

What Does MFN Trade Mean for India and Pakistan?

Can MFN be a Panacea?

Prabir De
Selim Raihan
Ejaz Ghani



Abstract

India and Pakistan, the two largest economies in South Asia, share a common border, culture and history. Despite the benefits of proximity, the two neighbors have barely traded with each other. In 2011, trade with Pakistan accounted for less than half a percent of India's total trade, whereas Pakistan's trade with India was 5.4 percent of its total trade. However, the recent thaw in India-Pakistan trade relations could signal a change. Pakistan has agreed to grant most favored nation status to India. India has already granted most favored nation status to Pakistan. What will be the gains from trade for the two countries? Will they be inclusive? Is most favored nation status a panacea? Should the granting of most favored nation status be accompanied by improvements in trade facilitation, infrastructure, connectivity, and logistics to reap the true benefits of trade and to promote shared prosperity? This paper attempts to answer these

questions. It examines alternative scenarios on the gains from trade and it finds that what makes most favored nation status work is the trade facilitation that surrounds it. The results of the general equilibrium simulation indicate Pakistan's most favored nation status to India would generate larger benefits if it were supported by improved connectivity and trade facilitation measures. In other words, gains from trade would be small in the absence of improved connectivity and trade facilitation. The idea of trade facilitation is simple: implement measures to reduce the cost of trading across borders by improving infrastructure, institutions, services, policies, procedures, and market-oriented regulatory systems. The returns can be huge, even with modest resources and limited capacity. The dividends of trade facilitation can be shared by all.

This paper is a product of the Economic Policy and Debt Unit, Poverty Reduction and Economic Management Network. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at EGhani@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

What Does MFN Trade Mean for India and Pakistan? Can MFN be a Panacea?

Prabir De, Selim Raihan, Ejaz Ghani ¹

¹ The authors are, respectively, Fellow, Research and Information System for Developing Countries (RIS), New Delhi (prabirde@hotmail.com), Professor, Dhaka University, Dhaka (selim.raihan@econdu.ac.bd) and Lead Economist, PREM, The World Bank (Eghani@worldbank.org). This paper was prepared and discussed in 2012. Authors are grateful to two anonymous referees, and Ulrich Bartsch, Jose R. Lopez Calix, Kalpana Kochhar, Erik Nora and Daria Taglioni for their useful comments. The authors are responsible for any remaining errors. The views expressed here are those of the authors and not necessarily The World Bank or any institution they may be associated with.

1. INTRODUCTION

India and Pakistan, the two largest countries in South Asia with nearly 1.4 billion people, are close to a new dawn in history. The two neighbors, who had ring-fenced each other for more than six decades, are now progressing towards closer economic relations with a vision to enhancing peace and stability in the region. Both countries had overcome many significant hurdles in normalizing the trade relations in past, of which Pakistan's recent decision to extend the most favored nation (MFN) status to India is the most significant one.

Trade between the two countries never had a smooth ride in the past. Bilateral trade always faced a series of bottlenecks, cascaded mostly by political tension and rivalry. After partition in 1947, India accounted for about 70 percent of Pakistan's official trade. However, discordant political relations brought a halt to bilateral official trade between the two countries. During 1965 and 1973, bilateral trade flows were negligible. In 1971, India and Pakistan signed the first trade agreement, which did not last long. Pakistan introduced a first positive list in 1989 (four products originally), and then kept the number increasing almost every year. Soon after establishment of the WTO in 1995, India granted MFN status to Pakistan. From the end of 1990s until the middle of the past decade, political issues continued to affect the bilateral economic relations.

India and Pakistan revived trade talks in 2011. These trade talks with serious acts on both sides have been guiding India and Pakistan towards building closer economic ties. For example, Pakistan decided to extend MFN status to India in 2012, and replaced the restricted positive list with a negative list in February 2012. India reciprocated by allowing FDI from Pakistan. The two countries have also agreed to simplify customs procedures, and facilitate the process of goods certification and visa liberalization.² Recent results are a bit more encouraging. For example, Pakistan's exports to India during April- December 2012 increased by 66 percent to US\$ 461 million, whereas some new products of Pakistan have started getting higher market access in India (e.g. US\$ 33.24 million export of Styrene³ (HS code 29025000) and US\$ 143.81 million export of brass scrap (HS code 74040022) to India during April to December 2012).⁴ India's exports to Pakistan, on the other hand, witnessed slower growth during April to December 2012. But some Indian products found new markets in Pakistan during the same period, such as skim milk (US\$ 8.01 million), biscuits (US\$ 3.98 million), bangles and imitation jewelry (US\$ 4 million), and some existing products got higher market access such as cotton and polyester fabrics (US\$ 278 million).⁵ Greater trade with India offers an immediate and rich possibility of economic growth for Pakistan and India will also benefit as it is a positive sum game (Husain, 2013).

So what will be the gains from trade? Which industries will benefit? What needs to be done to realize the maximum benefits from the MFN? This paper presents a set of policy recommendations with a view to strengthening the economic relations between India and Pakistan. It provides estimates on the gains from MFN trade using a global computable general

² Refer, Raihan and De (2013) for a detailed account of bilateral trade relations.

³ This is also known as vinyl benzene and phenyl ethane.

⁴ Sourced from Export – Import Databank, Department of Commerce, Government of India, New Delhi

⁵ Ibid

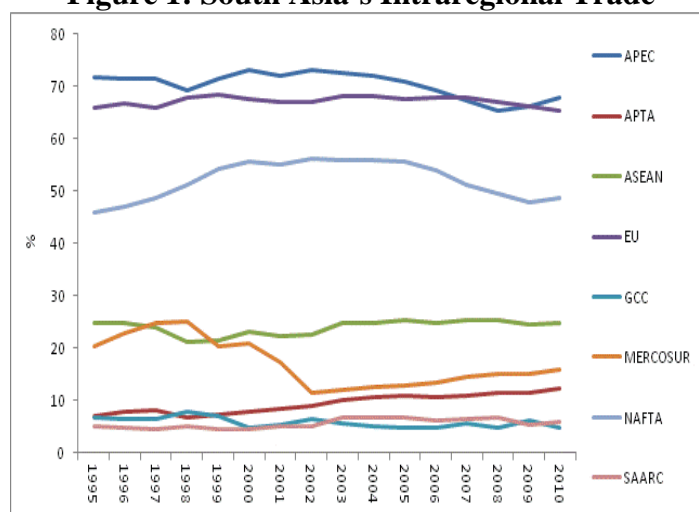
equilibrium (CGE) model (the GTAP model) and country dynamic CGE models of India and Pakistan. The rest part of the paper is organized as follows. Section 2 presents stylized facts on India – Pakistan trade regime. Section 3 analyses trade gains and the macroeconomic, sectoral and welfare impacts in India and Pakistan for MFN regime of tariff changes and declining transportation costs between the two countries. Section 4 examines policy options. Section 5 concludes.

2. BILATERAL TRADE REGIME

Low bilateral trade is a constraint to growth. South Asia’s intraregional export grew to only US\$ 17.41 billion in 2010 from about US\$ 2.44 billion in 1995, while Southeast Asia, a region of comparable size in population and GDP, saw its intraregional exports increase to about US\$ 262 billion in 2010. Over the same period, intraregional trade within South Asia rose to only 6 percent from 5 percent, whereas Southeast Asia boosted its intraregional trade share to more than 25 percent (Figure 1).

South Asia remains one of the least integrated regions in the world. Pakistan and India account for almost 92 percent of South Asia’s GDP, 85 percent of South Asia’s population, and 80 percent of South Asia’s surface area, whereas only 20 percent of the regional trade is India-Pakistan trade.⁶

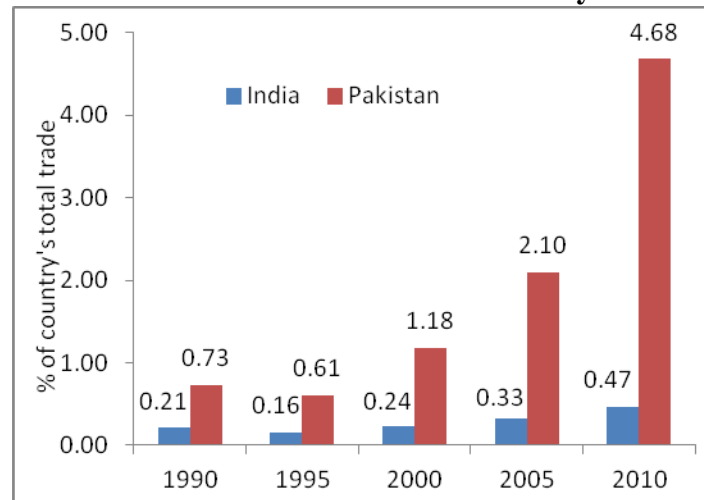
Figure 1: South Asia’s Intraregional Trade



Source: Calculated based on UNCTAD Stat

⁶ Data refers to the year 2010, sourced from WDI Online Database, the World Bank

Figure 2: Bilateral Trade as Percent of Country's Total Trade

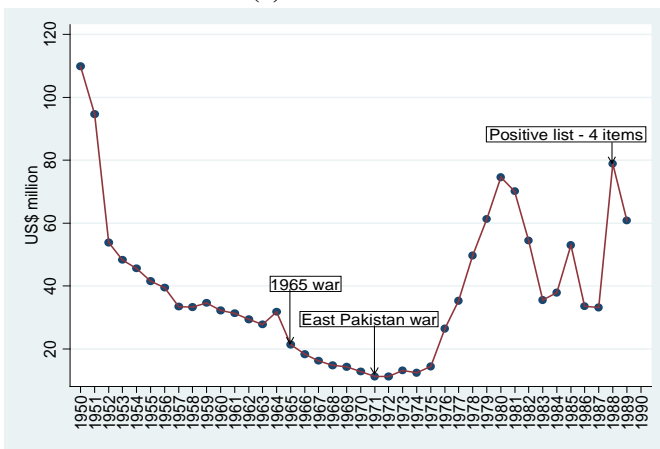


Source: Calculated based on IMF DOTS

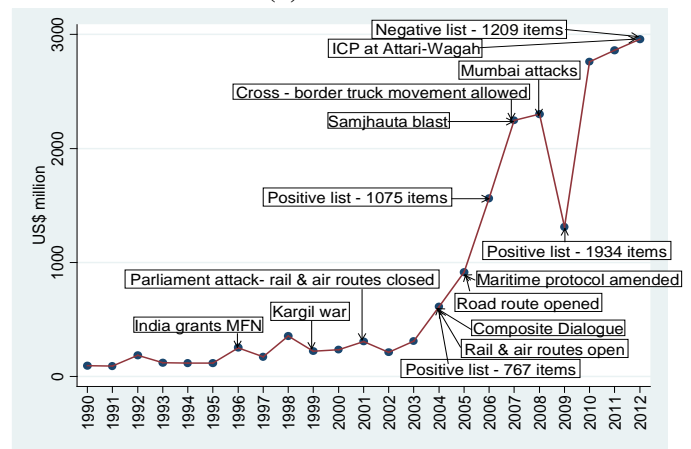
South Asia's two largest economies barely trade with each other. Despite the fact that the trade between these two countries increased over the years, India's trade with Pakistan remained negligible (Figure 2). By 2010, trade with Pakistan accounted for less than half a percent of India's total trade, whereas Pakistan's trade with India was 4.7 percent of its total trade.

Figure 3: Events Influenced Pakistan – India Trade

(a) 1950 – 1990



(b) 1990-2012



*Data for 2011 and 2012 are linear forecasts.

Source: Authors

India-Pakistan bilateral trade witnessed an upward trend in the second half of the last decade. Figure 3 illustrates the major events influenced the bilateral trade between India and Pakistan. Bilateral trade increased sharply, owing much to the India-Pakistan “Composite Dialogue” in 2004. India's trade with Pakistan trebled in 2010 and reached an all time record of US\$ 2.56 billion (Table 1). India's export to Pakistan increased much faster than its imports, thereby making India's trade surplus to increase from less than US\$ 100 million at the beginning of the last decade to US\$ 1.94 billion in the first year of the ongoing decade (Table 1). Therefore,

the rising trade between India and Pakistan has also been accompanied by a sharp rise in the trade deficit between them.⁷ Nevertheless, compared with their economic strength, trade between India and Pakistan is negligible and much below its potential.

Table 1: India's Trade with Pakistan

	Export	Import	Total Trade	Trade Balance
	(US\$ million)			
1990	43.49	44.86	88.35	-1.37
1995	70.4	37.37	107.77	33.03
2000	163.33	65.05	228.38	98.28
2005	647.19	158.42	805.61	488.77
2010	2252.89	310.44	2563.33	1942.45
	CAGR (%)			
1990-1999	9.22	9.88	9.56	
2000-2009	27.45	17.32	25.18	

Source: Calculated based on UNCOMTRADE

Table 2: Composition of India's Top 15 Exports to Pakistan

HS Code	Commodity Description	2000		2005		2010	
		Export (US\$ million)	Share* (%)	Export (US\$ million)	Share* (%)	Export (US\$ million)	Share* (%)
1701	Cane or beet sugar and chemically pure sucrose, in solid form	37.11	22.65	1.09	0.18	611.65	27.36
5201	Cotton, not carded or combed.	**	**	33.18	5.60	300.33	13.43
5407	Woven fabrics of synthetic filament yarn	0.00	0.00	0.01	0.00	299.09	13.38
2902	Cyclic hydrocarbons.	0.13	0.08	119.03	20.07	177.73	7.95
2304	Oil-cake and other solid residues	25.95	15.84	47.31	7.98	75.52	3.38
0713	Dried leguminous vegetables and shelled	0.19	0.12	18.86	3.18	58.40	2.61
4011	New pneumatic tyres, of rubber	7.01	4.28	35.28	5.95	36.88	1.65
3204	Synthetic organic colouring matter	7.16	4.37	13.49	2.27	32.37	1.45
2710	Petroleum oils and oils obtained from bituminous minerals	**	**	21.72	3.66	26.49	1.18
0904	Pepper of the genus Piper	3.42	2.09	0.09	0.01	25.52	1.14
3808	Pesticides	0.05	0.03	2.63	0.44	24.88	1.11
0902	Tea	5.84	3.57	7.69	1.30	23.42	1.05
7202	Ferro-alloys	0.39	0.24	5.87	0.99	22.23	0.99
3902	Polymers of propylene or of other olefins	10.80	6.59	21.97	3.70	20.60	0.92
2942	Other organic compounds	6.17	3.76	45.12	7.61	20.47	0.92
Total export from India to Pakistan		163.83	63.62	593.06	63.11	2235.79	79.33

Note: *Share in total export ** No trade

Source: Calculated based on UNCOMTRADE

⁷ The widening and surplus trade balance is in favor of India; but it should not be the major concern. Bilateral trade deficit has to be seen in the light of country's total trade balance.

