

TPP, TTIP and RCEP: Implications for South Asian Economies

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Abstract

The Transatlantic Trade and Investment Partnership (TTIP), the Trans-Pacific Partnership (TPP) and the Regional Comprehensive Economic Partnership (RCEP) could be the biggest trade deals in history. As the European Union (EU), the United States (US) and RCEP countries are the biggest trading partner of all South Asian countries, such preferential tariff arrangements could lead to a significant erosion of preferences enjoyed currently by the South Asian countries. Against this backdrop, the main objective of the present study is to investigate the potential economic impacts of tariff eliminations under TPP, TTIP and RCEP on South Asian countries using a standard computable general equilibrium model. The analysis evinces that under complete integration, in terms of tariff elimination, under these three mega deals, the excluded South Asian countries could face a tremendous negative impact on their economies. The analysis also suggests that South Asia may consider joining the TPP to minimize the negative economic impact due to arise from these mega deals.

JEL: F14, F15, F17

Keywords

TPP, TTIP, RCEP, South Asia, GTAP, CGE

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Introduction

The Trans-Pacific Partnership (TPP) negotiations are already taking place involving the United States (US) and 11 other countries, which account for about 40 per cent of the global economy. The TPP is a proposed trade agreement under negotiation by (as of August 2013) Australia, Brunei, Chile, Canada, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the US, and Vietnam (Michael, 2013). The TPP intends to enhance trade and investments among the TPP partner countries; promote innovation, economic growth and development; and support the creation and retention of jobs (Michael, 2013).

Recently, the US and the European Union (EU) reaffirmed their commitment to conclude expeditiously a comprehensive and ambitious Transatlantic Trade and Investment Partnership (TTIP) that already accounts for nearly half of global output (EU, 2014). On 13 February 2013, the president of the US, the president of the European Commission and the president of the European Council made a joint announcement to the effect that the EU and the US have agreed to launch negotiations on the TTIP with the aim of signing an agreement in 2015 (European Commission, 2013). The key issues that are considered here relate to identification of the most important products in the US or the EU imports from South Asia and how vulnerable the products are to trade diversion/preference erosion. As far as tariffs are concerned, the EU and the US currently apply most favoured nation (MFN) tariffs in trading with one another. These MFN tariffs will be abolished if this transatlantic trade deal is signed. The size of the losses in terms of competitiveness will depend on the degree to which such tariff elimination will impact on their relative competitive strength of these excluded South Asian countries.

On the other hand, the Regional Comprehensive Economic Partnership (RCEP) is a free trade agreement (FTA) that has been developed among 16 countries: the 10 members of Association of Southeast Asian Nations (ASEAN) (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) and the six countries with which ASEAN has existing FTAs—Australia, China, India, Japan, Korea and New Zealand. The RCEP is a significant step in the evolution of trade policy frameworks in East Asia over the past decade. RCEP's history reaches back some 10 years, starting as a study process for an FTA between ASEAN, China, Japan and Korea (known as ASEAN+3). This was complemented from 2007 with a parallel study process for an ASEAN+6 FTA, which included the ASEAN+3 partners plus Australia, India and New Zealand. Both these study processes concluded in 2011, following which ASEAN put forward the RCEP concept. The fifth round of the RCEP negotiation was held in Singapore between 21 and 27 June 2014. The participants in the RCEP FTA negotiations have a total population of over 3 billion people and a trade share estimated at around 28 per cent of global trade (World Trade Organization [WTO], 2013), covering gross domestic product (GDP) of around US\$ 21 trillion (International Monetary Fund [IMF], 2013).

There are numerous studies using computable general equilibrium (CGE) modelling, like Lee and Itakura (2014), Cheong (2013), Oduncu, Mavuş and Güneş (2014), Rahman and Cheong (2014) Xin (2014), Narayanan and Sachin (2014),

Petri, Plummer and Zhai (2011) quantified the impact of TPP and TTIP on different regions. Cheong and Tongzon (2013) analyze the economic impact of TTP and RCEP and they argue that the TPP should be promoted for its economic value, not for geopolitical purposes, and it should be open to all Asia and Pacific countries, including the People's Republic of China. Narayanan and Sachin (2014) conducted a comparative analysis of the likely impact of tariff reduction under TPP on the Indian economy under different scenarios, by using the standard Global Trade Analysis Project (GTAP) model, and suggested that there are mixed prospects and no strong reason for India to be a member of TPP. Arif et al. (2014) examine the impacts of TPP on the Turkish economy and show that Turkey could face losses on GDP up to 1 per cent if the TPP covers only the current 12 countries.

Akhtar and Vivian (2014) conclude their paper and envision that the TTIP could be the largest FTA in the world in terms of economic size. Jim Rollo et al. (2014) evaluate some of the potential effects of TTIP economic integration on the trade in goods of 43 low-income countries and show that most of the low-income countries will suffer negative impact due to the mega deal.

