SAFTA and the South Asian Countries: Quantitative Assessments of Potential Implications

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I. INTRODUCTION

In recent years, there has been increased interest in regional economic integration in South Asia. With the stalemate of the World Trade Organisation (WTO) negotiations, it is expected that the interest in regional trading arrangements will increase further. Regional integration in South Asia got the momentum in 1995 when the South Asian Association for Regional Cooperation (SAARC) Preferential Trading Arrangement (SAPTA) was signed. In early 2004, the SAARC member countries agreed to form a South Asian Free Trade Area (SAFTA), which has become a parallel initiative to the multilateral trade liberalisation commitments of the South Asian countries. SAFTA has come into force since July 01, 2006, with the aim of boosting intraregional trade among the seven SAARC members.

There have been some strong arguments for the regional economic integration in South Asia, as this integration is believed to generate significant intraregional trade and welfare gains for the South Asian countries. There are also aspirations among the policy makers and business community in these countries about the positive impacts SAFTA might have on their economies. It is expected that the SAFTA mechanism, when fully implemented, will provide the member countries improved market access in this region, help boost their exports to the region, and improve the intra-regional trade. SAFTA is expected to enhance the existing trade – the so-called static gains. The dynamic gains could be even higher than the static gains due to the possible expansion in the scale of operation by getting access to the markets of the relatively larger member countries.

However, critics have pointed out a number of factors which could undermine the potential benefits from the SAFTA. For example, it is argued out that there are limited complementarities in the region. Therefore, even under the free trade mechanism the expansion of intra-regional trade would not be very substantial. Secondly, these countries trade very little among themselves and major trading partners of the individual South Asian countries are located in the West. Thirdly, it is alleged that SAFTA may lead to substantial trade diversion than trade creation for some of the member countries. And, finally, it may work as a stumbling bloc to multilateral trade liberalisation. These concerns have also been endorsed by some studies while examining the potential impacts of SAFTA on the member countries.

Against the backdrop, this paper examines the implications of SAFTA for the South Asian countries. The structure of the paper is as follow: Section II provides an evolution of pattern of intra-regional trade in South Asia; Section III undertakes a review of the studies on potential implications of SAFTA; Section IV, using the a global general equilibrium model, explores the welfare impact of regional integration with trade facilitation in South Asia; and finally Section V identifies the challenges and policy options for making SAFTA effective and concludes.

II. PATTERN OF SOUTH ASIAN INTRA-REGIONAL TRADE

The intra-regional trade among the South Asian countries has been very low. Until 1951, the total intra-regional trade in South Asia as a percentage of the region's total trade was in the double digits. However, by 1967, as South Asia became progressively more closed relative to the world market, and also as the political rivalry between India and Pakistan intensified over time, the intra-regional trade fell to just 2 per cent of the region's total trade.. The share began to recover during the 1990s and by 2002 it increased to 4.4 per cent (Baysan *et al.*, 2006). It reached a peak of 6.21 per cent in 2004 and then declined to 4.84 per cent in 2008 (Figure 1). This decrease in intra-regional trade intensity has been due to South Asia's higher trade with rest of the world than within the region.[1] While South Asia's more outward trade is indeed a healthy sign, unlike European Union (EU), distribution of intra-regional trade in the region is highly skewed. Nevertheless, South Asia's intra-regional trade share, compared to other regions such as NAFTA, ASEAN, and EU, is perennially abysmal (Figure 2).

Figure 1: Intra-regional Trade in SAARC
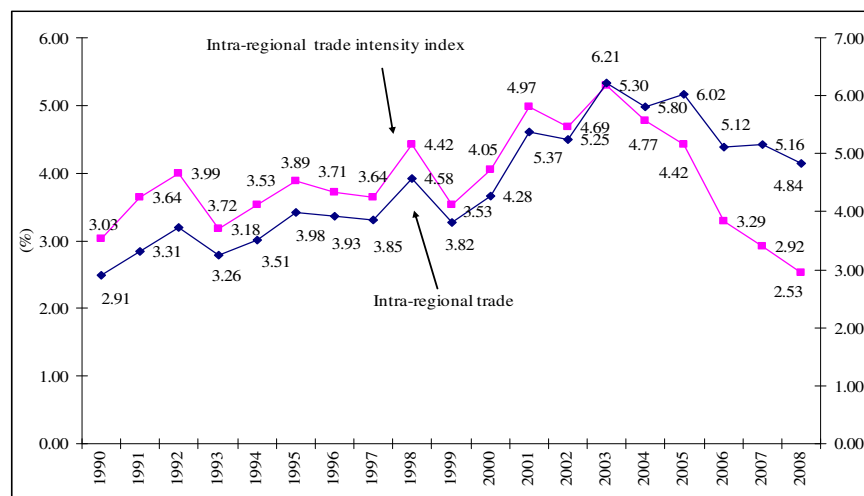
Note: Intra-regional trade intensity index is the ratio of intra-regional trade share to the share of world trade with the region and is calculated using exports data. An index of more than 1 indicates that trade flow within the region is larger than expected, given the importance of the region in world trade. Intra-regional trade is the percentage of intra-regional trade to total trade of the region and is calculated using exports data. A higher share indicates a higher degree of dependency on regional trade.
Source: De and Raihan (2011)

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[1]During 2004 and 2008, South Asia's trade with the world not only more than doubled (from US$245 billion in 2004 to US$600 billion in 2008) but also increased faster than intra-regional trade (calculated based on IMF DOTS).