Table 3: Composition of Pakistan's Top 15 Exports to India

HS Code	Commodity Description	2000		2005		2010	
		Export (US\$ million)	Share* (%)	Export (US\$ million)	Share* (%)	Export (US\$ million)	Share* (%)
0804	Fruits, fresh or dried.	25.11	36.07	24.76	14.92	59.55	18.57
2523	Cement	**	**	**	**	34.38	10.72
2710	Petroleum oils and oils obtained from bituminous minerals, other than crude	**	**	**	**	23.34	7.28
7801	Unwrought lead	**	**	1.43	0.86	20.93	6.53
2711	Petroleum gases and other gaseous hydrocarbons	**	**	**	**	16.02	5.00
2917	Polycarboxylic acids, their anhydrides, halides, peroxides and peroxyacids	0.18	0.27	7.21	4.35	13.51	4.21
2903	Halogenated derivatives of hydrocarbons.					12.26	3.82
5209	Woven fabrics of cotton	0.14	0.21	9.45	5.70	12.20	3.80
2902	Cyclic hydrocarbons.	**	**	**	**	11.75	3.66
2836	Carbonates; peroxocarbonates	0.02	0.03	0.00	0.00	10.46	3.26
5208	Woven fabrics of cotton	0.19	0.27	10.45	6.30	10.09	3.15
0713	Dried leguminous vegetables, shelled, whether or not skinned or split.	2.42	3.47	64.90	39.11	9.72	3.03
5101	Wool, not carded or combed.	0.02	0.03	1.91	1.15	8.68	2.71
5205	Cotton yarn (other than sewing thread)	0.36	0.52	3.43	2.07	6.31	1.97
3923	Articles for the conveyance or packing of goods, of plastics	**	**	0.69	0.42	6.13	1.91
	Total export from Pakistan to India	69.62	40.86	165.95	74.86	320.73	79.61

Note: *Share in total export ** No trade

Source: Calculated based on UNCOMTRADE

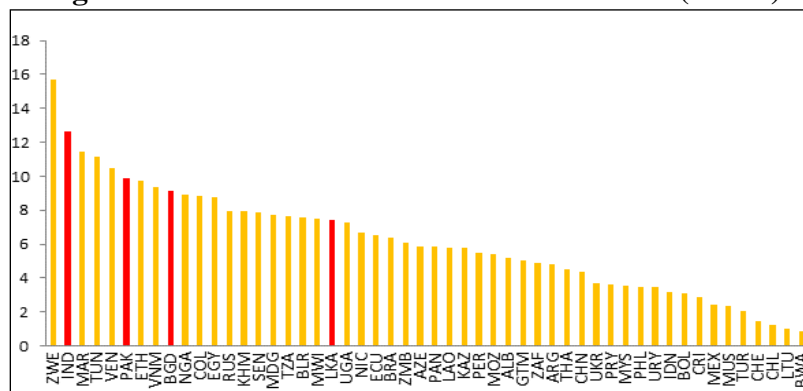
The composition of exports from India to Pakistan has been primarily limited to about 15 commodities, which on average accounted for around 64 percent of the total Indian exports to Pakistan in 2000, but increased to around 80 percent by 2010 (Table 2). These commodities include sugar, raw cotton, synthetic fabrics, tea, petroleum products and chemicals, reflecting India's more diversified industrial base. Shares of both raw cotton and woven fabrics in India's export to Pakistan increased from almost zero in 2000 to more than 13 percent in 2010, whereas the share of oil-cake and other solid residues contracted from about 16 percent to 3 percent during the same period.

The composition of official exports from Pakistan to India has also been limited to very few commodities. These include fruits and vegetables, wool and products, petroleum products, chemicals, lead, and more recently cement. In 2010, the sectors with the largest shares in exports from Pakistan to India were of fruits (19 percent), followed by cement (11 percent), and petroleum products (7 percent) (Table 3).

Trade between India and Pakistan is restricted by closed trade regimes. Pakistan and India have amongst the most restrictive trade regimes (Figure 4). Bilateral barriers to trade are very complex in nature and "thick" at the India-Pakistan land border. India and Pakistan also perform poorly with their global peers on trade logistics. Non-price barriers (e.g., costs on account of

documentation and transportation) surpass the price barrier in South Asia trade.⁸ Trade becomes uncompetitive when channeled through Dubai due to the rising transportation costs, since the normal/MFN trade at land border between India and Pakistan is not permitted. While both the countries have adopted a negative list of trade, they maintain a positive list for trade through land border, which is inconsistent with the GATT principles.

Figure 4: Overall Trade Restrictiveness Index (OTRI)

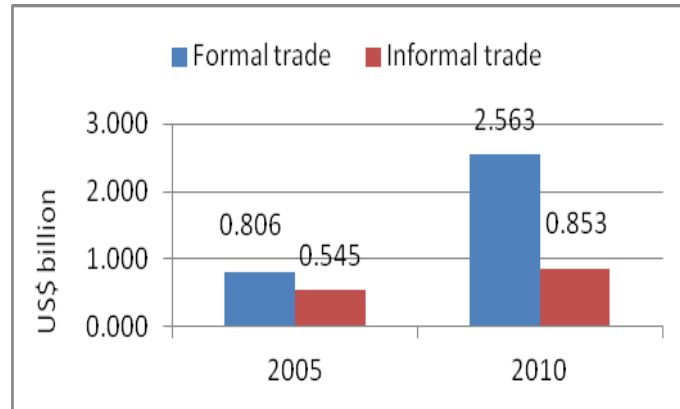


Source: Authors own collection from Pitigala

In the face of restrictive trade policies and transport bottlenecks, there is a large bilateral informal trade, which varies from half a billion to about a billion US\$ (Figure 5). At present, a great deal of trade occurs via Dubai, a trade process which is inefficient and fraught with illegalities effectively functioning as behind-the-border barriers to trade. The composition of informal trade between the two countries shows that a range of products are avoiding official tariff and non-tariff barriers to reach the third country, reflecting the potential for expanding official trade. SAARC Chamber of Commerce and Industry (SCCI) and several other business groups in Pakistan listed a variety of goods and services traded informally or through third country which could offer considerable potential for trade between the two countries (SCCI, 2011). Indian products that arrive in Pakistan through this process include tires, auto components, pharmaceuticals, engineering products, pans, chemicals and some textiles. These sectors in India will therefore benefit immediately as a result of a changing trading environment. Also, consumers in Pakistan will benefit from reduced prices of these products. Similarly, Pakistan's export to India, consisting of cement, fruit and vegetables, cotton, some specialized textiles, and sports items – which also currently arrive via Dubai - are expected to experience a rapid boost. These are only the existing export sectors, and there are possibilities of emergence of trade in new products between these two countries in the changing environment.

⁸ Refer, De (2009a, 2011), for a general discussion on cost of trade in South Asia.

Figure 5: Formal and Informal Trade between India and Pakistan

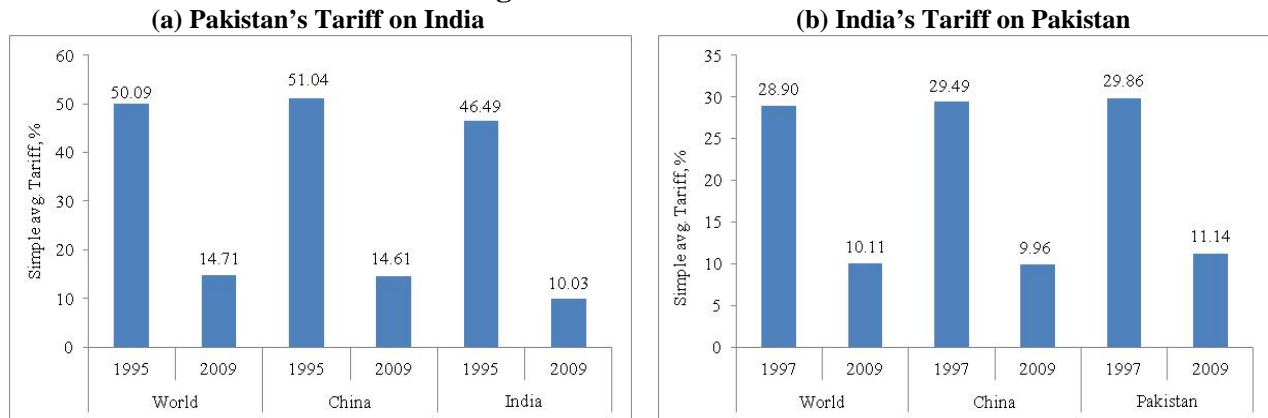


Note: Formal trade collected from IMF DOTS, and informal trade for 2005 was collected from Khan et al (2007) whereas the same for 2010 was calculated based on Lopez-Calix (2012)

Source: Authors

High tariff still exists on some specific goods. For example, India's tariffs are relatively high on imports of textiles and agricultural products from Pakistan. It should also be mentioned that tariff between India and Pakistan has come down much faster than that of non-tariff barriers in the recent past.⁹

Figure 6: Trends in Tariff



Note: Tariff counts effectively applied rate (EAS) except for the year 2009 for which it is replaced by preferential rate for China and India as partners of Pakistan and China and Pakistan as partners of India.

Source: Authors based on WITS

Despite the fall in average tariffs, trade restrictiveness of both India and Pakistan has been heavily triggered by the large volume of NTBs.¹⁰ In promoting trade between India and

⁹ Non-tariff barriers at-the-border include quotas, import bans, technical barriers to trade (TBT), non-tariff barriers (not otherwise specified). Non-tariff measures behind-the-border include consumption subsidies, local content requirements, public procurement, bailout/state aid measures, export subsidies, trade finance support, support to state-owned trading enterprises and state-controlled companies. Others include investment, migration, intellectual property protection and other service sector measures.

¹⁰ India still has significant NTBs. For example, the NTB frequency/trade coverage ratio is as high as 51 percent in India. In literature, we find NTBs, which basically cover non-tariff measures that have protectionist intent such as

Pakistan, the major stumbling block is the presence of NTBs (Taneja et al., 2011). A list of such NTBs is provided in Annex 1. Deeper cooperation between India and Pakistan can potentially result in significant reductions of these barriers.

Trade facilitation is not well developed. Road network quality is low with little regional linkages, while rail networks between ports and markets are often missing, putting unnecessary burden on already inadequate road networks. Only a limited number of items are allowed to be transported via rail/road; there are specific timings for the opening of these routes and in most cases, there are no proper warehousing/storage facilities available. Information flows on trade related matters between the two countries is particularly weak, thereby generating enormous problems to exporters and importers. Both, India and Pakistan follow a restrictive visa regime. India and Pakistan do not provide overland transit to each other's goods moving to or coming from any third country. Moreover, a mismatch exists between the Indian 8-digit HS classification sometimes used and the Pakistani 6-digit classification of items on the positive list, giving customs officials' room to allow entry based on discretion. Most of the bilateral payments are made through the Asian Clearing Union (ACU), and businessmen in both countries have complained about the inefficiency of this procedure. Since banks are yet to open branches across the border, this leads to significant delays, especially when letters of credit need to be confirmed, and which can take up to a month. Finally, redressal mechanisms for grievances do not exist and prevent some mutually beneficial exchanges from taking place.

India and Pakistan fare poorly with global peers on logistics. South Asian countries in general suffer from excessive direct costs and time taken to cross the borders and form inefficiency in cross-border transactions, which ultimately affect trade negatively. Trade in the region is constrained by poor condition of infrastructure, congestions, high costs, and lengthy delays.¹¹ Inefficiencies relating to administrative procedures and operations tend to be common in South Asian countries, and that these inefficiencies are often more costly than tariff barriers to the domestic economy. These problems are particularly severe at India-Pakistan border crossings, many of which pose significant barriers to trade. Recognizing these factors, South Asian countries have realized that the potential gains from trade facilitation reforms are very high, and that the goals of the trade facilitation negotiations do not conflict with their pursuit of economic development.

3. WELFARE GAINS FROM MFN TRADE

Several studies have estimated that large gains are available from removing barriers to trade between India and Pakistan. Annex 2 provides a list of estimates on the gains from trade, based on assessments using partial equilibrium gravity models. Some estimates suggest that there is a bilateral trade potential which is 20 times larger with a bilateral free trade agreement than it is today, while a more recent estimate indicates total trade between India and Pakistan could expand from its current level of US\$ 2.5 billion to as much US\$ 42 billion if the "normal"

quotas, tariff-rate quotas, licensing regimes, price bands, and NTMs. NTMs are policy measures, other than ordinary customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both. Some of these measures may constitute non-tariff barriers.

¹¹ Refer, for example, Roy and Banerjee (2010)

relations were to hold for the two countries (Figure A1 of Annex 2).¹² Our analysis using a gravity model indicates Pakistan is having large unrealized trade with India. The gravity model estimates reported in Table A1 of Annex 2 reveal that US\$ 2.56 billion bilateral trade between India-Pakistan was realized in 2010 against a potential of US\$ 7.03 billion. We estimate that the India-Pakistan trade (official) potential is likely to reach US\$ 12.05 billion in 2015 from Pakistan's perspective. Pakistan's trade potential with India is roughly 2.5 times greater than actual trade today, which may expand to 4.36 times in 2015, *ceteris paribus* (Table A1 of Annex 2). However, most of the studies argue that trade potential between the two countries would be much higher than the current level if the large informal and/or third country trade is counted. The bottom line is that with a staggering expansion potential of bilateral trade, deeper engagement through normal bilateral trade would lead to significant welfare gains between the two countries.

We estimate that there are significant welfare gains for India and Pakistan out of MFN trade; however, the welfare gains increase dramatically with the improvement in bilateral trade facilitation.¹³ Welfare results from two simulations using the global general equilibrium model (namely the GTAP model¹⁴), depicting the first scenario where Pakistan gives MFN status to India and the second scenario where Pakistan extends MFN status to India along with improvement in trade facilitation between the two countries, are presented in Table 4.¹⁵ The simulations indicate that welfare effects of MFN will be very high - both for India and Pakistan, if the initiative is accompanied by improved trade facilitation measures (Table 4)¹⁶. Therefore, improvement of connectivity and trade facilitation between India and Pakistan should get the utmost priority in order to make the benefits of trade arising from new trading arrangement more inclusive. Benefits of trade facilitation to Pakistan will be more if indirect benefits are also counted. With improvement in connectivity and trade facilitation, Pakistan could narrow the welfare gap while giving MFN to India. The GTAP simulation suggests that there would be some positive welfare effects on other South Asian countries (Table 4) out of the 'peace dividends' generating from improved economic cooperation between India and Pakistan. There will however be some negative welfare effects for the countries outside of South Asia, since Pakistan, after giving MFN status to India, would divert the source of some of its imports from other countries to India.