The brief review given here shows that various aspects of TPP, TTIP as well as RCEP, and its impact on different regions, have been analyzed. However, not much research has been done to quantify the impact on the South Asian economy. It would, therefore, be interesting to see the impact of these three mega deals on South Asian countries. If these three sets of trade talks are successfully concluded, most of the South Asian countries may find themselves put in a disadvantageous position. With this background, the objective of this study is to make a comparative analysis of likely impact of tariff reduction under TPP, TTIP and RCEP on various macro and trade variables of excluded South Asian economies by using the GTAP model. The unique contribution of this article lies in the evaluation of scenarios wherein South Asia may be involved in the TPP as an alternative. This has the potential to provide deep insights into the currently active policy debate on TPP, TTIP and RCEP for South Asian countries. Rest of the article is organized as follows. The next section presents the methodology, followed by the third section that presents the simulation results. Conclusions are drawn in the last section.

Methodology

Before moving into the GTAP methodology, let's have a look at the total bilateral trade flows between the regions involved in this article (Table 1 and Table 2). The top sources of South Asian's imports are the EU, Japan, the US, Canada and Australia, of which the last four are current TPP members. All the major South Asian top export destinations include the EU, the US, Japan and Korea. Therefore, South Asia is closely related to the proposed TPP members and it is important to consider their involvement in this partnership.

The US and the EU are the major trading partners of South Asian countries, including India, Bangladesh, Pakistan, Sri Lanka and Nepal (Table 2). Indian exports to the EU and the US were US\$ 49 billion and US\$ 42 billion respectively, while imports from the EU and the US were US\$ 48 billion and US\$ 23 billion

Table 1. Overview of Economies of the TPP, TTIP and RCEP Countries in 2013

Country	Population (Million)	GDP (US\$ Billion)	Exports (US\$ Billion)	Imports (US\$ Billion)	Tariff (Simple Average MFN)
US	316.1	16,244	2,195	2,743	3.4
EU	506.7	16,661	7,472	7,150	5.5
Canada	35.1	1,779	541	576	4.3
Chile	17.5	270	92	91	6.0
Japan	127.3	5,961	873	991	4.6
Korea	50.2	1,130	628	603	5.2
Australia	23.1	1,532	331	326	2.7
New Zealand	4.5	171	51	50	2.0
China	1,357.6	8,227	2,248	2,017	9.6
India	1,253	1,858	446	571.3	13.7
Mexico	122.3	1,178	387	415	7.8
Brunei	0.42	17	11	5	2.5
Singapore	5.4	276	551	490	0.2
Malaysia	29.7	305	265	230	6.5
Vietnam	89.8	155	124	119	9.5
Bangladesh	156.6	116	27	37	14.4
Pakistan	182.1	225	27.8	45.6	13.5
Sri Lanka	20.5	59	13.6	21.7	9.9

Source: World Development Indicators (2013) and WTO, available at http://www.wto.org/english/tratop_e/tariffs_e/tariff_data_e.htm

respectively in 2013 (United Nations [UN] Comtrade, 2014). Bangladesh's exports to the EU and the US were \$ 14 billion and \$ 5 billion respectively, which is 80 per cent of the country's total exports in 2013. The other South Asian countries follow a similar trend as well.

Simple average tariff of the EU against the US is 4.1 per cent and the average US MFN tariff against the EU is 3.5 per cent (Europa, 2014). These are not high average tariffs and, as such, do not suggest that an FTA would endow major competitive advantage to either the EU or the US through transatlantic trade. While the average tariff between the US and the EU stands at 3–4 per cent, non-tariff barriers are extremely high, ranging from 25.5–73.3 per cent (ECORYS, 2009, pp. xix, xx). Therefore, elimination of non-tariff barriers may actually cause more damage to South Asia than the elimination of tariffs.

The GTAP Model for Macroeconomic Analysis¹

The most common modelling technique for estimating economic impacts of a trade agreement with economy-wide effects involves the CGE modelling framework of the GTAP. The general equilibrium model is thoroughly documented in

Table 2. Intra-regional Trade among TPP and TTIP Countries in 2013 (US\$ Billion)

	China	US	Canada	EU	Japan	AZ	BMSV	CM	Bangladesh	India	Pakistan	Sri Lanka
China		369.06	29.22	371.90	150.13	51.73	127.75	42.07	9.70	51.64	6.63	2.96
US	153.39		240.70	260.13	65.14	27.51	60.63	243.74	0.71	22.60	1.67	0.35
Canada	25.24	345.74		35.70	10.38	2.37	2.67	6.06	0.64	3.01	0.12	0.29
EU	196.83	382.46	41.98		71.67	48.05	66.45	48.68	2.20	47.62	5.09	1.60
Japan	162.25	142.15	13.34	75.06		20.45	49	11.39	0.87	10.49	1.96	0.67
AZ	95.44	10.92	1.47	17.10	33.58		13.72	1.057	0.64	11.51	0.50	0.43
BMSV	96.14	68.38	4.49	76.05	61.91	33.61		2.78	4.13	19.95	2.77	2.55
CM	30.95	294.24	27.62	35.23	12.25	3.24	3.60		0.01	7.54	0.07	0.01
Bangladesh	0.60	5.59	1.16	14.36	0.89	0.49	0.21	0.24		0.53	0.06	0.03
India	16.42	41.96	2.3	48.87	7.33	2.69	25.71	2.86	5.99		2.18	0.48
Pakistan	2.65	3.74	0.24	6.02	0.18	0.30	0.55	0.21	0.72	0.38		0.03
Sri Lanka	0.12	2.50	0.15	3.11	0.22	0.18	0.19	0.14	0.08	0.05	0.006	

Source: UN Comtrade (2014).