Figure 2: SAARC vis-à-vis Other Regions
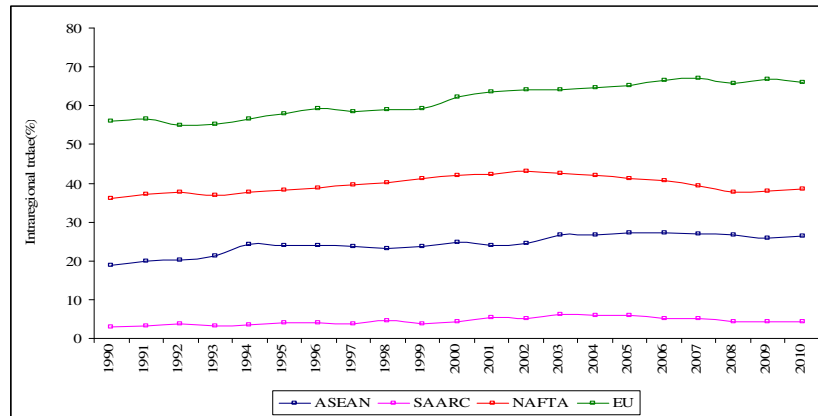
Note: Calculated based on Director of Trade Statistics Online Database, IMF.
Source: De and Raihan (2011)

The country-wise shares in trade regional imports and exports are presented in Figure 3. It appears that in 2008, Bangladesh had the largest share in intra-SARRC import (26 percent) while its share in the intra-SAARC export was only 3 percent. India, though registered only 15 percent share in intra-SAARC import, had 65 percent share in total intra-SAARC exports.

Figure 3: Country-wise Share (%) in Intra-SAARC Imports and Exports in 2008

Share (%) in Intra-SAARC Imports   **Share (%) in Intra-SAARC Exports**
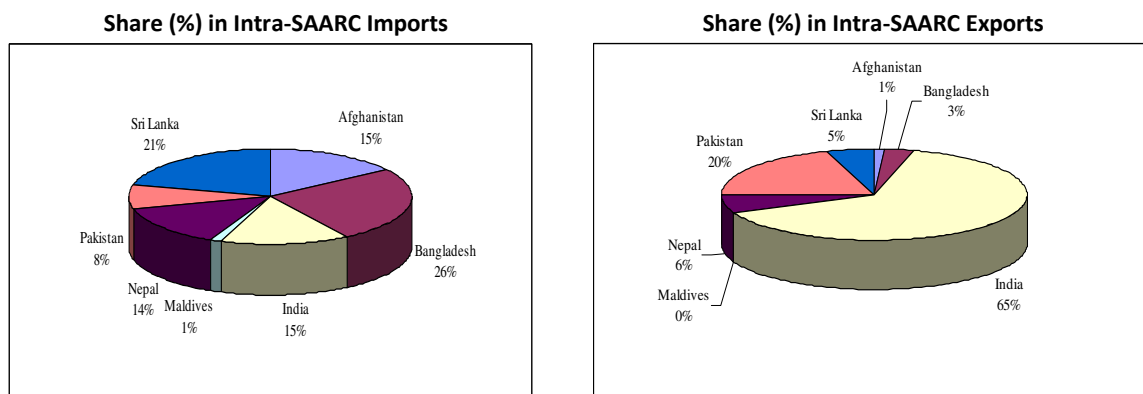
Source: IMF DOTS.

Except Nepal and Bhutan, all other South Asian countries have their major export destinations outside of South Asia. Regional export constitutes only 4.87 percent of total exports from Bangladesh. The corresponding figure for India is 5.23 percent. Since, India is the major export destination for Nepal and Bhutan, Bhutan's exports to India comprise close to 100 percent of its total exports and for Nepal the corresponding figure is 71 percent. It also appears that trade among the South Asian countries is unequally distributed. Bangladesh trades very little with Bhutan, Nepal and Sri Lanka. India is the dominant import source for Bhutan and Nepal, and India is also one of the major import sources for Bangladesh. But, the trade with India is largely one-sided, as the volumes of imports from

India to Bangladesh and Nepal are considerably very large, whereas the volume of exports from these countries to India are very low (Table 1).

Table 1: Trade among the South Asian Countries in 2007 (Millions US$)

To / From	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	Total Exports to the region	Export to the region as a % of country's total export
Bangladesh	NA	0.06	523.69	0.06	1.29	96.89	17.59	639.57	4.87
Bhutan	14.6	NA	495.78	0.26	4.52	..	..	515.16	98.8
India	2063.79	70.84	NA	79.71	1237.1	1584.29	2594.19	7629.92	5.23
Maldives	..	..	1.98	NA	..	..	16.17	18.15	16.78
Nepal	60.84	2.52	562.81	0.05	NA	1.11	2.09	629.41	71.04
Pakistan	279.25	0.03	291.7	4.01	0.81	NA	208.57	784.37	4.4
Sri Lanka	22.74	0.14	515.83	50.89	0.18	55.4	NA	645.19	8.42
Total Imports from the region	2441.22	73.59	2391.79	134.98	1243.9	1737.69	2838.61		
Regional Imports as % of country's total import	13.85	13.55	1.09	12.31	33.13	5.33	24.93		

Note: Computed from UN COMTRADE

Source: Raihan (2011)

High tariff rates among the South Asian countries have long been pointed out as one of the major reasons behind the low intra-regional trade in South Asia. South Asia, as a region, has higher average tariff rates than in any other region in the world. It can thus be argued that reduction in the tariff barriers among the South Asian countries is likely to have important implications in terms of improved market access of these countries in their neighbouring countries.