¹² Estimated by the Peterson Institute for International Economics (PIIE) based on a gravity model, as reported in Khan (2011)

¹³ Annex 3 provides an analysis on the construction of the MFN scenario. In brief, the MFN scenario incorporates the reduction in import prices for Pakistan because of increased potential of sourcing imports from India at cheaper prices. In addition, it is assumed that there would be some 'peace dividends' for all the South Asian countries because of this improved trade relation between India and Pakistan.

¹⁴ Annex 4 provides the underline assumptions and further details on the GTAP modeling exercise.

¹⁵ By improvement in trade facilitation, the study assumes a cut in transportation cost for bilateral trade in goods between India and Pakistan by 25 percent. In this regard, the "ams" - import-augmenting "technical change" in the Armington nest in the GTAP model (which can be used to lower the effective price of imported products) is shocked in the model.

¹⁶ The sensitivity analysis of these GTAP simulations and the subsequent ones are presented in Annex 5. This analysis suggests that the direction of the results remain unchanged under all the sensitivity tests, though the magnitude of the results changed depending on the values of the elasticities.

**Table 4: Welfare Effects of MFN and Bilateral Trade Facilitation
India and Pakistan**

(Equivalent variation in US\$ million at 2007 prices)

Country	MFN	MFN+BTF
Bangladesh	21.08	32.25
India	160.71	1406.67
Nepal	18.01	32.22
Pakistan	99.21	1229.08
Sri Lanka	34.92	63.32
Rest of South Asia	15.72	21.38
China	-10.52	-102.62
USA	-18.39	-122.33
EU 25	-29.55	-200.94
Rest of the World	-66.71	-585.41

Note: MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan

Source: GTAP simulation

A number of sectors in India will benefit in terms of rises in exports to Pakistan due to the MFN status and improvement in bilateral trade facilitation (Figure 7). Such rises in exports from India would happen due to India's unit cost advantage compared to Pakistan's other trading partners.¹⁷ Under the mere MFN scenario, the change in exports from India to Pakistan would vary from meat (348 percent) to vegetables, fruits and nuts (0.2 percent). Besides, India's exports to Pakistan would rise for chemical, rubber and plastic, food processing, mineral fuels (petroleum, coal products), metals, machinery and equipment, textiles, leather products, dairy products, fishing, etc. However, under the MFN plus bilateral trade facilitation scenario there would be much larger rises in exports from India from these sectors.

MFN status to India would have negligible impact on Pakistan's sectoral exports to India (Figure 8). There would however be some rise in the exports of plant based fibers, animal products and metals from Pakistan to India. However, MFN status together with improvement in bilateral trade facilitation would result in some sectors in Pakistan to benefit in terms of increased exports to India. Such sectors include wool, wheat, textile, wearing apparels, leather products, metals, machineries, chemicals, etc.

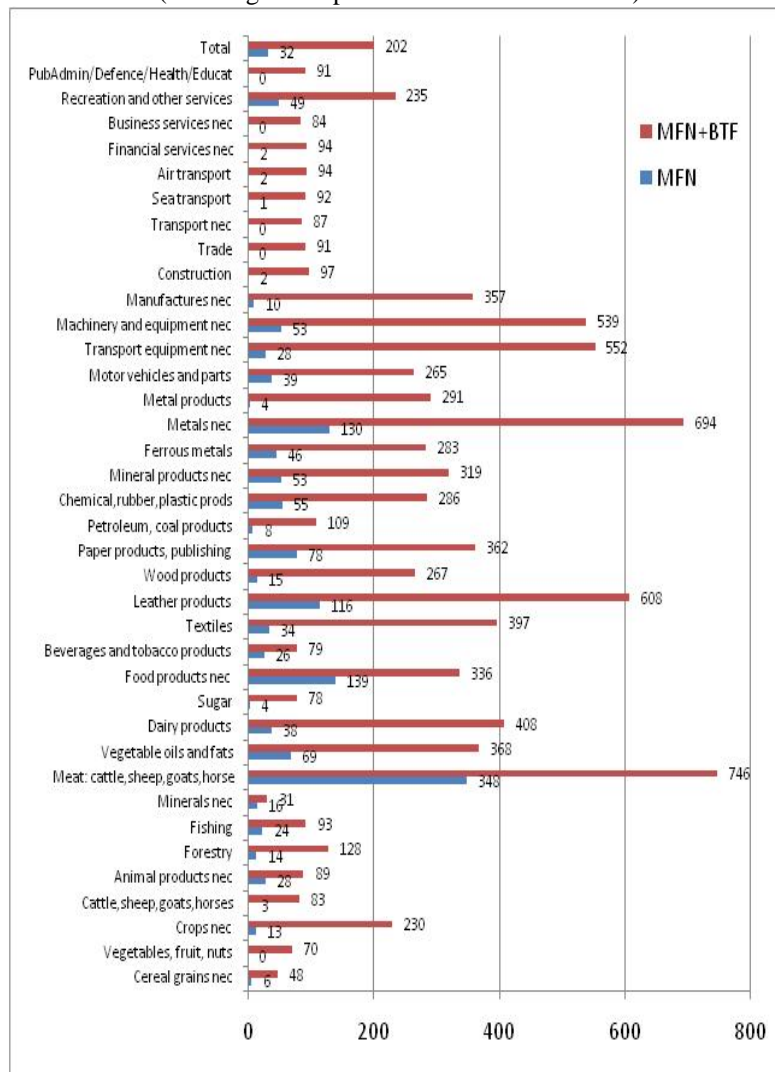
Mere MFN status to India would raise Pakistan's import from India by 32 percent, whereas MFN plus enhancement of bilateral trade facilitation would lead to rise in such import by 202 percent (Table 5). Under the MFN plus bilateral trade facilitation scenario, Pakistan's total import would rise by 2.7 percent, which is 2.43 percentage points higher than that under the mere MFN scenario. On the other hand, **Pakistan's exports to India would rise by a staggering 202 percent under the MFN plus bilateral trade facilitation scenario against only 0.4 percent under the MFN scenario** (Table 5). Similarly, Pakistan's total exports

¹⁷ From the WITS database 561 products at the 6 digit HS code are identified (which are outside of Pakistan's positive list) where the unit costs of imports if they are sourced from India would be lower than the unit costs of imports if they are sourced from other countries. This suggests that there would be a possibility of change in import source in favor of India for these product categories when Pakistan extends MFN status to India. A discussion on these products is reported in Annex 3.

would rise by 1.82 percent under the former scenario compared to only 0.17 percent under the later scenario (Table 5).

Under the MFN scenario, there would be small effects on India’s total imports and exports; however, enhanced bilateral trade facilitation with Pakistan would lead to some larger rises in trade (Table 6). India’s total imports would rise by 0.58 percent under the MFN plus bilateral trade facilitation scenario against only 0.1 percent under the mere MFN scenario. Similarly, India’s total exports under the MFN plus bilateral trade facilitation scenario would be 0.73 percent, which would be only 0.12 percent under the MFN scenario.

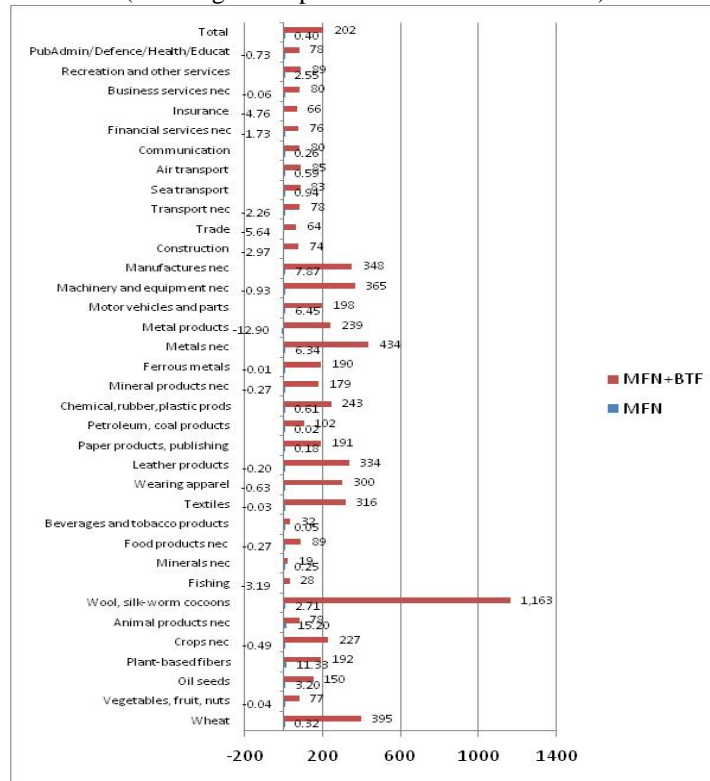
Figure 7: Sectors Getting Higher Market Access in Pakistan
(% change in imports of Pakistan from India)



Note: MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan

Source: GTAP simulation

Figure 8: Sectors Getting Higher Market Access in India
(% change in imports of India from Pakistan)



Note: MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan
Source: GTAP simulation

Table 5: Impact on Pakistan's Import and Export (MFN and MFN+BTF)

	MFN		MFN+BTF	
	% change in import from	% change in export to	% change in import from	% change in export to
India	32.03	0.40	201.85	201.57
Total	0.28	0.17	2.71	1.82

Note: Figures are percent changes from the base. MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan
Source: GTAP simulation

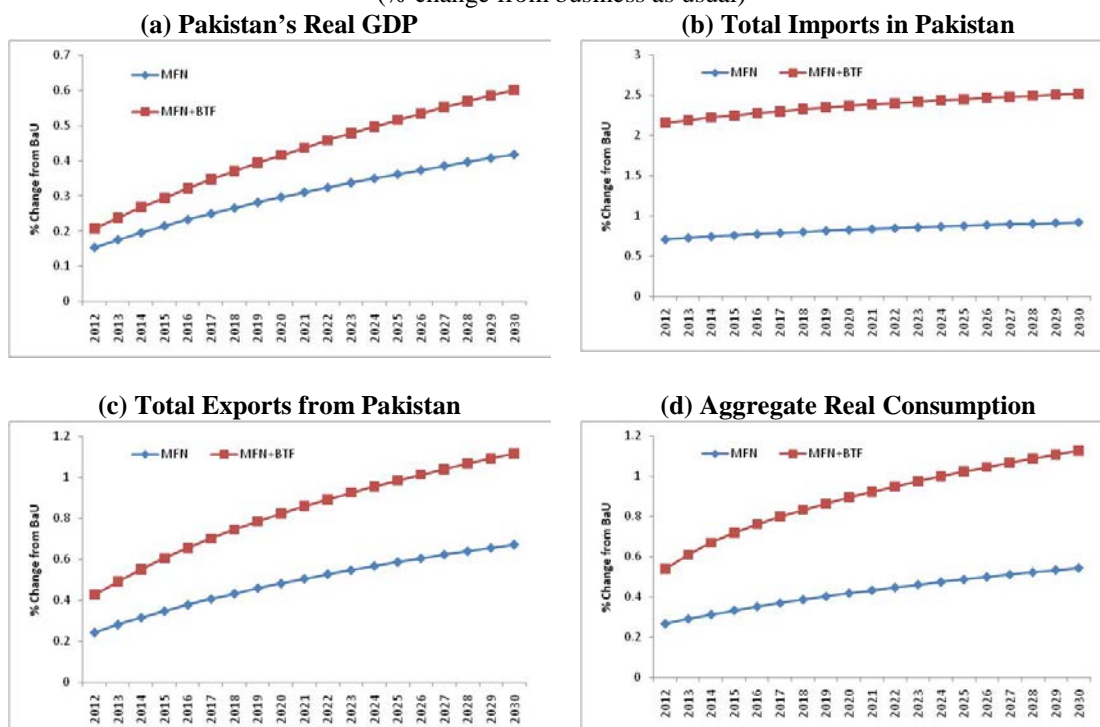
Table 6: Impact on India's Import and Export (MFN and MFN+BTF)

	MFN		MFN+BTF	
	% change in import from	% change in export to	% change in import from	% change in export to
Pakistan	0.40	32.18	200.83	202.88
Total	0.10	0.12	0.58	0.73

Note: Figures are percent changes from the base. MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan
Source: GTAP simulation

The MFN scenario would lead to dynamic gains in real GDP, total exports, total imports and aggregate real consumption in Pakistan, and the bilateral trade facilitation together with the MFN would generate much larger positive effects (Figure 9).¹⁸ In 2012, under the MFN scenario the real GDP would be 0.15 percent higher than the Business as Usual (BaU) scenario whereas by 2030 it would be 0.42 percent higher than the BaU scenario (Figure 9(a)).¹⁹ This suggests that the long run positive effect would be higher than the short run effect. However, under the MFN plus bilateral trade facilitation scenario, the rise in real GDP would be 0.06 percentage point higher than that under the MFN scenario and by 2030 such difference would be 0.18 percentage points. Similar patterns are observed in the case of Pakistan’s total imports, exports and aggregate consumption (Figures 9(b), 9(c) and 9(d)).

Figure 9: Dynamic Effects in Pakistan due to MFN and BTF
(% change from business as usual)



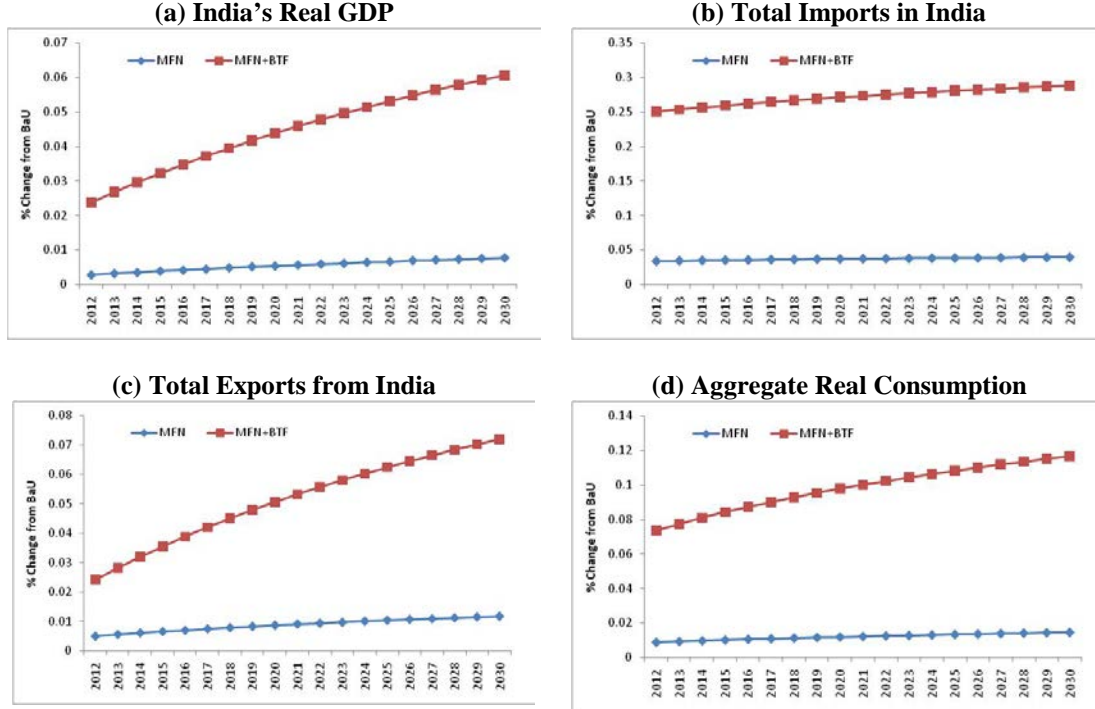
Note: MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan
Source: Pakistan dynamic CGE model

The MFN scenario would also lead India to accrue some small but dynamic positive gains in real GDP, total exports, total imports and aggregate real consumption (Figure 10). The long run effects of this scenario are slightly higher than the short run effects. As in the case of Pakistan, the MFN with the bilateral trade facilitation would result in larger positive effects. Comparing the dynamic effects on the economies of India and Pakistan, it appears that the dynamic effects on Pakistan are much larger than those for India as far as percent deviation from the BaU scenario is concerned.