Notes: AZ: Australia and New Zealand; BMSV: Brunei, Malaysia, Singapore and Vietnam; CM: Chile and Mexico.

Hertel (1997) and in the GTAP database documentation (Dimaranan, 2006). It is a comparative static multi-regional CGE model.

The basic structure of the GTAP database includes: industrial sectors, households, governments and global sectors across countries. Countries and regions in the world economy are linked together through trade. Prices and quantities are simultaneously determined in both factor and commodity markets. The main factors of production are skilled and unskilled labour, capital, natural resources and land.

Producers operate under constant returns to scale, where the technology is described by the Leontief and constant elasticity of substitution (CES) functions. Two broad categories of inputs are identified: intermediate inputs and primary factors of production. In the model, firms minimize costs of inputs given their level of output and fixed technology. First, producers use composite units of intermediate inputs and primary factors in fixed proportions following a Leontief production function. At the second level of the production nest, intermediate input composites are obtained combining imported bundles and domestic goods of the same input–output group. Trade policy can affect the price of traded goods relative to domestically produced goods. As a result, a key relationship for model analysis is the degree of substitution between imported and domestic goods. This key relationship is commonly identified as the Armington elasticity.² It is assumed that domestically produced goods and imports are imperfectly substituted. This is modelled using the Armington structure.

Households' behaviour in the model is determined from an aggregate utility function. The aggregate utility is modelled using the Cobb–Douglas production function with constant expenditure shares. This utility function includes private consumption, government consumption and savings. Current government expenditure goes into the regional household utility function as a proxy for the government provision of public goods and services. Private households' consumption is explained by a constant difference elasticity expenditure function.

Domestic support and trade policy (tariff barriers) are modelled as ad valorem equivalents. These policies have a direct impact on the production and consumption sectors in the model. In equilibrium, all firms have zero real profit, all households are on their budget constraint and global investment is equal to global savings. Changing the model's parameters allows one to estimate the impact from a country's/region's original equilibrium position to a new equilibrium position.

The simulation represents what the economy would look like if the policy change or shock had occurred. The difference in the values of the endogenous variables in the baseline and the simulation represents the effect of the policy change. All the policy simulations as well as the results reported in this article, as in other major models of this type, may be thought of as occurring in one shot, over a time period that is needed for equilibrium to be achieved. This time period is akin to what is widely thought of by economists as 'medium run', possibly 3–5 years in a go. So, the model should be able to foretell the effect on trade and production patterns if the trade policy was changed. Furthermore, based on the change in welfare, the policymaker would be able to judge whether the country benefited from the change in policy or not.

The GTAP framework has strength because of theoretical rigour, its ability to represent direct and indirect interactions among all sectors of an economy and

precise detailed quantitative results. The strength of the multi-country CGE model is that it incorporates in an elegant manner, the features of neo-classical general equilibrium and real international trade models in an empirical framework (Thierfelder, Robinson, Korman, Kearney, Go & Essama-Nssah, 2007). However, this study does not adequately capture the service trade reforms, and thus the results may underestimate the potential effect of liberalization where the services sector is to be included. It is to be noted that the GTAP model has both static and dynamic versions. However, in this article, the static GTAP model is used. Gilbert (2013) mentioned that the static model has a disadvantage relative to dynamic techniques, of not describing the time path, that is, attention in the analysis is concentrated on the end outcome rather than the transition. The model's results may be very sensitive to the assumptions and data used. Almost all CGE exercises include a sensitivity analysis to obtain a range of results based on different assumptions or data.

Data and Country and Sectoral Aggregation

The study makes use of Version 8 of the GTAP database which was released in 2012. Data on regions and commodities are also aggregated to meet the objectives of this study. Version 8 of the GTAP database covers 57 commodities, 129 regions/countries and five factors of production. For the sake of convenience, the 129 regions have been aggregated to 17 regions and the 57 commodities have been aggregated into 10 as shown in Appendix (Table A1). The regions selected include major nine TPP countries (Australia and New Zealand as one country), ASEAN countries, the EU, five South Asia countries, China, Japan, Korea, Sub-Saharan Africa (SSA) and rest of the world. The study has simulated four different scenarios, including on EU-US FTA, TPP FTA, RCEP FTA and an alternative scenario where South Asia joins into the TPP.