One important aspect of the South Asian intra-regional trade is the presence of informal border trade, which has always been thought to be very high. There have been some studies on the informal border trade among the South Asian countries and it is pointed out that the informal and illegal trade between India and Bangladesh, between India and Nepal, between India and Sri Lanka could be significant proportions of the recorded trade (Pohit and Taneja et al, 2003; Taneja et al, 2004; Das and Pohit, 2006; World Bank, 2006).

III. POTENTIAL IMPLICATIONS OF SAFTA: REVIEW OF QUALITATIVE AND QUANTITATIVE STUDIES

SAFTA has been able to generate significant interests among the policy makers, business community and researchers in South Asia. There are debates on whether South Asian countries stand to gain or lose from SAFTA. Findings of a number of qualitative and quantitative studies in this regard have been inconclusive, which have intensified this debate. The results of these studies have however been influenced by the differences in the methodologies used in these studies.

3.1. Welfare Effects of SAFTA: Review of Qualitative Assessments of Potential Implications

In trade theory, welfare effects of any RTA are analysed using two concepts: trade creation and trade diversion. The overall welfare effects of economic integration are ambiguous and require case-by-case judgment. The reason is that integration is both a policy of protection and a move towards free trade. The effect of the protectionist element of integration is called *trade diversion*, and the effect of the trade liberalisation element is called *trade creation*. The RTA's overall effect on welfare for a member country is determined by comparing the trade-creation and trade-diversion effects. If trade creation dominates, the formation of a RTA will enhance welfare. On the contrary, if trade diversion effect is greater than the trade creation effect, the RTA will lead to a welfare loss for the country under consideration.[2]

The fundamental arguments for regionalism rest on the evidences which suggest RTAs to be predominantly trade-creating (Rodriguez-Delgado, 2007). Krugman (1991) argued that most RTAs are likely to entail relatively low welfare losses resulting from trade diversion, since the countries involved are often geographical neighbours and hence already engage in a sizable amount of trade. It is also argued that through RTAs countries can 'lock-in' reform, which is often politically not feasible under multilateralism. Whalley (1996), for example, asserted that a desire for increased credibility of domestic reforms was a central preoccupation behind the Mexican negotiating position on NAFTA. Also, failure or stalemate of the multilateral trade talks means trade liberalisation can only take place through RTAs. It is highlighted that countries can build on the progress of regionalism and can ultimately move toward a freer trade regime on the whole.

There are, however, some critical arguments against formation of any RTA. It is alleged that through RTA the spirit of multilateralism is undermined. It is argued that the world might be divided into a few protectionist blocs and protectionists might accept RTAs to oppose further multilateral liberalisation. Therefore, RTAs might work as stumbling block rather than building blocs for multilateralism. Also, the 'spaghetti bowl' effect can emerge because of many complicated simultaneous RTA negotiations.[3] RTAs also discriminate against the non-member countries, and even LDCs could seriously be discriminated against due to the RTAs among the developed and developing countries. NAFTA is a good example in this regards, and it is argued that because of NAFTA, LDC like Bangladesh has been discriminated against while Mexico has been favoured in the US market (Razzaque, 2005). Furthermore, RTAs distort resource allocation, favouring regional producers to the potential detriment of

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[2] Note that if member countries are the low-cost producers of the traded good, there will be no trade diversion effect and integration will unambiguously increase welfare.
[3] See Bhagawati and Panagariya (1996).

local consumers (Rodriguez-Delgado, 2007). Research on RTAs also emphasized on the global consequences of multiple and overlapping RTAs in terms of the transaction costs they impose (Feridhanusetyawan, 2005). It is further put forward that resources in trade ministries are limited. Therefore, too much involvement in RTA negotiations may distract attention from multilateral liberalisation.

There are also concerns that through RTA (reducing tariffs for the member countries) the prices of goods imported from the member countries in the domestic market may not fall as the member countries may see the home country's market as a 'captive market' for their exporters. For example, it is often alleged by the critics of SAFTA that through this regional trading arrangement, Indian exporters may find a 'captive market' for their exporters in Bangladesh (World Bank, 2006). As a result, even though Bangladesh reduces the tariffs for Indian products, the prices of those products may not fall in Bangladesh as the Indian exporters will have the 'freedom' to raise prices up to the level at which the products from the rest of the world are sold in Bangladesh (with higher tariffs).

Baysan *et al* (2006) argued that the economic case for SAFTA was relatively weak. The authors pointed out three important features of the South Asian economies that might make an FTA among them *economically* unattractive. First, the economies are relatively small in relation to the world both in terms of the GDP and trade flows. Though in terms of population, the region is substantial (one fifth of the world) the current per-capita incomes are tiny so that the economic size of the region remains small: less than one twentieth of the world in terms of the GDP. And if India is taken out of the picture, this proportion drops to 0.4 percent. Bayson *et al* (2006) further argued that the probability that most efficient suppliers of the member countries were within the region was slim. Therefore, the probability that the FTA is likely to be largely trade diverting is quite high. The second reason relates to the relatively high levels of protection among the SAARC economies. If the country participating in a regional arrangement were itself open, it would not suffer from trade diversion even if it were tiny. It is, however, evident that the level of protection within the SAARC region remains high in all countries. According to Bayson *et al* (2006), the third and final reason that makes the economic case for SAFTA weak concerns the political economy of the selection of excluded sectors and RoO. When countries are allowed to choose sectors that can be excluded from tariff preferences in an FTA, domestic lobbies make sure that the sectors in which they may not withstand competition from the union partner are the ones that get excluded. In addition, the RoO can also be subject to abuse by the bureaucrat administering them. In cases where imports from the partner may be threatening an inefficient domestic competitor, bureaucratic discretion may be employed to block entry of the imports.