¹⁸ Annex 6 provides the details on the dynamic CGE model and the methodology of linking the results from the GTAP model with the dynamic CGE model.

¹⁹ The business as usual scenario is the scenario where the economy would grow without any external shock.

Figure 10: Dynamic Effects in India due to MFN and BTF
(% change from business as usual)



Note: MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan
Source: India dynamic CGE model

Table 7: Welfare Effects of SAFTA
(EV in million US\$ at 2007 prices)

Country	SAFTA without MFN	SAFTA with MFN	SAFTA+MFN+STF
Bangladesh	-132.85	-111.77	1479.56
India	1650.02	1810.73	5452.03
Nepal	467.03	485.03	1654.21
Pakistan	1022.46	1121.67	2618.38
Sri Lanka	36.98	71.88	2173.12
Rest of South Asia	282.49	298.21	1265.02
China	-205.69	-216.19	-760.12
USA	-252.08	-270.47	-985.54
EU 25	-318.77	-348.32	-1394.91
Rest of the World	-615.01	-681.72	-3020.78

Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member states
Source: GTAP simulation

Allowing MFN status to India by Pakistan with enhanced trade facilitation in South Asia will lead to significant, large welfare gains for India and Pakistan in particular and for all South Asian countries in general under SAFTA (Table 7). Full implementation of SAFTA refers to a situation where there is no negative / sensitive list among the member states. At first, using the GTAP model, the SAFTA scenario is conducted without the MFN scenario and then the SAFTA scenario is conducted along with the MFN scenario. Finally, SAFTA plus MFN

scenario is conducted along with the South Asian regional trade facilitation scenario²⁰. The GTAP results suggest that SAFTA with MFN scenario would lead to higher welfare gains for Pakistan and India than a scenario of SAFTA without MFN. However, when a South Asian trade facilitation scenario is added, such gains become much larger. The SAFTA scenario (with or without MFN) would however lead to some welfare loss for Bangladesh because of larger trade diversion effect than trade creation effect (Raihan, 2012).

The MFN scenario would lead to larger positive effects on Pakistan’s imports and exports under SAFTA (Table 8). Without MFN status SAFTA would lead to rise in imports of Pakistan from India by 53 percent, whereas with MFN status the import from India under SAFTA would increase by 75 percent. When trade facilitation is added to the second scenario such rise in imports from India would be 256 percent. Under the first scenario, Pakistan’s exports to India would rise by 523 percent, and the SAFTA plus MFN scenario would increase such exports by 525 percent, indicating that the MFN would not have much impact on rise in exports from Pakistan to India. However, under the SAFTA with MFN plus trade facilitation scenario such exports would rise by a staggering 1112 percent. Pakistan’s total exports would rise by 11.33 percent, which would be much higher than those under the other two scenarios.

Table 8: Impact on Pakistan’s Import and Export under SAFTA Scenarios
(% change from base)

	SAFTA without MFN		SAFTA with MFN		SAFTA+MFN+STF	
	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to
Bangladesh	37.05	130.46	36.81	130.97	181.32	403.29
India	53.04	523.10	75.04	524.96	256.87	1111.89
Nepal	-8.33	18.75	-8.33	18.75	116.00	176.08
Sri Lanka	33.38	39.08	30.62	39.44	129.62	128.91
Rest of South Asia	44.98	19.39	44.28	19.57	191.50	107.54
China	-0.06	-7.90	-1.08	-7.40	-7.18	-17.77
USA	0.96	-7.04	0.52	-6.89	-1.71	-17.04
EU_25	0.91	-7.44	0.26	-7.27	-1.54	-17.98
Rest of the World	0.00	-7.73	-1.05	-7.50	-6.66	-17.96
Total	3.09	3.97	3.29	4.21	10.50	11.33

Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member states

Source: GTAP simulation

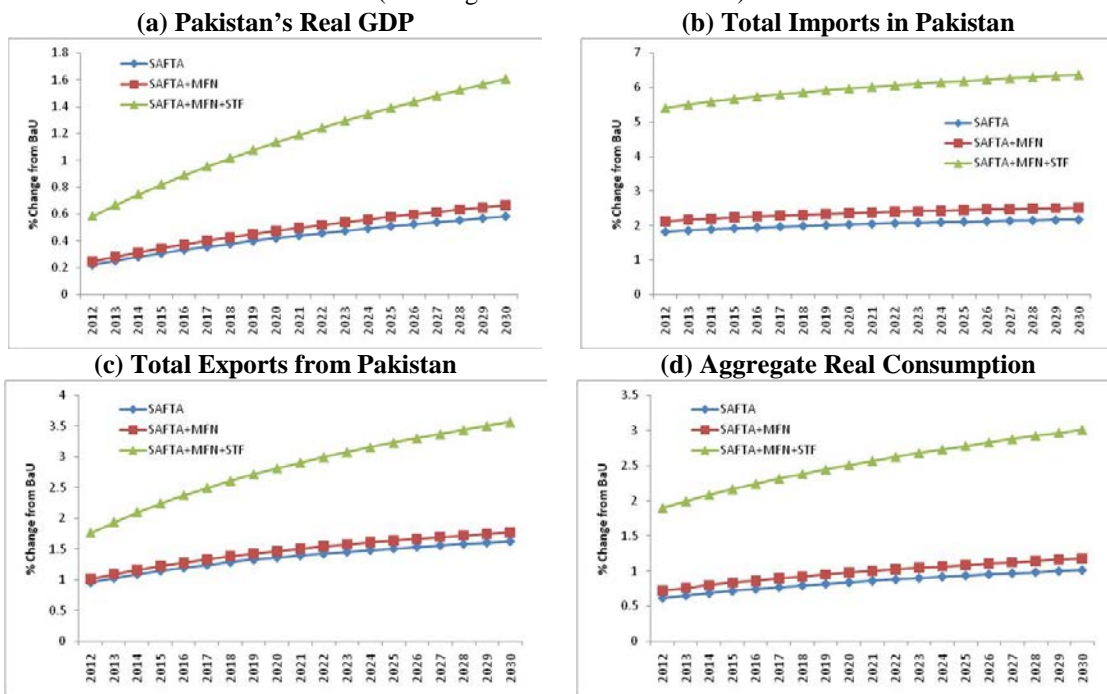
²⁰ One of the direct outcomes of trade facilitation is the rise in trade flows due to fall in costs and/or time of transportation. In this study under the regional trade facilitation scenario, we assume that the price of imported goods of the regional trade among the South Asian countries is reduced by 25 percent due to improvement of trade facilitation measures. In technical term, the “ams” - import-augmenting "technical change" in the Armington nest in the GTAP model (which can be used to lower the effective price of imported products) is shocked.

Table 9: Impact on India's Import and Export under SAFTA Scenarios
(% change from base)

	SAFTA without MFN		SAFTA+MFN		SAFTA+MFN+STF	
	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to
Bangladesh	54.82	74.67	54.95	74.48	380.70	270.31
Nepal	133.65	49.00	133.73	48.97	474.08	192.72
Pakistan	522.43	52.96	524.25	75.06	1103.47	257.63
Sri Lanka	4.40	24.59	4.52	24.52	189.27	93.87
Rest of South Asia	91.59	33.17	91.75	32.97	302.06	208.32
China	-0.01	-0.41	0.06	-0.49	-0.48	-2.55
USA	0.18	-0.68	0.24	-0.81	0.56	-4.20
EU_25	0.14	-0.64	0.19	-0.77	0.52	-4.03
Rest of the World	-0.05	-0.63	0.01	-0.75	0.10	-3.93
Total	1.08	1.29	1.13	1.36	3.58	4.32

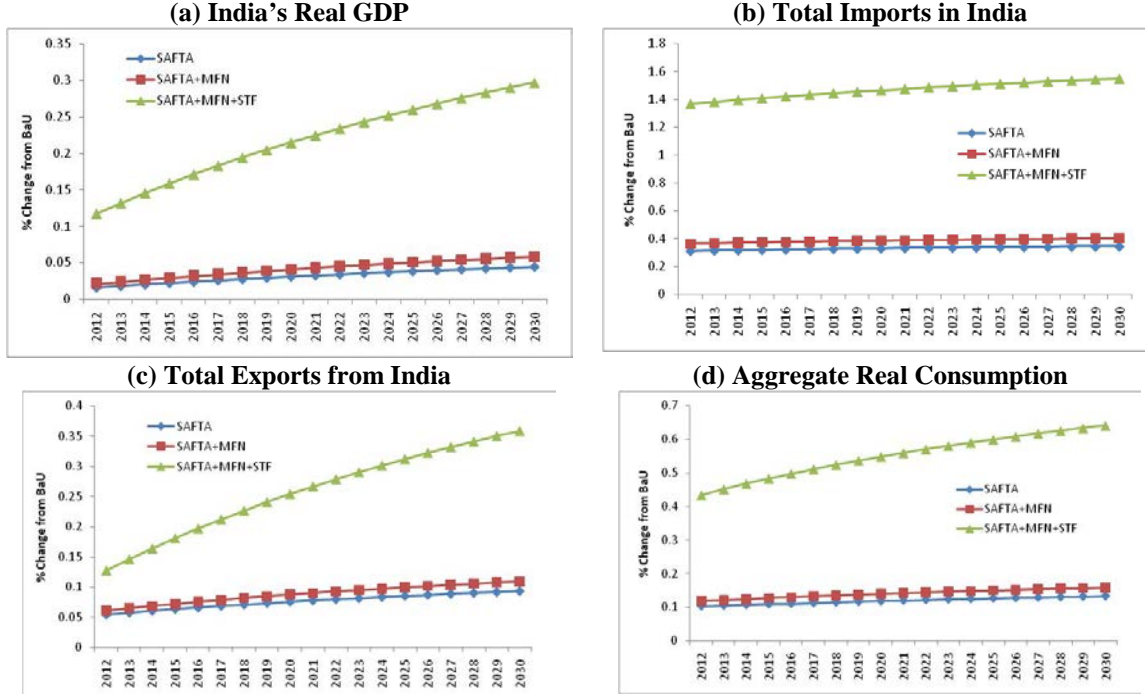
Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member countries
Source: GTAP simulation

Figure 11: Dynamic Effects in Pakistan due to SAFTA, MFN and STF
(% change from business as usual)



Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member countries
Source: Pakistan dynamic CGE model

Figure 12: Dynamic Effects in India due to SAFTA, MFN and STF
(% change from business as usual)



Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member countries
Source: India dynamic CGE model

India will also enjoy some dividends from the MFN status in terms of larger effects on its total exports and imports under SAFTA (Table 9). However, the scenario with trade facilitation would generate much larger effects.

The MFN scenario would make some differences in both Pakistan's and India's long term growth trend as far as impact of SAFTA is concerned (Figures 11 and 12). However, much larger dynamic effects are generated from the scenario with trade facilitation. The SAFTA and MFN along with the trade facilitation scenario would lead to higher positive dynamic effect on Pakistan's real GDP, total exports, total imports and aggregate real consumption (Figures 11(a), 11(b), 11(c) and 11(d)). Similar results are observed for India (Figures 12(a), 12(b), 12(c) and 12(d)). These results point to the importance of improved connectivity and trade facilitation between the two countries to reap the benefits of economic cooperation. The greater the connectivity, the larger is the benefit. Trade facilitation and connectivity are mutually reinforcing.

4. FACILITATING TRADE BETWEEN INDIA AND PAKISTAN: POLICY OPTIONS

The results of the general equilibrium simulation indicate Pakistan's MFN to India would generate larger benefits if it is supported by improved connectivity and trade facilitation. The net economic impacts of SAFTA along with trade facilitation are beneficial to both Pakistan and India, and eventually would lead to stronger economic growth of the region. With MFN to India, the full implementation of SAFTA is therefore not beyond reach. Both countries should

therefore go beyond MFN and embrace to a second generation FTA that would open the door to other initiatives. To attain this objective, three policy options are suggested:

One, further trade liberalization and removal of NTBs

Further deepening of trade liberalization (e.g. removal of NTBs, cleaning the sensitive lists, removal of quantitative restrictions, etc.) between these two countries is needed. Although average tariff rates have come down in both India and Pakistan, tariff dispersion remains high. High tariffs rates still persist on some major products. For example, Pakistan's applied import tariff of 35 percent on Indian granite (contributing about 55 percent of Pakistan total import from world) or 20 percent on condensers for steam or other vapor power units (contributing about 100 percent of Pakistan's import from world) have restricted bilateral trade. On the other hand, India's import tariff on Pakistani dates (edible fruits & nuts) remains high. India's tariffs are also relatively high on imports of textiles and agricultural products from Pakistan.

Another important gain of granting MFN status to India would be streamlining and gaining transparency of the tariff regime in Pakistan, which dynamically can be very important for Pakistan to strengthen its industrial competitiveness since the complexity of the tariff regime in Pakistan is a major source of lack of dynamism for firms and a large trade obstacle.

Noted by Husain (2013), India's sensitive list only grants preferential treatment to 65 percent of Pakistan's exports, and is heavily loaded with agricultural and textile products in which Pakistan has a comparative advantage. Continuing the process of unilateral liberalization, in parallel with regional integration, could help the South Asian countries continue to diversify their still narrow export bases and potentially evolve new comparative advantages and complementarities that could facilitate the successful implementation of SAFTA.

In addition to rationalizing import duties, policy makers could eliminate all kinds of quantitative restrictions, regulatory duties, and other para-tariffs, and several other measures that have been restricting trade in the past. Despite the fall in average tariffs, trade restrictiveness of both India and Pakistan has been heavily triggered by the large volume of NTBs. Annex 7 presents a list of impediments to India-Pakistan trade. Deeper cooperation between India and Pakistan can potentially result in significant reductions of these barriers.