Analysis of the Simulation Results: Welfare and Macroeconomic Effects

Based on the model simulations, this section reports the results that show the likely impacts on important macroeconomic variables, economic welfare, industry outputs and exports. We have analyzed four different scenarios. Under Scenario I, all 12 TPP countries eliminate tariffs for each other; and under Scenario II, elimination of all import tariffs by the EU and the US and vice versa is considered. Under Scenario III, the RCEP FTA is considered where all import tariffs will be eliminated. We have also adopted one alternative scenario, Scenario IV, if South Asia joins TPP.

The effects of TPP can be assessed at both the macroeconomic and sectoral levels of analysis. The welfare and other macroeconomic effects of the simulations for the countries/regions concerned are presented in Table 3.

Under Scenario I, if the TPP countries completely eliminate import tariffs with each other, all South Asian countries are expected to experience a drop in their

Table 3. Impact of Tariff Eliminations under TPP (Scenario I)

Country	Welfare Effect (US\$ Million)	% Change of Real GDP	ToT	% Change of Exports	% Change of Imports
China	-2,115.31	-0.19	-0.15	-0.12	-0.29
US	100.88	-0.05	0.01	0.48	0.28
EU27	-1,575	-0.09	-0.02	0.04	-0.05
Canada	219.58	-0.06	-0.02	0.13	0.13
Mexico	318.32	-0.12	-0.14	0.38	0.36
AustNewz	1,177.03	0.76	0.56	0.42	1.31
Japan	5,966.24	0.51	0.43	0.77	1.81
Singapore	186.05	0.2	0.09	0.15	0.27
Malaysia	1,126.81	0.41	0.09	1.21	2.46
Vietnam	2,201.71	4.74	1.4	4.41	7.82
Bangladesh	-41.46	-0.29	-0.19	-0.10	-0.37
India	-348.47	-0.14	-0.09	0.02	-0.14
Pakistan	-83.88	-0.26	-0.18	0.07	-0.28
Sri Lanka	-32.05	-0.33	-0.22	0.11	-0.3
Nepal	-3.25	-0.18	-0.08	0.09	-0.12
SSA	-76.84	-0.09	-0.01	0	-0.09
Rest of World	-2,426.32	-0.11	-0.05	-0.02	-0.15

Source: Author's simulation of GTAP Version 8.

exports, along with an associated welfare loss. India is the biggest economy in South Asia; it could lose the most in real GDP and welfare. Bangladesh and Pakistan could also face tremendous pressure in terms of export and welfare. In terms of real GDP, Bangladesh may suffer the most among the South Asian countries. This mega TPP FTA deal could have a tremendously negative effect on the South Asian economy, which could be much higher compared to TTIP. Bangladesh's exports are expected to drop by about 0.10 per cent, with a welfare loss equal to US\$ 41 million. Bangladesh would experience a fall in real GDP by 0.29 per cent if the deal is realized. The terms of trade (ToT) would fall by 0.19 per cent as well. India, Pakistan, Sri Lanka and Nepal would experience a fall in real GDP by 0.14 per cent, 0.26 per cent, 0.33 per cent and 0.18 per cent respectively. This mega FTA deal could affect negatively almost all South Asian countries. However, the world's second-biggest economy, China, could face a very disadvantageous position due to this mega deal. Chinese exports are expected to drop by about 0.12 per cent and the welfare loss equals US\$ 2.1 billion. However, the biggest welfare gains from this mega FTA could be by Japan, followed by Vietnam and Australia and New Zealand.. The EU may also suffer significant loss to their welfare and real GDP.

Table 4 shows the sectoral analysis under TPP. It shows that under TPP, the production of South Asian textiles and clothing will suffer tremendously and

Table 4. Impact of Tariff Eliminations under TPP on Output

	Grains Crops	MeatLstk	Extraction	Proc Food	Text Wapp	Light Mnfc	Heavy Mnfc	Util_ Cons	Trans Comm	Oth Services
China	-0.16	-0.31	0.09	-0.16	-0.07	0.05	0.12	-0.04	0.05	0
US	1.14	0.59	0.01	0.17	-0.73	-0.14	-0.02	0	0	0
EU27	0.01	-0.2	0.05	-0.04	-0.16	-0.01	0.04	-0.06	0.03	0.01
Canada	1.45	2.67	0.01	-0.04	-1.06	-0.35	-0.12	0.02	0	-0.01
Mexico	0.18	-0.53	0.06	-0.13	-1.2	-0.06	0.04	0.11	0.01	0
AustNewz	1.42	5.16	-0.62	3.6	-1.71	-1.02	-1.28	0.22	-0.13	-0.11
Japan	-4.97	-7.24	-0.28	0	2.82	0.74	-0.07	0.24	0.02	0.01
Singapore	1.27	-0.06	-0.07	5.78	0.62	-0.85	0.39	0.12	-0.12	-0.18
Malaysia	-0.65	1.51	-0.62	0.71	17.89	0.51	0.1	0.51	0.15	-0.68
Vietnam	-1.84	-1.32	-2.89	-3.82	39.73	0.98	-7.36	4.16	0.87	-3.58
Bangladesh	0.04	-0.01	0.05	0.05	-0.22	0.29	0.37	-0.09	0.02	0.04
India	-0.01	-0.02	0.08	-0.09	-0.33	0	0.03	-0.05	0	0.04
Pakistan	0.08	-0.03	0.13	0.01	-0.27	0.31	0.18	-0.07	0.01	0.01
Sri Lanka	0.02	-0.04	0.14	0.14	-0.49	0.22	0.28	-0.12	0	0.02
Nepal	0	-0.02	0.1	0.04	-0.45	0.11	0.17	-0.05	0.01	0.01
SSA	-0.06	0.01	0.04	-0.03	-0.23	0.02	0.05	-0.08	0.02	0.01
Rest of the World	-0.03	-0.21	0.05	-0.12	-0.28	-0.04	0.04	-0.07	0.02	0.01

