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# **Trade Impacts of South Asian Free Trade Agreements: The Case of Sri Lanka**

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## **Abstract**

This article aims to examine the trade effects of the South Asian FTAs including regional and bilateral ones with a focus on Sri Lanka, by applying a gravity trade model as an analytical framework. The study specifically targets the following three FTAs: the South Asian Free Trade Agreement (SAFTA) enforced in 2006, the India-Sri Lanka Free Trade Agreement (ISFTA) in 2001, and the Pakistan-Sri Lanka Free Trade Agreement (PSFTA) in 2005. The outcomes of the gravity trade model estimation suggested that the trade creation effects were identified in the ISFTA, while those were not verified in the SAFTA, and that the PSFTA had the trade creation effects only on the Sri Lankan imports. Those results seem to reflect the differentials in the preferential tariff rates and in the presence of negative list among the individual FTA frameworks. In particular, ISFTA could have the predominant positive effects on Sri Lankan trade flows due to its lowest preferential tariff rates since the early stage of its enforcement, and thus the SAFTA effect might be crowded out at the current stage of Sri Lankan trade.

Keyword: the South Asian Free Trade Agreement (SAFTA), the India-Sri Lanka Free Trade Agreement (ISFTA), the Pakistan-Sri Lanka Free Trade Agreement (PSFTA), the South Asian Association for Regional Cooperation (SAARC), and gravity trade model

JEL Classification Codes: F13, F14, O53

## 1. Introduction

Since the early 2000s, regional trade agreements (RTAs) including free trade agreements (FTAs) have risen in number, particularly in the Asian area. According to the list of all RTAs in force presented by the World Trade Organization (WTO), the total number of RTAs reached 303 as of February 2018. The 94 RTAs out of the total cover Asian countries, and 87 RTAs out of those 94 have been in force since the 2000s.<sup>1</sup> South Asian countries are not an exception in facilitating the RTAs. A typical example is the South Asian Free Trade Agreement (SAFTA), which has been promoted by the South Asian Association for Regional Cooperation (SAARC) consisting of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. One of the major roles of the SAARC has been to promote trade integration within member countries since its establishment in 1985, and under the SAARC the SAFTA has been in force since January 2006.<sup>2</sup> In addition, the bilateral FTAs within the SAARC members have also been enforced as follows: the FTA between India and Sri Lanka (ISFTA) since December 2001, the one between Pakistan and Sri Lanka (PSFTA) since June 2005, the one between India and Bhutan since July 2006 and the one between India and Nepal since October 2009.

The rising trend in FTAs formations has also encouraged academic studies of investigating the economic effects of FTAs from the theoretical and empirical perspectives. There are two types of analyses for that purpose, namely, ex-ante and ex-post analyses, as Okabe (2015) suggested. An ex-ante analysis is used for estimating the impact of an FTA before it is enforced so that the estimation outcome can contribute to the decision-making on whether an economy should join the FTA. A typical methodology for this analysis is a simulation by computable general equilibrium (CGE) model, which make it possible to assess the effect of an FTA in advance from various aspects of the economy such as trade value, production and economic welfare by sector and country. An ex-post analysis is, on the other hand, applied to reviewing the performances of an FTA after it is enforced. A typical method for this analysis is an estimation by gravity trade model. The model describes the normal level of trade flows predicted by the countries' economic sizes and the distance between them. Then the intensity of the trade-integration caused by a FTA can be measured by the coefficients of dummy variables, which are added in the model equation for the FTA partners during the FTA-in-force period. A positive and statistically significant coefficient for the dummy shows that the trade flows

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<sup>1</sup> See WTO webpage: <http://rtais.wto.org/UI/PublicAllIRTAList.aspx>.

<sup>2</sup> Afghanistan has joined the SAARC since 2007 and the SAFTA has covered Afghanistan since 2011.

exceed the normal level, thereby implying an intensive trade-integration effect caused by the FTA. There have been relatively fewer studies for examining the FTA impacts in South Asia than in East Asia, America and Europe as Baysan et al. (2006) pointed out, since just about ten years have passed since the implementation of the SAFTA in 2006, thereby the trade integration staying at a premature stage. It would thus be an appropriate time to evaluate the South Asian FTAs particularly in an ex-post manner.