Two, trade facilitation and improvement of connectivity

Trade facilitation is aimed at ensuring the movement and clearance of goods across borders within the shortest time at the minimum cost.²¹ Thus, the two elements which form the crux of the issue are time and cost. Time itself has a cost besides the cost incurred in monetary terms. Therefore, trade facilitation would mean addressing these issues and attempting ways and means to minimize the cost and time taken for movement of import and export cargo.

²¹ The definition of trade facilitation in broader terms goes beyond what has been noted in the WTO. In literature, trade facilitation has been identified as the means to move trade across borders and not restricted to country's customs authority.

There is a need to support trade facilitation to complement the trade liberalization (e.g. removal of the delay in payment between exporter and importer by introducing online banking, acceptance of digital signature on cross-border trade documents, etc.). Trade facilitation landscape of the region is not impressive when one considers ‘behind the border’ issues. Among the major causes of high trade transaction costs are the number of cumbersome and complex cross-border trading practices, which also increase the possibility of corruption. Goods carried by road are subject largely to transshipment and manual checking at the border, which imposes serious impediments to trade. The situation is further compounded by lack of harmonization of technical standards. Significant reductions in transaction costs will be critical to the bilateral trade cooperation’s effectiveness. Therefore, to reduce trade-related transaction costs, governments must collaborate on a trade facilitation agenda that encompasses procedures, regulations and processes that impose costs on cross-border commercial transactions (e.g. customs, standards, movement of people, etc.). Trade facilitation reforms such as the simplification and harmonization of customs procedures or the improvement of border infrastructure and management systems would increase countries’ capacity to trade, and would assist traders in India and Pakistan to compete with or integrate into global supply chains. Such reforms would also increase customs efficiency, improve revenue collection, reduce corruption, promote foreign investment and lower the various transactions costs involved in getting goods to market.

The CGE modeling simulations in this study show that improved trade facilitation would increase the volume of trade between India and Pakistan by reducing the transaction costs of trade, making exports more competitive and imports less expensive; however, South Asian countries are way behind their global peers in logistics and trading across border measures. While India has successfully reduced the time taken to export, exporting a consignment in Pakistan still takes about 21 days. On the positive side, Pakistan beats India and other South Asian countries with lowest cost of exports in the region. In case of export time, preparation of documents takes most of the times needed for export in South Asia except for Maldives and Nepal where time needed for customs and ports and inland transit, respectively, outweigh document preparation time. Electronic submission of trade documents would reduce the transaction time and cost drastically. Therefore, reduction of transaction time through simplification and harmonization of documentation and electronic submission should be the priority.²²

Trade between India and Pakistan is constrained by the poor condition of infrastructure, congestion, high costs, and lengthy delays, and these problems are particularly severe at the India-Pakistan border crossings. India and Pakistan have 3,323 km of land border that demarcates the Indian states of Punjab, Rajasthan and Gujarat from the Pakistani provinces of Punjab and Sindh. However, they lack adequate trade transportation links.²³ In addition to the

²² To support the trade flows between the two countries, India’s Integrated Check Post (ICP) at Attari-Wagah border, inaugurated on 13 April 2012, is a correct step forward. In regards to physical infrastructure, the Wagah border-control facilities must be greatly expanded. Specifically, sophisticated X-ray machines through which trucks can pass quickly should be a top priority, warehousing is needed at Attari, and several new train stations need to be built. On the Line of Control in Jammu and Kashmir, the government should also invest heavily in all forms of trade-enhancing infrastructure.

²³ Annex 8 provides the existing trade links between India and Pakistan.

Attari-Wagah border, which is the major road and rail crossing between India and Pakistan, three more land routes, namely, Khokrapar-Munabao, Muzaffrabad-Srinagar, and Poonch-Rawalakot, have been used for trade between the two countries. India and Pakistan also have only one direct sea route (Mumbai-Karachi) and two air routes (Delhi-Lahore, and Mumbai – Karachi). Restrictions imposed by the two countries on trade along border opened many indirect trade routes between the two neighbors, some of which act as major trade axis. Mumbai-Dubai-Karachi and Mumbai-Dubai-Bandar Abbas-Afghanistan-Pakistan are the prominent ones. Compared to their proximity, India and Pakistan do not have much presence of trade infrastructure links between them and circumvent much of the bilateral trade through unofficial routes. Therefore, transit in South Asia would reduce the transportation distance between the trading partners, thereby reducing the transportation costs.

Restrictions in transport border crossings between India and Pakistan are a major constraint to global and intra-regional trade in South Asia. Removing these restrictions would boost trade within South Asia as well as lower cost for international trade in general as many land-locked countries and regions will benefit from access to the closest ports. Currently, the efforts at improving trade facilitation and transport networks are being done in a fragmented manner and with little cooperation even where cross-border issue are involved. Establishing corridor-based approaches for improving the trade – transport arrangement for South Asian trade would be essential for improving the efficiency of regional transport and for reducing trade costs.

The MFN agreement holds the potential for India and Pakistan to improve their connectivity with Central Asia and beyond. Pakistan has bilateral transit with Afghanistan, which was renewed in 2010. Pakistan has also signed an FTA with China in November 2006, and the fast-track clearance for cross-border transit between China, Pakistan, Kazakhstan and Kyrgyzstan commenced in November 2008 after 13 years of negotiations. Therefore, India’s transit with Pakistan and Afghanistan will facilitate the market for goods and energy trade (power and gas pipelines) between India and the energy rich Central Asia and Middle East, and vice versa. The advent of MFN status may help complete the implementation of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline, as a new environment of trust and cooperation prevails. Some activities are underway including a very successful hydro-power trade between Bhutan and India in the Eastern market and an ongoing project in the Western market that will bring electricity from Tajikistan and Kyrgyzstan to Afghanistan and Pakistan²⁴. With Pakistan being a member of ECO (Economic Cooperation Organization) and India in EAS (East Asia Summit) Group, India and Pakistan can jointly build a stronger connectivity and trade partnership among Southeast, South and Southwest Asia.

Three, allowing FDI to move freely

India and Pakistan should pursue a 21st century type of regionalism (trade in tasks) through free movement of FDI. It is imperative to make FDI move freely between the two nations. FDI becomes relevant as economic engagement between the two countries deepens. A

²⁴ For example, there is Central Asia-South Asia (CASA) energy project that seeks to sell 1000 MW of surplus power from Tajikistan and Kyrgyzstan to Afghanistan and Pakistan. The project is being developed in cooperation with a number of multi-lateral financial institutions including the World Bank.

greater degree of bilateral investments could enhance trade, facilitate production networks and strengthen bilateral relations. Exports in sectors such as agriculture produce, chemicals, textiles, auto components could be enhanced through bilateral investment. The GTAP simulations indicate the winning sectors in terms of rise in export from India to Pakistan such as chemical, rubber and plastic, food processing, mineral fuels (petroleum, coal products), metals, machinery and equipment, textiles, leather products, sugar, etc. In other words, SAFTA with enhanced trade facilitation will help firms in India and Pakistan with the opportunity to exploit economies of scale through access to an enlarged market. In view of bigger market size, MFN status to India would attract Indian FDI into Pakistan in these sectors, thereby facilitating intra-industry trade between the two countries. For example, the export of petroleum products from India to Pakistan is one aspect of trade relations which will benefit from the new arrangement.²⁵ Undoubtedly, there would be a huge expansion in the number of new opportunities for trade and commercial enterprise in the region. At present, Pakistan is the only country from which investment is barred after India dispensed with similar clauses for Sri Lanka in 2004 and for Bangladesh in 2007. Recently, Indian investors have shown willingness to invest US\$ 20 to 50 billion in Pakistan's mining, petroleum, energy, power and infrastructure projects.²⁶ Indian private sector has also shown eagerness to export electricity to Pakistan through Wagah-Attari border. After enhancement in trade ties, opportunities for big projects like gas pipeline project between Turkmenistan, Afghanistan, Pakistan and India will further increase.

5. CONCLUSION

South Asia is the least integrated region in the world. This has slowed down the promotion of shared prosperity and the pace of poverty reduction (Ahmed and Ghani, 2008). Three of the poorest South Asian countries, Afghanistan, Bhutan and Nepal, are land-locked. Several lagging regions in the larger South Asian countries of Bangladesh, India and Pakistan are located in the border areas. Of 14 states in India that have borders with neighbors, 12 have per capita income levels that are at or below the national average (Arunachal Pradesh, Assam, Meghalaya, Mizoram, Nagaland, Tripura, Manipur, West Bengal, Bihar, Uttar Pradesh, Jammu and Kashmir, and Rajasthan). In Pakistan, per capita income is lower than average in the border provinces of NWFP, Balochistan, and rural Sindh. In Bangladesh, the border districts tend to have per capita incomes lower than the national average.

Typically, these sub-regions have poor connectivity within countries and with the markets in the neighboring countries. This, in part, explains why poverty mass in South Asia is concentrated in the lagging regions while economic mass is concentrated in the leading regions. Therefore, stronger cooperation between India and Pakistan would reduce the vulnerabilities of South Asia's poor.

South Asia's coming demographic transition and the fact that traditional advanced country partners have entered a prolonged slowdown provides a new momentum for regional integration. Demographic dividend and large domestic market could be the catalysts that attract global

²⁵ Lakshmi Mittal, an Indian steel tycoon, has set-up a new oil refinery in the border city of Bhatinda in India's Punjab state in association with India's Hindustan Petroleum Corporation Limited. It will eventually have the capacity to supply large amounts of petroleum products to Pakistan.

²⁶ According to, Pak-India Business Council (PIBC) Chairman Noor Muhammad Kasuri.

production centers into South Asia, as firms move in response to wage differences, and globalization benefits low-income regions and countries.

The world has changed in fundamental ways since the global financial crisis of 2008. The recent headwinds from the Euro Area crisis have caused a deceleration in exports and a reversal of portfolio capital, and lowered GDP growth in developing countries. Some of these downside risks to growth and trade can be minimized through improved trade facilitation and increased South-South trade. Reducing the cost of trading will substantially increase the trade in goods, services, ideas, capital and movement of people and thereby increase regional growth.

The potential benefits of economic cooperation are undoubtedly obvious. Global examples of successful cooperation agreements reinforce the point that possible gains for India, Pakistan and other South Asian countries from effective cooperation and partnerships can be substantial. In particular, the experience of East Asia is illustrative of the potential gains from more and better cooperation. Cross-border physical connectivity has improved tremendously through land, sea and air-based transport network, private sector-led vertical integration of production networks has spurred industrial productivity and growth, and e-commerce is flourishing.

Poor logistics deter engagement in regional production sharing. Logistics encompass an array of essential activities for trade—including transport, transit trade, warehousing, cargo consolidation, border clearance, distribution, and payment systems. Trade facilitation and competitive trade logistics are fundamental building blocks of trade and economic development. Countries with better logistics can grow faster, become more competitive, and increase their investment. Better logistics have a greater effect on trade promotion than tariff cuts. That would benefit both firms and consumers, who would receive lower prices and support diversification into higher value-added exports and better services.

The cost of trading in South Asia is much higher compared to other regions. Indeed, several South Asian countries are ranked lower than Sub-Saharan Africa on the logistics performance index by the World Bank. India and Pakistan do not extend freedom of transit to each other or to international traffic in transit. Testing laboratories for trade between India and Pakistan in agriculture, processed food, chemicals, garments, are not available at borders. Customs authorities in South Asia still insist on print copies in case of cross-border transmission of trade documents.

While examining the alternative scenarios on the gains from trade, we find that what makes a MFN work is the trade facilitation that surrounds it. The results of the general equilibrium simulation indicate Pakistan's MFN to India would generate larger benefits if it is supported by improved connectivity and trade facilitation measures. In other words, gains from trade would be small in the absence of improved connectivity and trade facilitation.

The idea of trade facilitation is simple-- implement measures to reduce the cost of trading across borders by improving infrastructure, institutions, services, policies, procedures, and market-oriented regulatory systems. The returns can be huge, even with modest resources and limited capacity. The dividends of trade facilitation can be shared by all. This is a subject for future research.

REFERENCES

- Abbink G. A., Braber M. C., and et Cohen S. I. (1995), “A SAM-CGE Demonstration Model for Indonesia: A Static and Dynamic Specifications and Experiments”, *International Economic Journal*, Vol. 9, No. 3, pp.15-33.
- Ahmed, S. and E. Ghani (2007), *South Asia: Growth and Regional Integration*, Macmillan, New Delhi.
- Ahmed, S. and E. Ghani (2008). [*Making Regional Cooperation Work for South Asia's Poor, Policy Research Working Paper Series* 4736](#), The World Bank, Washington, D.C.
- Ahmed, S., S. Kelegama, and E. Ghani (2010). *Promoting Economic Cooperation in South Asia: Beyond SAFTA*. Sage Publications, New Delhi.
- Asian Development Bank (ADB)–United Nations Conference on Trade and Development (UNCTAD) (2008) *Quantification of Benefits from Economic Cooperation in South Asia*. Macmillan, New Delhi.
- Baroncelli, E. 2007. The “Peace Dividend,” in The World Bank (2007)
- Batra, Amita (2004) *India’s Global Trade Potential: The Gravity Model Approach*, Working Paper 151, Indian Council for Research on International Economic Relations (ICRIER), New Delhi.
- Bhagwati, J. and A. Panagariya (1996). “The Theory of Preferential Trade Agreements: Historical Evolution and Current Trends”, *American Economic Review*, Vol. 86, No. 2, pp. 82–87.
- Boskin, Michael, J. (2012) “A Passage to India-Pakistan Peace”, *The Wall Street Journal*, April 17, 2012
- CUTS (2012) “Cost of Economic Non-cooperation to Consumers in South Asia”, Jaipur
- De, P. (2009a). ‘Trade Transportation Costs in South Asia: An Empirical Investigation’, in D. Brooks and D. Hummels (eds.), *Infrastructure’s Role in Lowering Asia’s Trade Costs: Building for Trade*, Edward Elgar, Cheltenham.
- De, P. (2009b) *Regional Cooperation for Regional Infrastructure Development: Challenges and Policy Options for South Asia*, Discussion Paper No. 160, Research and Information System for Developing Countries (RIS), New Delhi
- De, P. (2011). “Why Is Trade at Border a Costly Affair in South Asia? An Empirical Investigation”, *Contemporary South Asia*, Vol. 19, No. 4.
- Dimaranan, B. V. and McDougall, R.A. (2002), *Global Trade, Assistance, and Production: The GTAP 5 Data Base*, Center for Global Trade Analysis, Purdue University.
- Federation of Pakistan Chambers of Commerce & Industry (FPCCI) (2011) *Pak- India Economic Cooperation: Challenges and Prospects*, Karachi
- Ghani, E. (2004) “South Asia Regional Integration: Benefits, Opportunities and Challenges”, Presentation Made at The World Bank/ International Monetary Fund (IMF) Annual Meetings, Held at Washington DC on October 1, 2004.
- Ghani, Ejaz (ed.), 2010. "[The Poor Half Billion in South Asia: What is Holding Back Lagging Regions?](#)," *OUP Catalogue*, Oxford University Press, number 9780198068846.
- Government of India (2005) Joint Communiqué 2005, Meeting of President Pervez Musharraf and Prime Minister Manmohan Singh, April 18, New Delhi.
- Harrison, W. J. and Pearson, K R. (1996), “Computing Solutions for Large General Equilibrium Models Using GEMPACK,” *Computational Economics*, Springer, vol. 9(2), pp. 83-127