Source: Author's simulation of GTAP Version 8.

Table 5. Economic Impact of Tariff Eliminations under TTIP (Scenario II)

Country	Welfare Effect (US\$ Million)	% Change of Real GDP	ToT	% Change of Exports	% Change of Imports
China	-1,157.06	-0.14	-0.04	-0.01	-0.1
US	6,051.83	0.23	0.26	1	1.07
EU27	1,051.82	-0.05	0	0.17	0.16
Canada	-793.99	-0.18	-0.16	-0.04	-0.34
Mexico	-439.22	-0.18	-0.16	-0.01	-0.34
AustNewz	-149.96	-0.11	-0.04	0.05	-0.11
Japan	-587.33	-0.13	-0.06	0.12	-0.13
Singapore	-73.62	-0.1	-0.02	-0.03	-0.09
Malaysia	-68.54	-0.12	-0.03	-0.02	-0.09
Vietnam	-45.78	-0.19	-0.04	-0.04	-0.12
Bangladesh	-19.82	-0.2	-0.08	-0.02	-0.17
India	-220.39	-0.11	-0.03	0.01	-0.09
Pakistan	-32.37	-0.17	-0.08	0.04	-0.14
Sri Lanka	-12.16	-0.21	-0.08	0.08	-0.13
Nepal	-1.42	-0.14	-0.04	0.08	-0.08
SSA	-157.23	-0.12	-0.03	0.02	-0.11
Rest of the World	-2,240.17	-0.12	-0.04	0	-0.1

Source: Author's simulation of GTAP Version 8.

production may fall significantly. Sri Lanka and Nepal could be the most negatively affected among the South Asian countries. The production in textiles and clothing of Vietnam could be increased by about 40 per cent.

Under Scenario II (Table 5), if the EU and the US completely eliminate import tariffs with each other, South Asian countries would experience a fall in real GDP and loss in welfare, but not very significantly compared to TPP. This mega FTA deal could negatively affect almost all parts of the world. However, the biggest welfare gains would be by the US, which could be about US\$ 6.1 billion, and the EU would also make significant welfare gains. Chinese exports are expected to drop by about 0.01 per cent and the welfare loss equals US\$ 1.2 billion.

Table 6 demonstrates that under TTIP, the South Asian textiles and clothing industry may face some difficulties, particularly in Sri Lanka and Nepal. The agricultural sector may not face any significant difficulties in South Asian countries, except India.

Tables 7 and 8 illustrate the macroeconomic impact as well as sectoral output of RCEP (*under scenario III*). Under Scenario III, if the RCEP countries completely eliminate import tariffs with each other, all excluded South Asian countries are expected to face drop in their exports and experience welfare loss.

Table 6. Impact of Tariff Eliminations under TTIP on Output

	Grains Crops	MeatLstk	Extraction	Proc Food	Text Wapp	Light Mnfc	Heavy Mnfc	Util_ Cons	Trans Comm	Oth Services
China	0.01	0	0.02	-0.02	-0.08	0.01	0.01	-0.04	0.01	0
US	0.06	0.24	-0.14	0.12	-0.42	0.17	-0.04	0.1	-0.01	-0.02
EU27	-0.14	-0.19	-0.04	0.03	0.69	-0.07	0.03	0.01	0.02	0.01
Canada	0.17	0.18	0.04	-0.18	-0.3	0.05	-0.02	-0.15	0	0.02
Mexico	0.11	0.07	0.06	-0.08	-0.54	0.15	0.06	-0.19	0	0.01
AustNewz	0.02	0.03	0	-0.06	-0.03	0.01	0.03	-0.06	0	0.01
Japan	0.07	0.03	0.02	-0.01	-0.02	0.04	0.04	-0.09	0	0
Singapore	0.01	-0.03	-0.01	-0.1	-0.34	-0.04	-0.1	-0.1	0.04	0.06
Malaysia	0	-0.02	0.01	-0.05	-0.33	0.01	-0.04	-0.02	0.01	0.05
Vietnam	0.03	0.01	0.04	-0.1	-0.64	-0.01	0.11	-0.07	0.01	0.1
Bangladesh	0.01	0	0.01	-0.02	-0.06	0.06	0.14	-0.07	0.01	0.04
India	-0.01	0	0	-0.02	-0.18	-0.01	-0.02	-0.04	-0.01	0.04
Pakistan	0.02	-0.01	0.04	0.01	-0.14	0.09	0.07	-0.04	0.01	0.03
Sri Lanka	0.04	-0.03	0.05	0.05	-0.26	0.07	0.1	-0.08	0	0.03
Nepal	0	-0.01	0.01	0.01	-0.22	0.02	0.03	-0.06	0.01	0.02
SSA	-0.01	-0.01	0.01	-0.02	-0.09	-0.01	0.01	-0.1	0.01	0.02
Rest of the World	0.01	-0.01	0.01	-0.04	-0.18	-0.01	-0.01	-0.06	0.01	0.02