Under the backgrounds above, this article aims to examine the trade effects of the South Asian FTAs including regional and bilateral ones with a focus on Sri Lanka, by applying a gravity trade model as an analytical framework. The study specifically targets the following three FTAs: the SAFTA enforced in 2006, the ISFTA in 2001, and the PSFTA in 2005. The reason for focusing on Sri Lanka is that her economy has been in a better position to enjoy trade benefits among South Asian economies. As a matter of fact, Sri Lanka belongs to a small open economy in the middle income group<sup>3</sup>, and has promoted manufacturing sector as a driving force of her economic growth. Table 1 indicates that Sri Lanka holds relatively higher position in the rankings of GDP per capita, trade openness and manufacturing-GDP ratio. The greater advantage from the trade integration in Sri Lanka has also been verified by a CGE model simulation in such studies as Perera (2008) and Bouet et al. (2010).

The rest of the paper is structured as follows. Section 2 reviews the literature related to the studies of FTA effects by a gravity trade model and clarifies this study's contribution. Section 3 conducts the empirics by estimating the gravity trade model, containing methodology, estimation results and discussions. The last section summarizes and concludes.

## **2. Literature Review and Contribution**

For assessing the trade effects of FTAs in an ex post manner, a number of empirical studies have done estimations utilizing a gravity trade model. The model originated from Tinbergen (1962) and Pöyhönen (1963), which were the first to apply the “Newton’s Law of Gravitation” to international trade flows. The original intent of the gravity trade equation was to explain bilateral trade flows by the economic size of two countries and the distance between them. Since Anderson (1979) assigned the model with theoretical underpinnings for the first time, the gravity trade model has been established as being consistent with trade theories based upon models of imperfect competition and with the

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<sup>3</sup> The classification is based on the World Bank Analytical Classifications in 2016.  
See the website: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>.

Heckscher-Ohlin model (see, e.g. Helpman and Krugman, 1985; and Deardorff, 1998).

The gravity trade model has often proved a useful instrument to assess the trade-integration effects of regional economic ties such as FTAs. The intensity of the trade-integration caused by FTAs is usually measured by the coefficients of dummy variables, which are added in the gravity trade equation for the FTA partners during the FTA-in-force period. A positive and statistically significant coefficient for the dummy shows that the trade flows exceed the normal level predicted by the country's economic sizes and the distance between them, thereby implying an intensive trade-integration effect caused by the FTA.

Looking at the empirical literature on the FTA effects on trade flows, even after forty years of accumulating estimations on gravity trade equations, there had seemed no clear and convincing empirical evidence, until Baier and Bergstrand (2007) presented a thorough empirical analysis on the FTA treatment effects.<sup>4</sup> They pointed out that trade policy is not an exogenous variable, and addressed econometrically the endogeneity of FTAs: the FTA dummy variable is correlated with the error term. They argued that standard cross-section techniques using instrumental variables and control functions did not provide stable estimates of the FTA effects in the presence of endogeneity. Instead they utilized a theoretically-motivated gravity equation using panel data with bilateral fixed effects. They finally concluded that, on average, an FTA approximately doubles two members' bilateral trade after ten years, i.e., seven times the effect estimated using the standard cross-section techniques.

Based on the econometrical methodologies of Baier and Bergstrand (2007), Urata and Okabe (2014) examined the impacts of RTAs including FTAs on trade flows, focusing on their trade creation and diversion effects. They estimated the gravity trade equation covering 67 countries/regions for 27 years from 1980 to 2006 at a disaggregated level of 20 products. Their estimation addressed the problem of the RTA-endogeneity bias and zero trade flows by applying the panel-data analysis with bilateral fixed effects and the Poisson pseudo-maximum likelihood model as its estimating technique. Their main findings were that: plurilateral RTAs produce trade creation for many more products compared to bilateral RTAs; RTAs among developed countries generate trade creation for a half of all products but not trade diversion for most of the products, whereas RTAs among developing countries give rise to trade diversion for many more products – probably due to high tariffs imposed on imports from non-members by developing

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<sup>4</sup> Baier and Bergstrand (2007) expressed the past unreliable estimates of FTA treatment effects as “fragile” estimates by citing Frankel (1997) and Ghosh and Yamarik (2004).

countries.