- Hertel, T.W. (1997), *Global Trade Analysis: Modeling and Applications*, Cambridge University Press, Cambridge
- Hertel, T.W. and T. Mirza (2009). “The Role of Trade Facilitation in South Asian Economic Integration”, in ADB (ed.), *Study on Intraregional Trade and Investment in South Asia*. Asian Development Bank (ADB), Manila.
- Husain, I. (2013) “Normalising India-Pakistan Trade Relations”, Distinguished Lecture at the Indian Council for Research on International Economic Relations (ICRIER), New Delhi on February 5, 2013, New Delhi
- Kemal, A. R., M. K. Abbas, and U. Qadir (2002) “A Plan to Strengthen Regional Trade and Cooperation in South Asia”, In T N Srinivasan (ed.) *Trade, Finance and Investment in South Asia*, Social Science Press, New Delhi.
- Khan, M. S. (2011), “Expanding India-Pakistan Trade”, Paper prepared for the 11th Annual SANEI Conference, Dhaka, Bangladesh, December 21-22, 2011, Peterson Institute for International Economics, Washington DC.
- Khan, S.R., M.Yusuf, S. Bokhari, and S. Aziz (2007) “Quantifying Informal Trade between India and Pakistan”. The World Bank (2007)
- Kochhar, K. (2012) “South Asia: A New Dawn in Regional Trade and Cooperation”, Presentation Made at the Woodrow Wilson International Centre for Scholars, Washington, D.C. on April 23, 2012/
- Lopez-Calix, J. (2012) “Understanding the Basics on Pakistan-India Trade Talks”, Presentation Made at the Second Meeting of the Chief Economist’s Advisory Council, South Asia Region, The World Bank, Held at New Delhi on January 18-19, 2012.
- Nabi, I. (2012) “Lifting up the Indo-Pak Trade Game”, *The Hindu*, March 28, 2012
- Pakistan Institute of Legislative Development and Transparency (PILDT) (2012), *Trade Relations between Pakistan and India*, Islamabad.
- Panagariya, Arvind (2007) “Trading Choices of South Asia”, In Ahmed and Ghani (2007) *South Asia: Growth and Regional Integration*, World Bank, Washington, D.C.
- Raihan, S. (2012), “SAFTA and the South Asian Countries: Quantitative Assessments of Potential Implications”, MPRA Paper 37884, Munich Personal RePEc Archive.
- Raihan, S. and P. De. (2013) *India-Pakistan Economic Cooperation: Implications for Regional Integration in South Asia*, Working Paper, Commonwealth Secretariat, London.
- Roy, J. and P. Banerjee (2010), “The Centrality of Trade Facilitation for Regional Economic Integration”, in Sadiq Ahmed, Saman Kelegama, Ejaz Ghani (eds.) *Promoting Economic Cooperation in South Asia*, The World Bank and Sage Publications, Washington, DC.
- SAARC Chamber of Commerce and Industry (SCCI) (2011), *Harnessing India – Pakistan Trade Potential*, Islamabad.
- Srinivasan, T.N. and G. Canonero. 1995. *Preferential Trading Arrangements in South Asia: Theory, Empirics and Policy*. New Haven: Yale University
- State Bank of Pakistan (2006) *Implications of Liberalizing Trade and Investment with India*. Research and Economic Policy Department. Karachi.
- Taneja, N., S. Ray, N. Kaushal and D.R.Chowdhury, (2011), “Enhancing Intra-SAARC Trade: Pruning India’s Sensitive List under SAFTA”, Working Paper 225, Indian Council for Research on International Economic Relations (ICRIER), New Delhi
- Taneja, N. (2007) “India's Exports to Pakistan: Transaction Cost Analysis”, *Economic and Political Weekly*, Vol. 42, No. 2, pp. 96-99

- Taneja, N. (2012) “India – Pakistan Trade”, Presentation Made at the Second Meeting of the Chief Economist’s Advisory Council, South Asia Region, The World Bank, Held at New Delhi on January 18-19, 2012.
- Taneja, N. and P. Kalita (2011) “Most Favoured Nation: New Trade Opportunities for India and Pakistan”, *Economic and Political Weekly*, Vol. 46, No. 49.
- World Bank (2004) *Trade Policies in South Asia: An Overview*, Washington, DC.
- World Bank (2007) *The Challenges and Potential of Pakistan-India Trade*, Edited by Zareen Fatima Naqvi and Philip Schuler, Washington, DC.
- World Bank (2010) *South Asia Economic Update 2010: Moving Up Looking East*, Washington, D.C

Annex 1

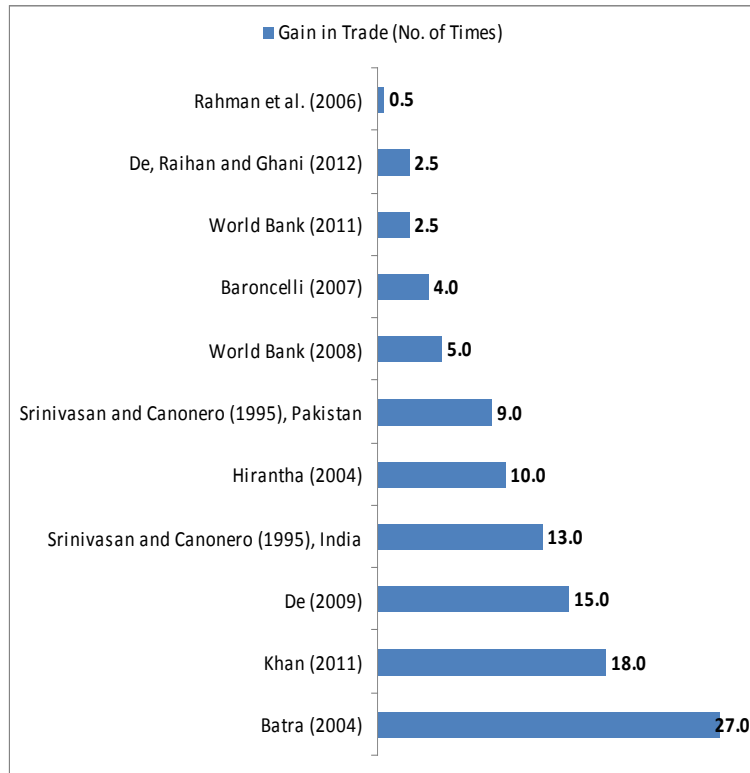
Selected Non-Tariff Measures (NTMs) between India and Pakistan

- Subsidies: Both India and Pakistan provide subsidies to agricultural producers and consumers.
- Trade procedures: Some Indian banks do not recognize L/Cs from all Pakistani banks and vice versa.
- Visa regimes: Very restrictive on both sides. One port of entry and exit. The visa regime on India's side is unpredictable, city specific, single-entry and limited to few days stays.
- Air travel: Very limited to a few flights
- Road and rail travel: Limited traffic, rail wagons carrying goods should return empty.
- Sea travel: Ships should touch a third country port (e.g. Dubai or Singapore) before delivering import goods except limited port of call between Karachi and Nava Sheva.
- Services/IT: Heavy restrictions limit professional exchanges/cooperation.
- Services/Banking: Bank branches are not allowed and export/imports should be made through a third country.
- Standards: The Bureau of Indian Standards requires a certificate for cement, whereas it takes 6 months (3 weeks in theory) to clear certification. Pakistani labs reports for complying with certification requirements for fabrics and garments are often not accepted in India. Finished leather from Pakistan requires an additional certification from the Indian veterinary department.
- Infrastructure: Whereas Pakistan can unload/load 30-40 trucks at a time in Wagah, India can only manage 2 trucks. A 10-hour window is given to Indian importers to unload/load, Customs clear and reload, but this is hardly accomplished. Warehousing facilities on both sides of the border are inadequate. Behind the border facilities are very poor. For example, a major part of the road linking Wagah with Panipat on India's National Highway 1 is narrow.
- Trade logistics: Goods move by air, sea, and rail between India and Pakistan. While road routes for trade are non-existent, rail and air connections between the two countries have been erratic. Inter-change between Pakistan and India railways takes place only on Sunday. There are restrictions on mode of transport in export goods. For example, cement export to India is allowed only by train, and export large quantities through train is not possible as the frequency of trains running between India and Pakistan is very low. There are large port congestions, high port and demurrage charges, cumbersome paper works, and generally more issues of trade and transport facilitation in Pakistan.
- Transit: Although India and Pakistan are signatories of GATT Article V, they do not extend freedom of transit to each other as well as to international traffic in transit.
- Testing laboratories at border: Testing laboratories for trade in agriculture, processed food, chemicals, garments, etc. are not available at border.

Source: Authors

Annex 2

Figure A1. Gains in India-Pakistan Trade, Gravity Estimates



Note: Base year varies

across gravity estimates.

Source: Authors, updated from Taneja (2007) and Lopez-Calix (2012)

Table A1: Pakistan's Trade Potential with South Asian Countries, Gravity Estimates

Partner	Actual Trade (A) (US\$ million)	Potential Trade (P) (US\$ million)	Potential Trade (P) (US\$ million)	Potential Trade / Actual Trade (P/A)	
	2010	2010	2015	2010	2015
Afghanistan	1875.67	1561.36	2671.03	0.83	1.42
Bangladesh	457.33	406.45	657.62	0.89	1.44
Bhutan	0.24	39.73	64.25	165.54	267.71
India	2760.41	7027.46	12049.08	2.55	4.36
Maldives	4.54	15.10	24.88	3.33	5.48
Nepal	1.96	328.13	524.22	167.41	267.46
Sri Lanka	341.50	124.41	200.03	0.36	0.59

Source: Authors based on a gravity model with regression results in Table A2.

Table A2: Gravity Regression Results
(Period: 2000-2010)

Dependent variable: ln_total trade

	OLS
	0.801 ***
ln_gdp_reporter	[0.168]
	0.589 ***
ln_gdp_partner	[0.114]
	-1.515 ***
ln_distance	[0.151]
	3.381
Constant	[3.137]
Year effect	Yes
Country effect	Yes
Observations	1764
R-squared	0.92

Notes: Robust standard errors are reported in brackets.
*significant at 10%; **significant at 5%;
***significant at 1%

Annex 3

From the UNCOMTRADE database 561 products at the 6 digit HS trade classification are identified where the unit costs of imports if they are sourced from India would be lower than the unit costs of imports if they are sourced from other countries. The percentage differences in these unit import costs are calculated. These percentage differences in unit prices for these 561 products at the 6 digit HS code are aggregated into GTAP sectors using the concordance and weights for respective products.

Table A3. Unit Price Comparison

2 digit HS code	Code Name	No of products at 6 digit HS code level for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'	% share of 'possible' import in total import at 2 digit HS code for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'	% share of 'possible' import in total import for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'
1	Live animals; animal products	3	33.2130	0.0110
2	Meat and edible meat offal	4	1.7019	0.0002
3	Fish and crustaceans, molluscs and other aquatic invertebrates	5	8.0143	0.0005
4	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	9	17.5244	0.0428
7	Edible vegetables and certain roots and tubers	6	7.0999	0.0959
8	Edible fruit and nuts; peel of citrus fruit or melons	1	0.0002	0.000001
9	Coffee, tea, maté and spices	1	0.0001	0.000001
10	Cereals	4	27.8573	0.0543
11	Products of the milling industry; malt; starches; inulin; wheat gluten	7	83.5677	0.1352
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder	4	87.0885	1.4567
13	Lac; gums, resins and other vegetable saps and extracts	2	17.8070	0.0047
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	14	28.4721	1.4050
17	Sugars and sugar confectionery	6	4.6694	0.1039
18	Cocoa and cocoa preparations	1	41.7007	0.0209
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	3	55.6847	0.1024
20	Preparations of vegetables, fruit, nuts or other parts of plants	6	11.6715	0.0074
21	Miscellaneous edible preparations	5	3.1082	0.0036
22	Beverages, spirits and vinegar	7	11.6154	0.0025
23	Residues and waste from the food industries; prepared animal fodder	7	14.3373	0.0617
24	Tobacco and manufactured tobacco substitutes	6	99.1908	0.0385
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	12	58.5373	0.1372
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	16	41.7734	12.6849
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes	31	5.3680	0.0606
29	Organic chemicals	42	17.9378	0.8225

2 digit HS code	Code Name	No of products at 6 digit HS code level for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'	% share of 'possible' import in total import at 2 digit HS code for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'	% share of 'possible' import in total import for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'
30	Pharmaceutical products	1	0.1769	0.0023
31	Fertilisers	5	86.1809	1.4887
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks	6	17.5249	0.1475
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a basis o	5	6.3058	0.0261
35	Albuminoidal substances; modified starches; glues; enzymes	3	6.5119	0.0061
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	2	4.1041	0.0005
37	Photographic or cinematographic goods	8	45.6573	0.0316
38	Miscellaneous chemical products	13	3.2215	0.0476
39	Plastics and articles thereof	25	10.9331	0.4247
40	Rubber and articles thereof	11	16.5929	0.1825
41	Raw hides and skins (other than furskins) and leather	11	45.0799	0.0936
43	Furskins and artificial fur; manufactures thereof	1	27.9042	0.0015
44	Wood and articles of wood; wood charcoal	11	3.8549	0.0102
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	1	3.6948	0.000034
47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) of paper or paperboard	7	29.9244	0.0700
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	20	33.1310	0.3884
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans	4	3.8788	0.0047
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	2	5.4159	0.0020
52	Cotton	6	0.0540	0.0012
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	3	6.4791	0.0129
54	Man-made filaments; strip and the like of man-made textile materials	7	7.7860	0.1070
55	Man-made staple fibres	14	52.1706	0.7020
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	3	1.6414	0.0017
60	Knitted or crocheted fabrics	9	58.1876	0.0353
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	1	0.0905	0.0004
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	6	5.1436	0.0046
69	Ceramic products	5	44.1050	0.0879
70	Glass and glassware	9	14.1888	0.0263
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	6	68.5697	0.3340
72	Iron and steel	29	17.1504	0.7745
73	Articles of iron or steel	17	5.1074	0.0578
74	Copper and articles thereof	6	2.2125	0.0081

2 digit HS code	Code Name	No of products at 6 digit HS code level for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'	% share of 'possible' import in total import at 2 digit HS code for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'	% share of 'possible' import in total import for which 'unit price of import if India becomes the import source' is lower than the 'unit price of import from existing source'
75	Nickel and articles thereof	3	62.7536	0.0285
76	Aluminum and articles thereof	5	18.0886	0.1038
78	Lead and articles thereof	3	97.7582	0.1415
79	Zinc and articles thereof	3	14.2653	0.0147
81	Other base metals; cermets; articles thereof	5	1.5309	0.0004
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	33	4.2856	0.3372
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	13	6.3953	0.4160
86	Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds	1	0.6091	0.0007
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	14	8.9598	0.3121
88	Aircraft, spacecraft, and parts thereof	3	38.6654	0.1265
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	8	2.2149	0.0256
93	Arms and ammunition; parts and accessories thereof	1	2.3240	0.0007
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings	4	21.0204	0.0362
95	Toys, games and sports requisites; parts and accessories thereof	3	2.9249	0.0036
96	Miscellaneous manufactured articles	3	23.9438	0.0718

Source: Calculated based on UNCOMTRADE database. The products are classified according to HS classification of 2007.