Source: Author's simulation of GTAP Version 8.

Table 7. Economic Impact of Tariff Eliminations under RCEP (Scenario III)

	Welfare Effect (US\$ Million)	% Change of Real GDP	ToT	% Change of Exports	% Change of Imports
ASEAN	3,932.27	0.26	0.01	1.94	2.91
Australia	4,212.99	1.69	1.52	2.49	5.54
New Zealand	311.86	0.73	0.53	1.48	2.47
China	5,789.17	0.27	-0.03	3.29	4.45
Japan	15,720.94	2.04	1.7	1.35	4.81
Korea	7,790.4	1.98	0.91	2.69	5.16
India	5,384	0.82	-0.81	6.6	5.15
Bangladesh	-79.45	-0.67	-0.33	-0.06	-0.64
Pakistan	-236.2	-0.81	-0.47	0.02	-0.78
Sri Lanka	-87.45	-1.27	-0.6	0.69	-0.57
Nepal	-87.28	-3.6	-1.98	-2.06	-3.7
US	-6,133.73	-0.46	-0.29	-0.08	-0.72
Canada	-374.34	-0.35	-0.1	0.14	-0.1
Mexico	-403.96	-0.35	-0.1	0.16	-0.12
Rest East Asia	-3,081.48	-1.07	-0.75	-0.85	-1.91
EU	-4,602.32	-0.36	-0.07	0.03	-0.18
SSA	-1,129.95	-0.55	-0.29	0	-0.58
Rest of the World	-5,763.83	-0.46	-0.2	-0.02	-0.4

Source: Author's simulation of GTAP Version 8.

Bangladesh, Pakistan, Sri Lanka and Nepal could face tremendous pressure in terms of export and welfare. As India is a member of RCEP, it may gain significantly from the FTA. In terms of real GDP, Pakistan may suffer the most among the South Asian countries. This mega RCEP FTA deal could have tremendous negative effect on the South Asian economy, which could be much higher compared to TTP and TTIP. Bangladesh's exports are expected to drop by about 0.06 per cent and the welfare loss equals US\$ 80 million. Bangladesh would experience a fall in real GDP of 0.67 per cent if the deal becomes realized. Pakistan, Sri Lanka and Nepal would experience a fall in real GDP of 0.81 per cent, 1.27 per cent and 3.6 per cent, respectively. However, the biggest welfare gains from this mega FTA could be for Japan, followed by the Korea, China and India. The US and the EU may also suffer significant loss of their welfare and real GDP.

Table 9 shows the economic impact of TTP if South Asian countries are able to join TPP (under Scenario IV). It shows that South Asian countries could gain significantly in terms of welfare, real GDP as well as exports. Bangladesh, India, Pakistan, Sri Lanka and Nepal would experience a rise in real GDP by 2.39 per cent, 0.39 per cent, 2.03 per cent, 2.34 per cent and 5.1 per cent, respectively. This mega

Table 8. Economic Impact of Tariff Eliminations under RCEP on Output (Scenario III)