In contrast to the arguments put forward by Bayson *et al* (2006) policy makers and many business people in South Asia and especially in Bangladesh are rather optimistic about

SAFTA. They see SAFTA has significant potentials to expand trade among the member countries. It is also hoped that the member countries will be able to gain significantly by having greater market access in other South Asian countries, and especially in India. Those who argue for SAFTA state that despite the little volume through formal channel, substantial trade is already taking place in South Asia with informal trade amounting to a large proportion of formal trade. Taking into account the informal trade the 'real' intra-regional trade would be anywhere between 8-10 percent. Although studies have shown that there are limited complementarities in the SAARC region, it is argued that this was also the case in ASEAN during the mid-1970s, and that dormant complementarities in the region could be invigorated by intra-regional investment and FDI.[4] They also argue the cost of non-cooperation to be quite high (CUTS, 2012; RIS, 2004 and 1999; GEP, 1998; CUTS, 1996). The debate is, therefore, far from settled. Irrespective of the debate, there is a general belief that regional cooperation in South Asia should not be viewed only from the trade perspective, and that there are many gains from regionalism in other areas.

3.2. Review of Empirical Studies on Welfare Effects of SAFTA

Empirical studies on the quantitative assessments on SAFTA (and on SAPTA as well) differ significantly in terms of the methodologies employed. In broad, three types of techniques have been employed to examine the potential implications of SAPTA/SAFTA (Baysan *et al*, 2006). These are: (i) gravity model, (ii) partial equilibrium model; and (iii) computable general equilibrium model.

The gravity models basically try to explain bilateral trade flows with a set of explanatory variables that try to predict the impact of the arrangement on bilateral trade flows[5]. Gravity models, for the analysis of any RTA, have been used widely to predict the impact of the agreements on the bilateral trade flows. The studies that employ the gravity model include Srinivasan and Canonero (1995), Sengupta and Banik (1997), Hassan (2001), Coulibaly (2004), Hirantha (2004), Tumbarello (2006), Rahman (2003), Rahman *et al* (2006) and Rodriguez-Delgado (2007). The findings of these studies have been mixed. For example, studies by Srinivasan and Canonero (1995), Sengupta and Banik (1997) predicted that the impact of a South Asian FTA on trade flows would be small for India but much larger on the smaller countries. Sengupta and Banik (1997) predicted a 30 percent increase in the official

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[4] Intra-regional trade in ASEAN was close to 6 per cent in the mid-1970s, but now has increased to around 23 per cent. ASEAN too was characterised by limited complementarities at the beginning but the situation changed with preferential trading, FDI and intra-regional investment (SACEPS, 2002).

[5] Typically, the exercise involves estimating a bilateral trade-flow equation with bilateral trade (imports, exports or total trade at the aggregate or sector level) as the dependent variable and country characteristics such as the gross domestic products, population, land area, distance, the commonality of language or cultural ties and the existence of preferential trade arrangements as independent variables. Once estimated, the equation can then be used to predict the impact of a union between country pairs that did not have such a union during the sample period.

intra-SAARC trade and as much as 60 percent if illegal trade became a part of official trade. Coulibaly (2004) found net export creation, and Tumbarello (2006) and Hirantha (2004) found net trade creation from SAPTA. On the other hand, Hassan (2001) found net trade diversion effect from SAPTA, while Rahman (2003) found the dummy variable for South Asia to be insignificant, indicating that a regional integration is unlikely to generate significant trade expansion in this region.

Rahman *et al* (2006) used an augmented gravity model to identify trade creation and trade diversion effects originating from SAPTA. It was found that there was significant intra-bloc export creation in SAPTA; however, at the same time there was evidence of net export diversion in SAPTA. It was also appeared that Bangladesh, India and Pakistan were expected to gain from joining the RTA, while Nepal, Maldives and Sri Lanka were negatively affected.

Rodríguez-Delgado (2007) evaluated the SAFTA within the global structure of overlapping regional trade agreements using a modified gravity equation. It examined the effects of the Trade Liberalisation Programme (TLP) which started in 2006. The study predicted that SAFTA would have a minor effect on regional trade flows. The gravity model simulation suggested that SAFTA TLP would influence regional trade flows mainly by increasing India's exports, and imports from Bangladesh and Nepal.

It should, however, be pointed out that studies based on the gravity model to estimate the welfare gains from regional trading arrangements (RTAs) are methodologically flawed. Firstly, the left hand side of the gravity equation is the bilateral trade, not the welfare. But, the concepts of 'trade creation' and 'trade diversion' directly relate to the welfare of the country in question. Furthermore, gravity models are partial equilibrium analysis; therefore, they fail to take into consideration the inter-sectoral and inter-regional linkage effects. Therefore, gravity models can not actually estimate the welfare effects of any RTA, and therefore not capable of estimating the trade creation and trade diversion impacts of RTAs.

The major partial equilibrium studies on RTA in South Asia are by Govindan (1994), DeRosa and Govindan (1995), Pursell (2004), World Bank (2006) and Raihan (2011). The advantage with these models is that they are generally based on disaggregated data, and are also flexible enough which facilitates sector-specific study. However, the major problem with these models is that they ignore general-equilibrium interactions, and thus can't capture the inter-sectoral effects on the economy.