Since Pakistan would only enjoy fall in unit import prices for these products if the import source is India, in the GTAP model a scenario is considered where there would a fall in import price for Pakistan while importing from India. This simulation is done by shocking on the transaction cost of the import from India to Pakistan. 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. In addition, it is assumed that there would be some ‘peace dividends’ for all the South Asian countries because of this improved trade relation between India and Pakistan. In the GTAP framework, such “peace dividend” is assumed to lower transaction costs in bilateral trade among the South Asian countries by 0.5 percent.

Annex 4

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.²⁷ 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.²⁸ 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 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

²⁷ Full documentation of the GTAP model and the database can be found in Hertel (1997) and also in Dimaranan and McDougall (2002).

²⁸ Savings enter in the static utility function as a proxy for future consumption.

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.

This study uses the version 8 database of the GTAP global general equilibrium model. The version 8 of the GTAP database has 2007 as the base year and it 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 10 as shown in Tables A3 and A4 respectively.

Table A4. 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 A5: 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
China	China
USA	USA
EU25	European Union
ROW	Rest of the World

Source: GTAP Database Version 8

Annex 5. Sensitivity Analysis

Table 4A: Welfare Effects of MFN and Bilateral Trade Facilitation between India and Pakistan: Sensitivity Analysis with Respect to Armington CES for Domestic/Imported Allocation

(Equivalent variation in US\$ million at 2007 prices)

Country	MFN			MFN+BTF		
	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value
Bangladesh	21.08	21.14	21.62	32.25	31.81	33.49
India	160.71	142.35	179.79	1406.67	1159.63	1702.53
Nepal	18.01	16.89	20.89	32.22	29.61	38.03
Pakistan	99.21	95.42	108.44	1229.08	1187.5	1332.26
Sri Lanka	34.92	33.07	38.43	63.32	59.22	69.68
Rest of South Asia	15.72	14.64	18.02	21.38	20.03	23.43
China	-10.52	-11.19	-10.17	-102.62	-116.79	-91.07
USA	-18.39	-23.66	-16.16	-122.33	-151.65	-110.65
EU 25	-29.55	-34.4	-27.96	-200.94	-217.57	-201.25
Rest of the World	-66.71	-74.51	-62.63	-585.41	-628.59	-567.09

Source: GTAP Simulation and Sensitivity Analysis

Table 4B: Welfare Effects of MFN and Bilateral Trade Facilitation between India and Pakistan: Sensitivity Analysis with Respect to CES between Primary Factors in Production

(Equivalent variation in US\$ million at 2007 prices)

Country	MFN			MFN+BTF		
	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value
Bangladesh	21.08	20.82	21.48	32.25	31.53	33.33
India	160.71	160.67	160.75	1406.67	1405.22	1407.98
Nepal	18.01	17.95	18.07	32.22	32.1	32.36
Pakistan	99.21	98.82	99.76	1229.08	1222.71	1237.33
Sri Lanka	34.92	34.85	34.91	63.32	62.93	63.01
Rest of South Asia	15.72	15.62	15.84	21.38	21.13	21.71
China	-10.52	-10.79	-10.09	-102.62	-104.83	-99.63
USA	-18.39	-19.06	-17.9	-122.33	-123.52	-120.98
EU 25	-29.55	-30.13	-29.13	-200.94	-203.1	-198.22
Rest of the World	-66.71	-66.86	-66.62	-585.41	-594.68	-578.58

Source: GTAP Simulation and Sensitivity Analysis

Table 5A: Impact on Pakistan's Import and Export (MFN and MFN+BTF): Sensitivity Analysis with Respect to Armington CES for Domestic/Imported Allocation

	MFN						MFN+BTF					
	Original Elasticity Value		50% reduction in original elasticity value		50% increase in original elasticity value		Original Elasticity Value		50% reduction in original elasticity value		50% increase in original elasticity value	
	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to
India	32.03	0.40	27.61	0.18	36.45	0.62	201.85	201.57	149.26	113.85	254.44	289.29
Total	0.28	0.17	0.23	0.04	0.33	0.3	2.71	1.82	1.01	0.88	4.42	2.76

Note: Figures are percent changes from the base. MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan
Source: GTAP Simulation and Sensitivity Analysis

Table 5B: Impact on Pakistan's Import and Export (MFN and MFN+BTF): Sensitivity Analysis with Respect to CES between Primary Factors in Production

	MFN						MFN+BTF					
	Original Elasticity Value		50% reduction in original elasticity value		50% increase in original elasticity value		Original Elasticity Value		50% reduction in original elasticity value		50% increase in original elasticity value	
	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to
India	32.03	0.40	32.02	0.39	32.04	0.41	201.85	201.57	201.71	201.32	201.99	201.82
Total	0.28	0.17	0.27	0.16	0.29	0.18	2.71	1.82	2.7	1.74	2.72	1.9

Note: Figures are percent changes from the base. MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan
Source: GTAP Simulation and Sensitivity Analysis

Table 6A: Impact on India's Import and Export (MFN and MFN+BTF): Sensitivity Analysis with Respect to Armington CES for Domestic/Imported Allocation

	MFN						MFN+BTF					
	Original Elasticity Value		50% reduction in original elasticity value		50% increase in original elasticity value		Original Elasticity Value		50% reduction in original elasticity value		50% increase in original elasticity value	
	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to
Pakistan	0.40	32.18	0.19	27.75	0.61	36.61	200.83	202.88	113.51	150.07	288.15	255.69
Total	0.10	0.12	0.08	0.10	0.12	0.14	0.58	0.73	0.37	0.56	0.79	0.90

Note: Figures are percent changes from the base. MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan

Source: GTAP Simulation and Sensitivity Analysis

Table 6B: Impact on India's Import and Export (MFN and MFN+BTF): Sensitivity Analysis with Respect to CES between Primary Factors in Production

	MFN						MFN+BTF					
	Original Elasticity Value		50% reduction in original elasticity value		50% increase in original elasticity value		Original Elasticity Value		50% reduction in original elasticity value		50% increase in original elasticity value	
	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to	% change in import from	% change in export to
Pakistan	0.40	32.18	0.39	32.17	0.41	32.19	200.83	202.88	200.58	202.74	201.08	203.02
Total	0.10	0.12	0.09	0.11	0.11	0.13	0.58	0.73	0.57	0.72	0.59	0.74

Note: Figures are percent changes from the base. MFN = Most Favored Nation; BTF = Bilateral Trade Facilitation between India and Pakistan

Source: GTAP Simulation and Sensitivity Analysis

Table 7A: Welfare Effects of SAFTA: Sensitivity Analysis with Respect to Armington CES for Domestic/Imported Allocation
(EV in million US\$ at 2007 prices)

Country	SAFTA without MFN			SAFTA with MFN			SAFTA+MFN+STF		
	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value
Bangladesh	-132.85	-143.153	-120.973	-111.77	-121.814	-99.0138	1479.56	1312.291	1764.211
India	1650.02	1530.897	1896.097	1810.73	1647.287	2096.627	5452.03	4278.623	6857.543
Nepal	467.03	476.9985	507.4185	485.03	495.2238	527.4638	1654.21	1834.524	1840.984
Pakistan	1022.46	966.0654	1107.205	1121.67	1082.2	1194.48	2618.38	2402.794	2956.094
Sri Lanka	36.98	46.70638	47.86638	71.88	75.47382	81.49382	2173.12	2194.537	2262.537
Rest of South Asia	282.49	288.8458	300.8258	298.21	304.1017	318.0817	1265.02	1293.436	1359.796
China	-205.69	-214.397	-207.237	-216.19	-227.811	-215.371	-760.12	-892.072	-722.372
USA	-252.08	-298.83	-230.19	-270.47	-321.881	-246.901	-985.54	-1185.45	-956.989
EU 25	-318.77	-375.528	-289.108	-348.32	-407.975	-318.935	-1394.91	-1621.49	-1396.91
Rest of the World	-615.01	-655.535	-598.775	-681.72	-727.155	-664.355	-3020.78	-3234.96	-3081.12

Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member states

Source: GTAP Simulation and Sensitivity Analysis

Table 7B: Welfare Effects of SAFTA: Sensitivity Analysis with Respect to CES between Primary Factors in Production
(EV in million US\$ at 2007 prices)

Country	SAFTA without MFN			SAFTA with MFN			SAFTA+MFN+STF		
	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value	Original Elasticity Value	50% reduction in original elasticity value	50% increase in original elasticity value
Bangladesh	-132.85	-139.341	-121.881	-111.77	-121.814	-99.0138	1479.56	1446.721	1530.721
India	1650.02	1644.756	1653.936	1810.73	1647.287	2096.627	5452.03	5422.174	5477.254
Nepal	467.03	461.3037	471.4637	485.03	495.2238	527.4638	1654.21	1637.292	1677.412
Pakistan	1022.46	993.3099	1043.21	1121.67	1082.2	1194.48	2618.38	2584.232	2646.712
Sri Lanka	36.98	34.37775	40.57775	71.88	75.47382	81.49382	2173.12	2170.763	2173.623
Rest of South Asia	282.49	277.6591	286.0991	298.21	304.1017	318.0817	1265.02	1263.155	1267.935
China	-205.69	-206.732	-204.372	-216.19	-227.811	-215.371	-760.12	-760.967	-759.567
USA	-252.08	-257.786	-248.426	-270.47	-321.881	-246.901	-985.54	-1008.98	-968.161
EU 25	-318.77	-322.271	-316.611	-348.32	-407.975	-318.935	-1394.91	-1421.07	-1374.97
Rest of the World	-615.01	-634.081	-590.301	-681.72	-727.155	-664.355	-3020.78	-3022.62	-3020.66

Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member states

Source: GTAP Simulation and Sensitivity Analysis

Table 8A: Impact on Pakistan's Import and Export under SAFTA Scenarios: Sensitivity Analysis with Respect to Armington CES for Domestic/Imported Allocation
(% change from base)

Scenarios	Different elasticity value											Total
			Bangladesh	India	Nepal	Sri Lanka	Rest of South Asia	China	USA	EU_25	Rest of the World	
SAFTA without MFN	Original elasticity value	import from	37.05	53.04	-8.33	33.38	44.98	-0.06	0.96	0.91	0	3.09
		export to	130.46	523.1	18.75	39.08	19.39	-7.9	-7.04	-7.44	-7.73	3.97
	50% reduction in original elasticity value	import from	26.13	38.53	-20.7	23.89	29.97	-0.67	0.43	0.45	-0.65	2.32
		export to	90.88	366.47	15.3	26.49	13.94	-10.04	-8.74	-9.29	-9.93	2.55
	50% increase in original elasticity value	import from	47.97	67.55	4.04	42.87	59.99	0.55	1.49	1.37	0.65	3.86
		export to	170.04	679.73	22.2	51.67	24.84	-5.76	-5.34	-5.59	-5.53	5.39
SAFTA with MFN	Original elasticity value	import from	36.81	75.04	-8.33	30.62	44.28	-1.08	0.52	0.26	-1.05	3.29
		export to	130.97	524.96	18.75	39.44	19.57	-7.4	-6.89	-7.27	-7.5	4.21
	50% reduction in original elasticity value	import from	24.9	52.11	-20.8	21.58	28.71	-2.06	-0.14	-0.42	-1.96	2.39
		export to	88.9	366.63	15.18	26.79	13.58	-9.29	-8.38	-8.9	-9.49	2.48
	50% increase in original elasticity value	import from	48.72	97.97	4.14	39.66	59.85	-0.1	1.18	0.94	-0.14	4.19
		export to	173.04	683.29	22.32	52.09	25.56	-5.51	-5.4	-5.64	-5.51	5.94
SAFTA+MFN+STF	Original elasticity value	import from	181.32	256.87	116	129.62	191.5	-7.18	-1.71	-1.54	-6.66	10.5
		export to	403.29	1111.89	176.08	128.91	107.54	-17.77	-17.04	-17.98	-17.96	11.33
	50% reduction in original elasticity value	import from	101.28	157.05	-54.06	85.08	85.51	-11.88	-4.85	-4.74	-10.33	7
		export to	264.98	735.79	130.02	92.61	75.29	-21.37	-20.44	-21.59	-21.94	5.42
	50% increase in original elasticity value	import from	261.36	356.69	286.06	174.16	297.49	-2.48	1.43	1.66	-2.99	14
		export to	541.6	1487.99	222.14	165.21	139.79	-14.17	-13.64	-14.37	-13.98	17.24

Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member states

Source: GTAP Simulation and Sensitivity Analysis

**Table 8B: Impact on Pakistan's Import and Export under SAFTA Scenarios: Sensitivity Analysis with Respect to CES
between Primary Factors in Production**
(% change from base)