When we focus on the literature on empirical studies of trade effects of South Asian FTAs, there have been relatively fewer studies due to their premature stage as mentioned in the introduction. At the same time, most of the studies have applied ordinary gravity trade equations but not addressed the problem of the FTA-endogeneity bias through the panel-data estimation with bilateral fixed effect. The following are the examples of those studies using an ordinary gravity trade equation. Hirantha (2003) evaluated the progress of the South Asian Preferential Trading Agreement (SAPTA), which came into effect in 1995 under the SAARC as a pre-regime of the SAFTA. The study using an ordinary gravity trade model with panel data for 1996-2002 showed that there was a significant trade creation effect under SAPTA but not a trade diversion effect with the rest of the world. Akhter and Ghani (2010) also assessed the trade potential and trade creation by the free trade agreement of the SAARC countries, by using an ordinary gravity trade model with panel data for 2003-2008. They found that the regional trade agreement of the SAARC countries could divert the trade for member countries as well as for the non-member countries, and that trade volume would increase only if the major partners (Pakistan, India and Sri Lanka) signed regional trade agreements. Regarding the bilateral FTA effect in South Asia, Nufile et al. (2013) examined the trade impact of the PSFTA by the ordinary gravity trade model using the panel data for the period of 1980-2010 across two countries. The study showed that the trade potential of both countries, predicted by using the coefficients obtained from the model, was high, and suggested that Sri Lanka should explore ways and means to further improve its trade relations with Pakistan and to concentrate more on new products to increase its market share in Pakistan.

In the context of the reviewed literature above, the contributions of this study are summarized as follows. First, this study applies a theoretically-motivated gravity equation using panel data with bilateral fixed effects to the gravity trade model estimation in South Asian FTAs for the purpose of clearing the FTA-endogeneity problem, as in Baier and Bergstrand (2007) and Urata and Okabe (2014). Second, this study deals with the trade effects of the SAFTA, the ISFTA and the PSFTA comprehensively and makes it possible to compare their effects in connection with the difference in the preferential tariff rates among their individual FTAs. These contributions would be precious since there have been relatively fewer studies of South Asian FTAs due to their premature stage.

### **3. Empirics**

This section turns to the empirical analysis of the trade effects of South Asian FTAs

with a focus on Sri Lanka through estimating the gravity trade model. We first observe simply the trade flows of Sri Lanka, clarify the methodology of the gravity trade model, represent the estimation outcomes, and discuss them.

### 3.1 Observation of Trade Flows

This section first observes the trade structure of Sri Lanka in terms of her major trade partners and items in 2016. According to Table 2, the major partners of exports from Sri Lanka are such advanced economies as the United States (accounting for 28.0% of total exports to the world), Euro Area (18.5%) and the United Kingdom (10.4%). The main partners of imports to Sri Lanka are China (22.2%) and India (19.9%). The SAARC accounts for 8.2% of total exports and 22.1 % of total imports, respectively. Table 3 displays the traded products in major categories in Sri Lanka. The main products for exports are food including tea and manufactured goods including textile products. Those for imports are manufactured goods, machinery and fuels. Since the import value exceeds the export one, the trade balance is in deficit.

With regard to the time-series change in the trade partners of Sri Lanka in Figure 2, we found that the trade share with the SAARC, in particular, import share from the SAARC, has been expanded since the 1990s. In this sense, the regional trade integration has been promoted under the SAARC framework. The dominant share has, however, been held by India in the regional trade of Sri Lanka.

The purpose of this empirical study is to clarify how South Asian FTAs have contributed to the intensity of the regional trade integration in the SAARC. To be specific, which of FTAs, the SAFTA, the ISFTA or the PSFTA has a dominant effect on the regional trade integration of Sri Lanka is the main focus for the following gravity model estimation.

### 3.2 Methodology of Gravity Trade Model Estimation

This subsection clarifies the methodology of the gravity trade model estimation to investigate the trade effects of South Asian FTAs with a focus on Sri Lanka: the SAFTA, the ISFTA and the PSFTA. We follow the methodology presented by Baier and Bergstrand (2007) and Urata and Okabe (2014), and specifically adopt a theoretically-motivated gravity trade model by using panel data with bilateral fixed effects and multilateral time-varying price resistance terms. The equation for estimation is specified as follows.