A partial equilibrium model for food sector, used by Govindan (1994), showed the effect of preferential liberalisation within the region on intraregional trade in food. The study found that such preferential liberalisation would generate welfare gains through increased trade in food within the region. The analysis by DeRosa and Govindan (1995), however, showed that the welfare gains were much higher when the member countries also go for unilateral

liberalisation on a non-discriminatory basis. A partial equilibrium analysis on the cement industry by Pursell (2004) suggested that the preferential liberalisation of cement industry between India and Bangladesh would lead to substantial gains through increased competition within the regional market.

With a view to exploring the potentials of India-Bangladesh bilateral FTA, World Bank (2006) provided a comparative assessment between Bangladesh and India with respect to a few industries like cement, light bulbs, sugar, and RMGs. The partial equilibrium simulation results suggested that in the case of cement, lights bulbs and sugar the likely effects of an FTA between Bangladesh and India seemed to be an expansion of Indian exports to Bangladesh, but no exports from Bangladesh to India. This was mainly because Indian export prices for these products were substantially lower than ex-factory before-tax prices of the same or similar products in Bangladesh. The simulations for RMGs predicted increased Bangladeshi exports to India, but also increased RMG exports from India to Bangladesh. The study found that a FTA would bring large welfare gain for consumers in Bangladesh provided there was adequate expansion of infrastructure and administrative capacity at custom borders. The study however cautioned that the benefits of such a FTA to Bangladesh could be wiped out if it had the effect of keeping out cheaper third-country imports, i.e., from East Asia, and such trade diversion costs could be huge. The study suggested that the only way to minimise the trade diversion costs would be through further unilateral liberalisation.

Raihan (2011) applied the WITS/SMART partial equilibrium model to explore the trade effects of SAFTA on the member countries. The study showed that under a full implementation of SAFTA, some of the South Asian countries would be able to increase their exports within the region quite substantially. India would appear to be the largest gainer as her exports to this region would increase by US$ 858 million. For Pakistan, Bangladesh and Nepal the rises in exports would be US$ 169 million, US$ 122 million and US$ 90 million respectively. Sri Lanka's exports to the region would rise, but because of the India-Sri Lanka bilateral FTA its exports to the Indian market would rise in small amount. The study also showed that except for Maldives and Sri Lanka, for all other countries the rise in their exports to India would constitute major shares of the rise in their total exports to the region. Raihan (2011) however showed that much of the potential of the rise in exports among the South Asian countries would be restricted by the presence of stringent sensitive list under SAFTA.

The studies based on computable general equilibrium (CGE) models predicted the effects of the trading arrangement on all variables including production, consumption, trade flows in all sectors of the economy as also on welfare. The studies that apply the CGE model to SAFTA analysis are Pigato *et al*. (1997), Bandara and Yu (2003) and Raihan and Razzaque (2007). All these three studies employed the Global Trade Analysis Project (GTAP) database and model, though they differ in details due to the evolution of the GTAP data itself.

Pigato *et al* (1997) found that SAFTA would produce benefits for member nations though unilateral trade liberalisation would yield larger gains. The study by Bandara and Yu (2003) found that, in terms of real income, SAFTA would lead to gains for India and Sri Lanka, while Bangladesh would lose. The authors also endorse the view that South Asian countries might gain much more from unilateral trade liberalisation and multilateral liberalisation than from SAFTA.

Raihan and Razzaque (2007) also used the GTAP model in explaining the welfare effects of SAFTA. The main contribution of their paper was to decompose the welfare effects of SAFTA (as calculated from the GTAP simulation results) into trade creation and trade diversion effects for individual South Asian countries.[6] It appeared that Bangladesh would incur a net welfare loss from the SAFTA scenario. Though, for Bangladesh there was a positive trade creation effect, the negative trade diversion effect would be large enough to offset the positive gain. However, all other South Asian countries would gain from SAFTA. The gain for India would be the largest. Raihan and Razzaque (2007) also explored the possible reasons for the large trade diversion effects for Bangladesh. From the GTAP simulation results it appeared that under SAFTA, imports from China and other low cost sources (all over the world) would decline while that from India would increase significantly, which indicated, as far as the imports into Bangladesh were concerned, a replacement of low lost cost import sources by a high cost source.

IV. THE WELFARE IMPACT OF SAFTA WITH TRADE FACILITATION IN SOUTH ASIA: A CGE ANALYSIS

It appears from the analysis of the studies based on CGE models on SAFTA that most of these studies predicted a welfare loss for Bangladesh, which would be primarily driven by a large trade diversion effect that would dominate over the trade creation effect. All other South Asian countries would however experience welfare gain. It has however been argued that the costs of trading across borders in South Asia are high. The issue of trade facilitation

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[6] It should, however, be noted that the original GTAP framework does not provide any estimates of trade creation and trade diversion aspects of the total welfare effects. In order to estimate these two effects the authors made some adjustments in the GTAP model. The GTAP model provides a net welfare estimate of the SAFTA simulation which is a sum of the trade creation and trade diversion effects. With a view to isolating the trade creation effect from the total welfare effect a separate simulation was run where necessary adjustments in the GTAP closure were made so that the imports to all the South Asian countries from all over the world (except from the South Asian countries) were held fixed. The welfare effects from this scenario were nothing but the trade creation effects for individual South Asian countries. This trade creation effect was then deducted from the total welfare effect in the original simulation to get the estimate of the trade diversion effect.

is thus very important to enhance trade flows among these countries[7]. It is important to note that import duties are gradually falling in most product categories in these countries and the scopes for gain through tariff reductions are being limited. However, there are significant scopes for gains through the reduction in transaction costs and faster transportation. Ahmed et al (2010) suggested that one of the key challenges facing South Asia was higher trade cost. Improved infrastructure and growth through improved connectivity, coupled with stronger institutions and less conflict and corruption would allow South Asia to share its benefits widely.