Scenarios	Different elasticity value											Total
			Bangladesh	India	Nepal	Sri Lanka	Rest of South Asia	China	USA	EU_25	Rest of the World	
SAFTA without MFN	Original elasticity value	import from	37.05	53.04	-8.33	33.38	44.98	-0.06	0.96	0.91	0	3.09
		export to	130.46	523.1	18.75	39.08	19.39	-7.9	-7.04	-7.44	-7.73	3.97
	50% reduction in original elasticity value	import from	35.99	52.76	-8.87	32.37	44.64	-0.19	0.78	0.76	-0.11	3.03
		export to	129.7	515.99	18.28	38.43	19.04	-8.24	-7.41	-7.83	-8.09	3.79
	50% increase in original elasticity value	import from	38.11	53.32	-7.79	34.39	45.32	0.07	1.14	1.06	0.11	3.15
		export to	131.22	530.21	19.22	39.73	19.74	-7.56	-6.67	-7.05	-7.37	4.15
SAFTA with MFN	Original elasticity value	import from	36.81	75.04	-8.33	30.62	44.28	-1.08	0.52	0.26	-1.05	3.29
		export to	130.97	524.96	18.75	39.44	19.57	-7.4	-6.89	-7.27	-7.5	4.21
	50% reduction in original elasticity value	import from	35.73	74.73	-8.86	29.6	43.94	-1.21	0.34	0.11	-1.16	3.23
		export to	130.22	517.82	18.27	38.78	19.21	-7.76	-7.24	-7.65	-7.87	4.03
	50% increase in original elasticity value	import from	37.89	75.35	-7.8	31.64	44.62	-0.95	0.7	0.41	-0.94	3.35
		export to	131.72	532.1	19.23	40.1	19.93	-7.04	-6.54	-6.89	-7.13	4.39
SAFTA+MFN+STF	Original elasticity value	import from	181.32	256.87	116	129.62	191.5	-7.18	-1.71	-1.54	-6.66	10.5
		export to	403.29	1111.89	176.08	128.91	107.54	-17.77	-17.04	-17.98	-17.96	11.33
	50% reduction in original elasticity value	import from	176.81	256.18	113.72	126.34	190.74	-7.35	-1.93	-1.73	-6.8	10.4
		export to	401.44	1096.88	173.03	127.23	106.56	-18.23	-17.5	-18.46	-18.4	11.12
	50% increase in original elasticity value	import from	185.83	257.56	118.28	132.9	192.26	-7.01	-1.49	-1.35	-6.52	10.6
		export to	405.14	1126.9	179.13	130.59	108.52	-17.31	-16.58	-17.5	-17.52	11.54

Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member states

Source: GTAP Simulation and Sensitivity Analysis

Table 9A: Impact on India's Import and Export under SAFTA Scenarios: Sensitivity Analysis with Respect to Armington CES for Domestic/Imported Allocation
(% change from base)

Scenarios	Different elasticity value											Total
			Bangladesh	India	Nepal	Sri Lanka	Rest of South Asia	China	USA	EU_25	Rest of the World	
SAFTA without MFN	Original elasticity value	import from	54.82	133.65	522.43	4.4	91.59	-0.01	0.18	0.14	-0.05	1.08
		export to	74.67	49	52.96	24.59	33.17	-0.41	-0.68	-0.64	-0.63	1.29
	50% reduction in original elasticity value	import from	39.33	89.37	364.88	1.59	64.59	-0.15	0.1	0.06	-0.23	0.78
		export to	54.63	37.39	38.49	19	25.61	-0.49	-0.83	-0.79	-0.76	0.87
	50% increase in original elasticity value	import from	70.31	177.93	679.98	7.21	118.59	0.13	0.26	0.22	0.13	1.38
		export to	94.71	60.61	67.43	30.18	40.73	-0.33	-0.53	-0.49	-0.5	1.71
SAFTA with MFN	Original elasticity value	import from	54.95	133.73	524.25	4.52	91.75	0.06	0.24	0.19	0.01	1.13
		export to	74.48	48.97	75.06	24.52	32.97	-0.49	-0.81	-0.77	-0.75	1.36
	50% reduction in original elasticity value	import from	37.96	86.83	365.01	1.48	63.63	-0.09	0.14	0.1	-0.18	0.8
		export to	53.65	36.74	30.05	18.69	25.02	-0.53	-0.89	-0.84	-0.81	0.84
	50% increase in original elasticity value	import from	71.94	180.63	683.49	7.56	119.87	0.21	0.34	0.28	0.2	1.46
		export to	95.69	61.26	75.87	30.49	41.32	-0.29	-0.47	-0.44	-0.45	1.74
SAFTA+MFN+STF	Original elasticity value	import from	380.7	474.08	1103.47	189.27	302.06	-0.48	0.56	0.52	0.1	3.58
		export to	270.31	192.72	257.63	93.87	208.32	-2.55	-4.2	-4.03	-3.93	4.32
	50% reduction in original elasticity value	import from	198.48	117.06	727.52	103.37	153.04	-1.77	-0.16	-0.07	-0.73	2.2
		export to	179.47	108.99	157.6	63.91	136.46	-3.43	-5.52	-5.3	-5.1	2.59
	50% increase in original elasticity value	import from	562.92	831.1	1479.42	275.17	451.08	0.81	1.28	1.11	0.93	4.96
		export to	361.15	276.45	357.66	123.83	280.18	-1.67	-2.88	-2.76	-2.76	6.05

Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member states

Source: GTAP Simulation and Sensitivity Analysis

Table 9B: Impact on India's Import and Export under SAFTA Scenarios: Sensitivity Analysis with Respect to CES between Primary Factors in Production
(% change from base)

Scenarios	Different elasticity value											Total
			Bangladesh	India	Nepal	Sri Lanka	Rest of South Asia	China	USA	EU_25	Rest of the World	
SAFTA without MFN	Original elasticity value	import from	54.82	133.65	522.43	4.4	91.59	-0.01	0.18	0.14	-0.05	1.08
		export to	74.67	49	52.96	24.59	33.17	-0.41	-0.68	-0.64	-0.63	1.29
	50% reduction in original elasticity value	import from	54.61	132.44	515.28	4.13	90.22	-0.01	0.18	0.14	-0.06	1.07
		export to	74.57	48.82	52.68	24.53	33	-0.42	-0.69	-0.65	-0.64	1.28
	50% increase in original elasticity value	import from	55.03	134.86	529.58	4.67	92.96	-0.01	0.18	0.14	-0.04	1.09
		export to	74.77	49.18	53.24	24.65	33.34	-0.4	-0.67	-0.63	-0.62	1.3
SAFTA with MFN	Original elasticity value	import from	54.95	133.73	524.25	4.52	91.75	0.06	0.24	0.19	0.01	1.13
		export to	74.48	48.97	75.06	24.52	32.97	-0.49	-0.81	-0.77	-0.75	1.36
	50% reduction in original elasticity value	import from	54.73	132.54	517.06	4.23	90.35	0.06	0.24	0.19	0	1.12
		export to	74.56	48.82	52.65	24.52	33	-0.42	-0.69	-0.65	-0.64	1.28
	50% increase in original elasticity value	import from	55.17	134.92	531.44	4.81	93.15	0.06	0.24	0.19	0.02	1.14
		export to	74.78	49.18	53.27	24.66	33.34	-0.4	-0.67	-0.63	-0.62	1.3
SAFTA+MFN+STF	Original elasticity value	import from	380.7	474.08	1103.47	189.27	302.06	-0.48	0.56	0.52	0.1	3.58
		export to	270.31	192.72	257.63	93.87	208.32	-2.55	-4.2	-4.03	-3.93	4.32
	50% reduction in original elasticity value	import from	377.97	467.1	1088.39	187.65	299.5	-0.5	0.55	0.51	0.08	3.56
		export to	269.37	191.34	256.94	93.52	207.83	-2.6	-4.22	-4.05	-3.96	4.3
	50% increase in original elasticity value	import from	383.43	481.06	1118.55	190.89	304.62	-0.46	0.57	0.53	0.12	3.6
		export to	271.25	194.1	258.32	94.22	208.81	-2.5	-4.18	-4.01	-3.9	4.34

Note: MFN = Most Favored Nation; STF = Trade facilitation among SAFTA member states

Source: GTAP Simulation and Sensitivity Analysis

Annex 6

Dynamic CGE Model

The dynamic CGE models of Pakistan and India are constructed and are calibrated with respective social accounting matrices for the year 2007. The price results obtained from the GTAP model are introduced as part of the shocks in the country dynamic CGE model.

A majority of CGE models are static in nature. The inability of this kind of models to account for growth effects make them inadequate for long-run analysis of the economic policies. They exclude accumulation effects and do not allow the study of transition path of an economy where short-run policy impacts are likely to be different from those of the long-run. To overcome this limitation we use a sequential dynamic CGE model. This kind of dynamics will not be the result of inter-temporal optimization by economic agents. Instead, these agents have myopic behaviour. It is a series of static CGE models that are linked between periods by updating procedures for exogenous and endogenous variables. Capital stock is updated endogenously with a capital accumulation equation, whereas population (and total labor supply) is updated exogenously between periods.

Static Module

In each sector there is a representative firm, which earns capital income, pays dividends to households and pays direct income taxes to the government. A nested structure for production is adopted. Sectoral output is a Leontief function of value added and total intermediate consumption. Value added is in turn represented by a CES function of capital and composite labor. The latter is also represented by a CES function of two labor categories: skilled labor and unskilled labor. Both labor categories are assumed to be fully mobile in the model. Capital is fully mobile only after the first year. In different production activities it is assumed that a representative firm remunerates factors of production and pays dividends to households.

Households earn their income from production factors: skilled and unskilled labor, agricultural and non-agricultural capital. They also receive dividends, intra-household transfers, government transfers and remittances and pay direct income tax to the government. Household savings are a fixed proportion of total disposal income. Household demand is represented by a linear expenditure system (LES) derived from the maximization of a Stone-Geary utility function. The model includes nine household categories according to characteristics of the household head, as identified in the HES household survey. Five of these categories correspond to rural households and four are of urban households. Minimal consumption levels are calibrated by using guess-estimates of the income elasticity and the Frisch parameters.

We assume that foreign and domestic goods are imperfect substitutes. This geographical differentiation is introduced by the standard Armington assumption with a constant elasticity of substitution function (CES) between imports and domestic goods. On the supply side, producers make an optimal distribution of their production between exports and local sales according to a constant elasticity of transformation (CET) function. Furthermore, we assume a finitely elastic export demand function that expresses the limited power of the local producers on the world market. In order to increase their exports, local producers may decrease their free on board (FOB) prices.

The government receives direct tax revenue from households and firms and indirect tax revenue on domestic and imported goods. Its expenditure is allocated between the consumption of goods and services (including public wages) and transfers. The model accounts for indirect or direct tax compensation in the case of a tariff cut. Furthermore, general equilibrium is defined by the equality (in each period) between supply and demand of goods and factors and the investment-saving identity. The nominal exchange rate is the numéraire in each period.

Dynamic Module

In every period capital stock is updated with a capital accumulation equation. We assume that the stocks are measured at the beginning of the period and that their flows are measured at the end of the period. We use an investment demand function to determine how new investments will be distributed between the different sectors.

This can also be done through a capital distribution function²⁹. Investment here is not by origin (product) but rather by sector of destination. The investment demand function used here is similar to those proposed by Bourguignon et al. (1989), and Jung and Thorbecke (2003). The capital accumulation rate (ratio of investment to capital stock) is increasing with respect to the ratio of the rate of return to capital and its user cost. The latter is equal to the dual price of investment times the sum of the depreciation rate and the exogenous real interest rate. The elasticity of the accumulation rate with respect to the ratio of return to capital and its user cost is assumed to be equal to two. By introducing investment by destination, we respect the equality condition with total investment by origin in the SAM (Social Accounting Matrix). Besides this, investment by destination is used to calibrate the sectoral capital stock in base run.

Total labour supply is an endogenous variable, although it is assumed to simply increase at the exogenous population growth rate. Note that the minimal level of consumption in the LES function also increases (as do other nominal variables, like transfers) at the same rate. The exogenous dynamic updating of the model includes nominal variables (that are indexed), government savings and the current account balance. The equilibrium between total savings and total investment is reached by means of an adjustment variable introduced in the investment demand function. Moreover, the government budget equilibrium is met by a neutral tax adjustment.

The model is formulated as a static model that is solved sequentially over a certain period time horizon.³⁰ The model is homogenous in prices and calibrated in a way to generate "steady state" paths. In the baseline all the variables are increasing, in level, at the same rate and the prices remain constant. The homogeneity test (for example, a shock on the numéraire – the nominal exchange rate – with the "steady state" characteristics) generates the same shock on prices, and unchanged real values, along the counterfactual path. This method is used to facilitate welfare and poverty analysis since all prices remain constant along the business as usual (BaU) path.

It is, however, important to note that, in contrast to the static CGE models, which make counterfactual analysis with respect to the base run (generally the initial SAM), a dynamic CGE model allows the economy to grow even in the absence of a shock. This scenario of the economy (without a shock) is termed as the business-as-usual (BAU) scenario. The counterfactual analysis of any simulation under the dynamic CGE model is, therefore, done with respect to this growth path. One of the salient features of the dynamic model is that it takes into account not only efficiency effects, as also present in the static models, but also accumulation effects. The sectoral accumulation effects are linked to the ratio between the rate of return to the capital stock and the cost of investment goods.

²⁹ Abbink et al (1995) use a sequential dynamic CGE model for Indonesia where total investment is distributed as a function of base year sectoral shares in total capital remuneration and sectoral profit rates.

³⁰ The model is formulated as a system of non linear equations solved simultaneously as a constrained non-linear system (CNS) with GAMS/Conopt3 solver.

Annex 7
Major Impediments to India – Pakistan Trade

Tariff barriers	Customs duties
	Special additional duties (SAD)
	Countervailing duties
Other barriers	Stringent visa regimes
	Trade distorting subsidies
	Overland transportation limitation
	Air travel restriction
	Sea transportation restriction
	Transit restriction
	Port of call restriction
Finance measures	Cumbersome payment systems
	Restrictive official foreign exchange allocation ¹
	Regulations concerning terms of trade for import payments ²
	Non-acceptance of letter of credit
	High commission of foreign banks offering letter of credit
	Lack of bank branches
Quality control measures	License with no specific ex-ante criteria ³
	License for selected importers
	Sanitary and phytosanitary measures
Technical barriers to trade	Marking requirements
	Labeling requirements
	Testing, inspection and quarantine requirements
	Pre-shipment inspection/certificate acquisition

Notes: 1. Indian firms and individuals are subject to capital account restrictions. 2. If imports of physical capital exceed US\$ 15,000, an international bank must cover the advance remittance through a bank guarantee. 3. A special import license is required to import certain goods.

Sources: Compiled from many sources including Taneja (2012), Khan (2011), Husain (2012)

Annex 8

Trade Links between India and Pakistan

Sector	Particular
Road transportation (passenger bus services)	Delhi – Lahore
	Amritsar-Nankana Sahib
	Amritsar – Lahore
	Poonch - Rawalakot
	Srinagar - Muzaffarabad
Rail transportation (passenger train services)	Delhi – Lahore
	Jodhpur - Karachi
Shipping links	Mumbai – Karachi
Air links	Delhi – Lahore
	Mumbai – Karachi

Gas pipeline	TAPI*
Electricity links	Amritsar – Lahore*
Border (land) customs for trade	Wagah – Attari
	Poonch - Rawalakot
	Srinagar - Muzaffarabad
	Monabao- Khokhrapar*

*Proposed / to be operational

Source: Updated from De (2009b)