$$\ln[X_{sit}/(GDP_{st}GDP_{it})] = \alpha_0 + \alpha_1FTA_{sit} + \alpha_2D_{si} + \alpha_3rex_{sit} + \varepsilon_{sit} \quad (1)$$

where the subscript  $s$ ,  $i$  and  $t$  denote Sri Lanka, her trading partner's economy and year respectively;  $X_{sit}$  is exports or imports between Sri Lanka and economy  $i$  in year  $t$ ;  $GDP_{st}GDP_{it}$  is a product of nominal GDP in Sri Lanka and country  $i$ ;  $FTA_{sit}$  is the dummy variable to represent the trade effects of FTAs: the SAFTA has been in force since January 2006 and thus its dummy takes value 1 from 2006, the ISFTA has been in force since December 2001 and thus its dummy value takes 1 from 2002, and the PSFTA has been in force since June 2005 and thus its dummy value takes 1 from 2005;  $D_{si}$  is a bilateral dummy variable between Sri Lanka and economy  $i$ ;  $rex_{sit}$  is a bilateral real exchange rate between Sri Lanka and economy  $i$ ; and  $\varepsilon_{sit}$  is an error term. This study estimates Sri Lankan exports and imports separately since the trading partners and items are much different between them as the previous section showed. All the variables except dummy ones are converted into natural logarithm form for the estimation to avoid the heteroskedastic in the error terms. The great concern in the estimation (1) is the sign of the coefficient,  $\alpha_1$ . If it is positive at the conventional level of significance, the positive trade effect of each FTA could be identified.

To address the FTA-endogeneity bias, the equation includes a bilateral dummy variable between Sri Lanka and economy  $i$ ,  $D_{si}$ . Baier and Bergstrand (2007) argued that the FTA is not an exogenous variable but that it is influenced by considerable unobserved time-invariant heterogeneity among country pairs such as policy-related barriers, and that this omitted variable bias is the major source of endogeneity in the estimation of FTA effects in gravity equations using cross-sectional data. They examined the validity of cross-sectional techniques using instrumental variables and control functions, but concluded that these techniques were not reliable enough to provide stable estimates of the FTA effects, and that the unobserved time-invariant bilateral variables were best controlled by using bilateral "fixed effects" in the gravity equation using panel data.<sup>5</sup> There would be another potential endogeneity bias created by simultaneity: GDP is a function of net exports. Although the simultaneity bias is considered to be not so large in the literature, the specification (1) has GDPs on the left hand side.<sup>6</sup>

The specification (1) includes a bilateral real exchange rate,  $rex_{sit}$ , to take into account the theoretically-motivated multilateral time-varying price resistance terms. The

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<sup>5</sup> Baier and Bergstrand (2007) conducted the estimation using first-differenced data as well as fixed effects for robustness analysis, and found no significant differences in the estimation outcomes. Thus we herein only focus on the fixed-effect estimation.

<sup>6</sup> Scaling the left-hand-side trade flow by product of GDPs means imposing the restriction of unitary income elasticities. Baier and Bergstrand (2007), however, showed that imposing the unitary income elasticities had no impact on the FTA coefficient estimate.

gravity trade model proposed by recent formal theoretical developments requires the multilateral price variables. Anderson and van Wincoop (2003) suggested the use of country-specific fixed effects as the method to account for multilateral price terms in cross section. In a panel setting, however, the multilateral price terms would be time-varying. One way to control for price changes is to introduce, similarly to Rose (2000) and Vandebussche and Zanardi (2010), the bilateral real exchange rate that varies over time and tracks price changes, the coefficient of which is expected to have a negative sign.

Some of the studies on gravity trade model encounter the treatment of zero trade flow values, as Urata and Okabe (2014) applied the Poisson pseudo-maximum likelihood model to cope with it. This study, however, deals with aggregated values of trade flows of selected large countries, which do not include zero values.

### **3.3 Data for Gravity Trade Model Estimation**

The sample period is from 1980 to 2016, in which the data are available for all the variables. The period covers the enforcement of each FTA: the SAFTA in 2006, the ISFTA in 2001 and the PSFTA in 2005. The sample economies are 24 countries/regions: for non-SAARC economies, Canada, China, Euro Area, Hong Kong, Indonesia, Japan, Korea, Malaysia, Russian Federation, Singapore, Switzerland, Taiwan, Thailand, United Arab Emirates, United Kingdom and United States; and for the SAARC members, Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka as a host country. For non-SAARC economies, the top 16 economies in terms of the trade values (exports plus imports) with Sri Lanka are selected, and for the SAARC members, all the economies are sampled. Table 1 again indicates that the trade values of Sri Lanka with the sample countries/regions account for about 80 % in her exports and about 90% in her imports as a percentage of her trades with the world.