De and Raihan (2011) showed that improved trade facilitation coupled with regional transit would help increase the trade between India and Bangladesh. The study concluded that there was strong evidence that improving the efficiency of Customs and administrative procedures and simplification of trade-related documentation could facilitate trade between the two countries.

Despite the improvements, trade facilitation indicators in South Asia remain substantially poorer than those achieved in other region of the world. According to the Logistic Performance Index (LPI), South Asia is just ahead of Sub-Saharan Africa and well behind all other regions (Table 2). In terms of all sub-indicators of LPI, South Asia is much behind East Asia and Pacific.

Table 2: Logistic Performance Index: South Asia vs. Other Regions in 2010

Int. LPI Rank	Country	LPI	Customs	Infras-tructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
1	Europe & Central Asia	2.74	2.35	2.41	2.92	2.6	2.75	3.33
2	Latin America & Caribbean	2.74	2.38	2.46	2.7	2.62	2.84	3.41
3	East Asia & Pacific	2.73	2.41	2.46	2.79	2.58	2.74	3.33
4	Middle East & North Africa	2.6	2.33	2.36	2.65	2.53	2.46	3.22
5	South Asia	2.49	2.22	2.13	2.61	2.33	2.53	3.04
6	Sub-Saharan Africa	2.42	2.18	2.05	2.51	2.28	2.49	2.94

Source: LPI 2010, World Bank

According to the Doing Business surveys there has been substantial progress in streamlining trade in some South Asian countries over the last few years. However, the progress has not been equally spread across the region. Bangladesh and India experienced the most marked reductions in import documentation and the time required to process imports. In both countries, the time required for processing imports, from arrival at the port to final

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[7] Limão and Venables (2001) found a link between the quality of infrastructure and transport costs—and thus concluded that infrastructure investments are important for export-led economic growth. However, Subramanian and Arnold (2001) argued that differences in logistics performance are driven only in part by poor quality of physical infrastructure services such as road, rail, waterways, port services, and interfaces. The inadequacies often are caused by (non-tariff) policy and institutional constraints—such as procedural red tape, inadequate enforcement of contracts, poor definition and enforcement of rules of engagement, asymmetry in standards, delays in Customs, delays at ports and border crossings, pilferage or lack in transit, corruption, and highly restrictive protocols on movement of cargo.

destination, have been reduced, and the number of documents required for imports have also been reduced. Bangladesh and India also achieved smaller but still significant improvements in export trade facilitation. Trade costs in both countries fell for both exports and imports though the cost reductions were much larger for imports. However, Nepal showed very little change in its trade facilitation parameters though there appeared to be some increase in the documentation required for exports.

Despite the improvement, trade facilitation parameters in Bangladesh, remain poorer than for India (Table 3). According to the LPI 2010, Bangladesh was behind India but ahead of other South Asian countries. Nepal's performance was the worst. However, according to the Enabling Trade Index 2010 of World Economic Forum, Bangladesh and Nepal were the worst performing countries in South Asia (Table 4).

Table 3: LPI: South Asian Countries in 2010

International LPI Rank	Country	Overall LPI	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
47	India	3.12	2.7	2.91	3.13	3.16	3.14	3.61
79	Bangladesh	2.74	2.33	2.49	2.99	2.44	2.64	3.46
110	Pakistan	2.53	2.05	2.08	2.91	2.28	2.64	3.08
137	Sri Lanka	2.29	1.96	1.88	2.48	2.09	2.23	2.98
143	Afghanistan	2.24	2.22	1.87	2.24	2.09	2.37	2.61
147	Nepal	2.2	2.07	1.8	2.21	2.07	2.26	2.74

Note: Ranking is among 155 countries
Source: LPI 2010, World Bank

Table 4: The Enabling Trade Index 2010

Enabling Trade Rank Index Ranking	Countries	Overall Index	Sub Indices							
			Market Access		Border Administration		Transport and Communications Infrastructure		Business Environment	
			Rank	Score	Rank	Score	Rank	Score	Rank	Score
84	India	3.81	115	3.42	68	3.98	81	3.34	58	4.48
99	Sri Lanka	3.59	107	3.68	79	3.71	86	3.27	100	3.68
112	Pakistan	3.39	120	3.24	73	3.85	92	3.14	117	3.31
113	Bangladesh	3.38	52	4.37	100	3.21	117	2.53	114	3.41
118	Nepal	3.27	49	4.42	118	2.71	107	2.76	121	3.19

Note: Ranking is among 125 countries
Source: World Economic Forum

This study uses the GTAP global general equilibrium model to explore the effect of SAFTA with trade facilitation on the member countries[8]. The version 8 of the GTAP database has 2007 as the base year. This database has for the first time Nepal as a separate country. GTAP data on regions and commodities are aggregated to meet the objectives of this study. The version 8 of GTAP database covers 57 commodities, 129 regions/countries, and 5 factors of production. The current study has kept the 57-commodity classification but has aggregated 129 regions into 9 as shown in Tables 5 and 6 respectively.

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[8] A brief description of the GTAP model is provided in Annex 1.

