.17**	-96.2	**-0.60**	-120.9	**-0.75**	-19.8	**-0.12**

Source: Authors' estimates from the GTAP simulations