	Grains Crops	MeatLstk	Extraction	Proc Food	Text Wapp	Light Mnfc	Heavy Mnfc	Util_ Cons	Trans Comm	Oth Services
ASEAN	0.73	-0.57	-0.06	2.49	-0.54	-1.9	0.44	1.14	-0.07	-0.5
Australia	1.8	15.2	-0.56	2.51	-13.86	-4.7	-1.05	1.16	-0.24	-0.21
New Zealand	2.15	4.27	-0.13	3.33	-6.98	-2.69	-1.14	0.42	-0.2	-0.07
China	0.77	-0.64	-0.34	0.6	1.52	-0.12	-0.41	0.36	-0.12	-0.1
Japan	-3.28	-4.88	-0.9	-0.67	1.16	-0.35	0.21	0.76	-0.04	0.01
Korea	-2.81	-2.68	-1.22	-0.28	5.85	-0.96	0.47	1.53	-0.14	-0.25
India	-0.62	0.25	-0.48	-4.43	0.27	0.29	-0.23	0.65	0.25	0.09
Bangladesh	-0.02	-0.02	-0.02	0.09	0.14	0.7	0.19	-0.21	0.02	0.02
Pakistan	0.08	-0.09	0.21	0.03	-0.31	1.07	0.34	-0.17	0.04	0.01
Sri Lanka	-0.04	-0.03	0.28	-3.16	2.15	0.67	0.53	-0.41	0.27	0.06
Nepal	-0.27	-1.1	1.28	-10.23	1.5	2.52	-2.27	-0.51	0.66	0.32
US	-0.68	-0.47	0.01	-0.12	-0.41	0.13	0.15	-0.18	0.01	0.01
Canada	-1.52	-0.95	-0.05	-0.18	-0.59	0.42	0.18	-0.16	0.03	-0.01
Mexico	-0.27	-0.39	-0.12	-0.02	-0.6	0.39	0.22	-0.18	0	-0.03
East Asia	0.34	-0.05	0.27	-0.15	-5.11	0.08	-1.37	-0.7	0.66	0.38
EU	-0.08	-0.17	-0.14	-0.08	-0.69	0.08	-0.04	-0.15	0.15	0.01
SSA	-0.05	-0.11	-0.02	-0.06	-0.03	0.45	0.05	-0.33	0.12	-0.01
Rest of the World	-0.12	-0.12	-0.03	-0.24	-0.19	0.34	-0.02	-0.14	0.09	0.01

Source: Author's simulation of GTAP Version 8.

Table 9. Economic Impact of Tariff Eliminations under TPP including South Asia (Scenario IV)

Country	Welfare Effect (US\$ Million)	% Change of Real GDP	ToT	% Change of Exports	% Change of Imports
China	-3,936.98	-0.37	-0.23	-0.22	-0.5
US	1,913.24	-0.03	0.07	0.79	0.52
EU27	-2,548.74	-0.17	-0.03	0.04	-0.1
Canada	359.7	-0.02	0.02	0.2	0.23
Mexico	479.52	-0.16	-0.16	0.42	0.32
AustNewz	2,343.82	1.15	1.02	0.85	2.24
Japan	7,104.12	0.63	0.58	0.89	2.1
Singapore	815.97	0.82	0.4	0.46	0.96
Malaysia	1,857.25	0.94	0.43	1.43	3.04
Vietnam	2,184.27	4.63	1.38	4.52	7.94
Bangladesh	428.61	2.39	1.51	7.37	8.88
India	4,672.5	0.39	0.1	4.25	4.07
Pakistan	1,019.99	2.03	1.53	5.62	6.21
Sri Lanka	317.39	2.34	1.85	2.79	7.29
Nepal	211.16	5.01	2.79	17.75	14.31
SSA	-624.88	-0.31	-0.16	0.02	-0.32
Rest of the World	-6,379.23	-0.26	-0.15	-0.05	-0.33

Source: Author's simulation of GTAP Version 8.

FTA deal could affect positively almost all South Asian countries. This indicates that South Asia should try to join the TPP deal.

However, the sectoral analysis (Table 10) shows a mixed picture. The main textiles and clothing sector could hugely increase output in all South Asian countries. However, the agricultural and industrial sectors may experience a reduction in production in most of the South Asian countries whether or not they join TPP, due to strong trade diversion effects arising from global price reduction facilitated by widespread tariff elimination. Adverse effects on agricultural sectors could be more negative if non-tariff measures are taken into consideration.

Conclusion

The TPP, TTIP and RCEP could be the biggest three trade deals in history, which would account for about 80 per cent of the global economy. The EU and the US are in the process of, or contemplating, signing FTAs under TTIP and TPP. The ASEAN and the six countries with which ASEAN has existing FTAs—Australia, China, India, Japan, Korea and New Zealand—have finished the fifth round of

Table 10. Impact of Tariff Eliminations under TTP including South Asia on Output

	Grains Crops	MeatLstk	Extraction	Proc Food	Text Wapp	Light Mnfc	Heavy Mnfc	Util _ Cons	Trans Comm	Oth Services
China	-0.16	-0.29	0.1	-0.14	-0.46	0.13	0.15	-0.09	0.09	-0.02
US	1.26	0.68	-0.08	0.21	-2.33	-0.09	0.06	0	0	0
EU27	0.04	-0.18	-0.13	-0.03	-0.13	-0.03	-0.01	-0.11	0.07	0.02
Canada	4.38	2.85	-0.11	-0.09	-3.54	-0.42	-0.06	0.03	0	-0.02
Mexico	0.25	-0.37	0.13	-0.09	-3.6	0.02	0.05	0.06	0.02	0.02
AustNewz	1.68	3.58	-0.07	2.7	-2.68	-1.41	-0.64	0.34	-0.16	-0.1
Japan	-5.01	-7.31	-0.39	-0.11	2.51	0.87	-0.13	0.25	0.02	0.02
Singapore	1.76	-0.3	-0.11	22.42	2.41	-0.14	0.96	0.48	-0.47	-0.57
Malaysia	-0.02	1.55	-0.11	4.18	17.97	0.58	-0.52	0.43	0.03	-0.72
Vietnam	-1.69	-2.26	-2.84	-3.86	38.08	1.18	-6.97	4.24	0.88	-3.65
Bangladesh	-0.6	-0.41	-1.04	-2.49	6.59	-6.67	-7.51	0.92	-0.48	-0.76
India	-0.22	0.09	-0.99	-0.22	6.11	-0.79	-0.39	0.65	0.25	-0.34
Pakistan	-0.38	0.17	-1.73	-2.47	7.52	-11.84	-3.46	0.78	-0.16	-0.07
Sri Lanka	-2.01	0.34	-1.72	-4.45	13.05	-1.39	-5.92	2.66	0.39	-0.79
Nepal	-0.06	1.12	-2.81	6.83	2.24	-15.91	12.9	3.11	-0.73	-0.37
SSA	-0.07	0	-0.03	0.03	-0.3	0.18	0.08	-0.2	0.07	0.02
Rest of the World	-0.02	-0.18	-0.02	-0.14	-0.8	-0.01	0.1	-0.12	0.06	0.03