Table 5: GTAP Commodity Classification in the Present Study

#	Sector Name	#	Sector Name
1	Paddy rice	30	Wood products
2	Wheat	31	Paper products, publishing
3	Cereal grains nec	32	Petroleum, coal products
4	Vegetables, fruit, nuts	33	Chemical, rubber, plastic prods
5	Oil seeds	34	Mineral products nec
6	Sugar cane, sugar beet	35	Ferrous metals
7	Plant-based fibers	36	Metals nec
8	Crops nec	37	Metal products
9	Cattle, sheep, goats, horses	38	Motor vehicles and parts
10	Animal products nec	39	Transport equipment nec
11	Raw milk	40	Electronic equipment
12	Wool, silk-worm cocoons	41	Machinery and equipment nec
13	Forestry	42	Manufactures nec
14	Fishing	43	Electricity
15	Coal	44	Gas manufacture, distribution
16	Oil	45	Water
17	Gas	46	Construction
18	Minerals nec	47	Trade
19	Meat: cattle, sheep, goats, horse	48	Transport nec
20	Meat products nec	49	Sea transport
21	Vegetable oils and fats	50	Air transport
22	Dairy products	51	Communication
23	Processed rice	52	Financial services nec
24	Sugar	53	Insurance
25	Food products nec	54	Business services nec
26	Beverages and tobacco products	55	Recreation and other services
27	Textiles	56	PubAdmin/Defence/Health/Education
28	Wearing apparel	57	Dwellings
29	Leather products		

Source: GTAP Database Version 8

Table 6: GTAP Region Aggregation in the Present Study

Aggregated regions	Comprising regions
Bangladesh	Bangladesh
India	India
Nepal	Nepal
Pakistan	Pakistan
Sri Lanka	Sri Lanka
Rest of South Asia	Comprising Afghanistan, Bhutan and Maldives
USA	USA
EU25	European Union
ROW	Rest of the World

Source: GTAP Database Version 8

One scenario is considered in this study: a full FTA in goods among the South Asian countries plus a cut in trade cost for intra-SAARC goods trade by 25 percent.[9] The welfare effects are reported in Table 7. Since the shock in the GTAP model has two sub components the welfare effects are also decomposed for these two sub-components. The welfare effects of tariff cuts on the South Asian counties due to SAFTA are consistent with the results of the earlier empirical studies (for example, Raihan and Razzaque, 2007). The negative welfare effect for Bangladesh is because of the larger trade diversion effect than the trade creation effect. However, all other South Asian countries would experience welfare gains due to tariff cut. The biggest gain from tariff cut appears to be for India. Now, incorporation of trade

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[9] In the GTAP framework, such reduction in trade cost is introduced by shocking on the transaction cost of the bilateral trade. In this regard, the "ams" - import-augmenting "technical change" in the Armington nest (which can be used to lower the effective price of imported products) is shocked.

facilitation would result in welfare gain for all the countries under consideration. Bangladesh's welfare loss from tariff liberalization in SAFTA would turn into a net welfare gain because of cut in trade cost. India would enjoy the biggest gain out of trade facilitation in South Asia.

Table 7: Welfare Effects from Tariff Cut and Trade Facilitation in SAFTA (Million US$ in 2007 price)

Countries	Tariff cut	Trade facilitation	Total gain	Gain from trade facilitation as % of total gain
Bangladesh	-136.21	1567.74	1431.50	109.52
India	1642.52	4120.01	5761.94	71.50
Nepal	463.02	1306.02	1769.04	73.83
Pakistan	1026.66	1860.74	2887.41	64.44
Sri Lanka	35.41	2125.01	2160.42	98.36
Rest of South Asia	277.59	1047.18	1324.75	79.05

Source: GTAP simulation result

The aforementioned analysis underscores the need for improved trade facilitation among the South Asian countries to reap the benefit of regional integration. It appears that the gains from trade facilitation are much bigger than mere tariff cut in South Asia. For Bangladesh, gain from trade facilitation is 110 percent of the total gain. For other South Asian countries the gains from trade facilitation as percent of total gain would also be high.

Table 8 presents the percent changes in exports and imports (bilateral and total) under SAFTA with increased trade facilitation. All the South Asian countries would experience rise in total exports. Given the very small base, the percent rise in total exports would be the highest for Nepal. It is interesting to note that for all South Asian countries, except Bangladesh, the rises in their total exports would be mainly driven by increased exports to the this region, since these countries would experience fall in exports to USA, EU and rest of the world. In the case of Bangladesh, the total exports would rise by 15 percent, which is quite high given Bangladesh's sizeable export base; however this rise in exports would be primarily driven by its increased exports to USA and EU. The reason is being that there would be increased access to cheaper raw materials for Bangladeshi exports because of her own tariff liberalisation under SAFTA.

Table 8: % Changes in Exports and Imports under SAFTA and Increased Trade Facilitation

To / From	Bangladesh	India	Nepal	Pakistan	Sri Lanka	Rest of South Asia	USA	EU	ROW	Total Export
Bangladesh		390.01	892.86	193.37	188.14	476.32	9.85	5.12	-0.16	15.06
India	270.90		192.71	262.63	94.05	209.09	-4.01	-3.85	-3.58	4.22
Nepal	425.00	479.11		126.09	100.00	-50.00	-73.51	-70.00	-62.09	136.44
Pakistan	400.27	1105.79	175.00		127.79	107.11	-17.47	-18.41	-18.33	10.76
Sri Lanka	314.29	190.83	154.55	135.07		730.80	-29.82	-23.57	-17.47	1.35
Rest of South Asia	52.60	299.45	75.00	208.51	85.86	250.00	-43.14	-40.03	-29.25	36.42
Total import	16.14	3.49	111.88	10.17	10.39	36.23	-0.14	-0.11	-0.15	

Source: GTAP simulation result

V. POLICY IMPLICATIONS AND CONCLUSION

This paper has examined the implications of SAFTA for the South Asian countries. In doing so it has reviewed the pattern of intra-regional trade in South Asia. The paper has reviewed a number of studies which conducted qualitative and quantitative assessments of SAFTA. Using the global general equilibrium model the paper has also explored the welfare implications of tariff liberalisation under SAFTA and increased trade facilitation in South Asia. The simulation results suggest that the gains from trade facilitation in South Asia are much higher than the gains from mere reduction in tariff in goods. Therefore, in order to make SAFTA effective, trade liberalization is a necessary condition, but not a sufficient one. Utmost priority should be given to developing trade infrastructure facilities (hardware) and trade facilitation (software). Added to this, complementary policy reform in the Customs, accompanied by improved procedural and operational efficiency, is essential to support trade liberalization. Undoubtedly, intra-regional investment flow has a strong role for deepening the regional integration. Inflow of foreign investment will have a favourable impact on exports and imports as well. It would also generate employment. Energy sector is an area that provides enormous investment and trade opportunities and thus gives positive benefits for most of the member countries.

India, being a larger economy, needs to help other member countries in achieving a higher degree of complementarity by committing not only greater Indian investments but also helping these countries to attain higher trade capacity. The success of regional integration may depend crucially on the extent to which the larger market, that is, India (given its relative size), becomes more accessible to products of other South Asian countries and vice versa. Therefore, the prospects of increasing regional trade may depend more on the existence of product complementarities and production fragmentation.

The existing SAFTA Treaty is predominantly centred on 'trade in goods'. SAFTA Treaty should go beyond the mere Agreement in 'trade in goods', and there is a need for extended regional co-operation mechanism in the areas of investment, finance, services trade, trade facilitation and technology transfer. This calls for creating an enabling environment to promote intra-regional investment. The creation of a SAARC Investment Area through an intra-SAARC investment agreement could create such an environment (SACEPS, 2002). As an example, the trade-investment nexus has come into effective operation in India-Sri Lanka bilateral FTA and the large trade deficits between these two countries have been compensated by the capital account through significant investment flows (RIS, 2004). In the context of investment flows, horizontal and vertical integration of industries of South Asia becomes important to face the global competitive pressures. Even though a multitude of literature is available on these crucial issues, the existing agreement has completely overlooked these areas and solely focused on trade facilitating measures in Article 8.

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Annex 1: The GTAP Model

The global computable general equilibrium (CGE) modelling framework of the Global Trade Analysis Project (GTAP) (Hertel, 1997), is the best possible way for the *ex ante* analysis of the economic and trade consequences of multilateral or bilateral trade agreements. The GTAP model is a comparative static model, and is based on neoclassical theories.[10] The GTAP model is a linearised model, and it uses a common global database for the CGE analysis. The model assumes perfect competition in all markets, constant returns to scale in all production and trade activities, and profit and utility maximising behaviour of firms and households respectively. The model is solved using the software GEMPACK (Harrison and Pearson, 1996).

In the GTAP model each region has a single representative household, termed as the regional household. The income of the regional household is generated through factor payments and tax revenues (including export and import taxes) net of subsidies. The regional household allocates expenditure over private household expenditure, government expenditure and savings according to a Cobb Douglas per capita utility function.[11] Thus each component of final demand maintains a constant share of total regional income.

The private household buys commodity bundles to maximise utility subject to its expenditure constraint. The constrained optimising behaviour of the private household is represented in the GTAP model by a Constant Difference of Elasticity (CDE) expenditure function. The private household spends its income on consumption of both domestic and imported commodities and pays taxes. The consumption bundles are Constant Elasticity of Substitution (CES) aggregates of domestic and imported goods, where the imported goods are also CES aggregates of imports from different regions. Taxes paid by the private household cover commodity taxes for domestically produced and imported goods and the income tax net of subsidies.

The government also spends its income on domestic and imported commodities and also pays taxes. For the government, taxes consist of commodity taxes for domestically produced and imported commodities. Like the private household, government consumption is a CES composition of domestically produced goods and imports.

The GTAP model considers the demand for investment in a particular region as savings driven. In the multi country setting the model is closed by assuming that regional savings are homogenous and contribute to a global pool of savings (global savings). This is then allocated among regions for investment in response to the changes in the expected rates of

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[10] Full documentation of the GTAP model and the database can be found in Hertel (1997) and also in Dimaranan and McDougall (2002).
[11] Savings enter in the static utility function as a proxy for future consumption.

return in different regions. If all other markets in the multi regional model are in equilibrium, if all firms earn zero profits, and if all households are on their budget constraint, such a treatment of savings and investment will lead to a situation where global investment must equal global savings, and Walras' Law will be satisfied.

In the GTAP model, producers receive payments for selling consumption goods and intermediate inputs both in the domestic market and to the rest of the world. Under the zero profit assumption employed in the model, these revenues must be precisely exhausted by spending on domestic intermediate inputs, imported intermediate inputs, factor income and taxes paid to regional household (taxes on both domestic and imported intermediate inputs and production taxes net of subsidies).

The GTAP model considers a nested production technology with the assumption that every industry produces a single output, and constant returns to scale prevail in all markets. Industries have a Leontief production technology to produce their outputs. Industries maximise profits by choosing two broad categories of inputs namely, a composite of factors (value added) and a composite of intermediate inputs. The factor composite is a CES function of labour, capital, land and natural resources. The intermediate composite is a Leontief function of material inputs, which are in turn a CES composition of domestically produced goods and imports. Imports are sourced from all regions.

The GTAP model employs the Armington assumption which provides the possibility to distinguish imports by their origin and explains intra-industry trade of similar products. Following the Armington approach import shares of different regions depend on relative prices and the substitution elasticity between domestically and imported commodities.