Source: Author's simulation of GTAP Version 8.

negotiation and are very close to an FTA deal. The EU, the US and RCEP countries are the biggest trading partners of all South Asian countries. Therefore, the TTIP, TPP and RCEP are immensely important for South Asia.

The analysis in this study evinces that under complete integration, in terms of tariff elimination under TTIP and TPP, India's real GDP could decrease by 0.25 per cent, whilst welfare loss could be to the tune of US\$ 568.86 million. The real GDP of other South Asian countries, namely, Bangladesh, Pakistan, Sri Lanka and Nepal, could decrease by 0.49 per cent, 0.43 per cent, 0.54 per cent and 0.32 per cent respectively. Bangladesh's exports may fall by about 0.12 per cent as well. However, other South Asian exports may not fall as expected. South Asian agricultural and textiles and clothing industries may suffer tremendously and production may fall significantly.

If the RCEP countries completely eliminate import tariffs with each other, all excluded South Asian countries are expected to experience a drop their exports and welfare loss. As India is member of RCEP, it may gain significantly from the FTA. In terms of real GDP, Pakistan may suffer the most among the South Asian countries. This mega RCEP FTA deal could tremendously affect the South Asian economy negatively, which could be much higher compared to TTP and TTIP. Bangladesh's exports are expected to drop by about 0.06 per cent, with welfare loss equal to US\$ 80 million. Bangladesh would experience a fall in real GDP by 0.67 per cent if the deal becomes realized. Pakistan, Sri Lanka and Nepal would experience a fall in real GDP by 0.81 per cent, 1.27 per cent and 3.6 per cent, respectively.

However, if South Asia were able to enter into the TPP deal, the economic gain could be enormous. This indicates that South Asian countries could gain significantly in terms of welfare, real GDP as well as exports. Bangladesh, India, Pakistan, Sri Lanka and Nepal would experience a rise in real GDP by 2.39 per cent, 0.39 per cent, 2.03 per cent, 2.34 per cent and 5.1 per cent, respectively. This suggests that South Asia should try to enter into the TPP deal. However, as we have used a static GTAP model in this article, the model's results may be very sensitive to the assumptions and data used. The dynamic CGE and disaggregated product-level analysis could be future research agenda.

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Appendix

Table AI. Regional and Commodity Aggregation of GTAP Database

SL	Aggregated Region	GTAP Region	SL	Aggregated Commodities	GTAP Commodities
1	China	China	1	Grains Crops (9 products)	pdr wht gro v_f osd c_b pfb ocr pcr
2	US	United States of America	2	Meat Lstk (6 products)	ctl oap rmk wol cmt omt
3	EU27	EU 27 Countries	3	Extraction (6 products)	frs fsh coa oil gas omn
4	Canada	Canada	4	ProcFood (5 products)	vol mil pcr sgr ofd
5	Mexico	Mexico	5	Text Wapp (2)	tex wap
6	AustNewz	Australia and New Zealand	6	LightMnfc (7)	lea lum ppp fmp mvh otn omf
7	Japan	Japan	7	HeavyMnfc (7)	p_c crp nmm i_s nfm ele ome
8	Singapore	Singapore	8	Util_ Cons (4)	ely gdt wtr cns
9	Malaysia	Malaysia	9	Trans Comm (5)	trd otp wtp atp cmn
10	Vietnam	Vietnam	10	Oth Services (6)	ofi isr obs ros osg dwe
11	Bangladesh	Bangladesh			
12	India	India			
13	Pakistan	Pakistan			
14	Sri Lanka	Sri Lanka			
15	Nepal	Nepal			
16	SSA	All Sub-Saharan African countries			
17	Rest of the world	Rest of countries in the world of GTAP database			

Source: GTAP Version 8.

Notes

1. See Hertel (1997) and the GTAP website, available at <https://www.gtap.agecon.purdue.edu> for a full introduction to the database.
2. The CES specification for the trade substitution elasticity is derived from Armington (1969).

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