The study then constructs panel data for the period between 1980 and 2016 with the trade (exports and imports) combinations between Sri Lanka and 23 trade partners for the gravity trade model estimation. The trade data comes from Direction of Trade Statistics (DOT) by International Monetary Fund.<sup>7</sup> The GDP and the data for calculating a bilateral real exchange rate, i.e. consumer prices and bilateral nominal exchange rates, are from World Economic Outlook (WEO) Database (October 2017) and International Financial statistics (IFS) by the International Monetary Fund.<sup>8</sup> A bilateral real exchange rate is computed in the following way.

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<sup>7</sup> See the website: <http://www.imf.org/en/data>

<sup>8</sup> See also the website: <http://www.imf.org/en/data>.

$$\left(\frac{CPI_{Sri\ Lanka}}{ER_{Sri\ Lankan\ Rupee\ per\ US\ Dollar}}\right) / \left(\frac{CPI_{partner}}{ER_{partner\ Currency\ per\ US\ Dollar}}\right)$$

where *CPI* is consumer prices; and *ER* is a bilateral nominal exchange rate in terms of local currency per US Dollar.

### 3.4 Estimation Outcomes and Discussion

Table 4 reports the estimation outcomes of the gravity trade model on Sri Lankan exports and imports for examining the trade effects of the SAFTA, the ISFTA and the PSFTA. Regarding the price resistance terms, the coefficients of the bilateral real exchange rate, *rex*, are significantly negative as expected in both exports and imports estimations.

The trade effects of the FTAs are summarized as follows. The coefficient of the ISFTA is positive at the 99 % significant level in both the exports and imports estimations. The coefficient of the PSFTA is significantly positive in the imports estimation whereas it is insignificant in the exports estimation. The coefficient of the SAFTA is significant but negative in both estimations. Those outcomes suggest that the trade creation effects are identified in the ISFTA and the Sri Lankan imports in the PSFTA, while those are not verified in the SAFTA and the Sri Lankan exports in the PSFTA.

The interpretation of the estimation results above could be discussed in relation with the comparison of the preferential tariff rates among the SAFTA, the ISFTA and the PSFTA. The trade effect of FTA is not necessarily confined to that of tariff reduction and elimination flows, and the trade flows are also affected by the other FTA measures such as non-tariff elimination, coordination of rules of origin and improvement of FTA usability, as Okabe (2015) argued. The tariff effects could, however, be one of the major factors to give impacts on trade flows.

The study herein focuses on the tariff rates set by Sri Lanka so that the impacts of the FTAs on Sri Lankan imports can be discussed. Table 5 compares the preferential tariff rates on average under the SAFTA, the ISFTA and the PSFTA, and the “Most Favored Nation (MFN) tariff rate” as a benchmark tariff rate, for the total items and the common items with the eight digit level of HS codes in the latest year of 2015. The data of the tariff rates are provided by World Integrated Trade Solutions (WITS).<sup>9</sup> In the comparison of tariff rates under the common 1,445 items, it is indicated that the preferential tariff

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<sup>9</sup> See the website: <https://wits.worldbank.org/WITS/WITS/Restricted/Login.aspx>.

rates under the ISFTA (enforced in 2001) and the PSFTA (in 2005) are zero, and those rates under the SAFTA (in 2006) are 11.3% (4.4% for least developed countries, LDC), while the MFN rate is 16.9%.

The comparison thus tells us that the preferential tariff rates under the SAFTA are rather higher than those of the ISFTA and the PSFTA, although those are lower than the MFN rate. In fact, the SAFTA signifies the following gradual schedule of tariff reductions, according to its formal agreement enforced in 2006: for the Non-Least Developed Contracting States (the Non-LDCs)<sup>10</sup>, the tariff reduction from existing tariff rates to 20% shall be done within a time frame of 2 years, and the subsequent tariff reduction from 20% or below to 0-5% shall be done within a second time frame of 5 years<sup>11</sup>; for the Least Developed Contracting States (the LDCs), the tariff reduction from existing tariff rates to 30% shall be done within the time frame of 2 years, and The subsequent tariff reduction by the Least Developed Contracting States from 30% or below to 0-5% shall be done within a second time frame of 8 years. At the same time, there remain the products in the sensitive lists for the LDCs and Non-LDCs.

The outcomes of the gravity model estimation in Sri Lankan imports are, therefore, reasonably consistent with the differential in the preferential tariff rates among the SAFTA, the ISFTA and the PSFTA, since the ISFTA and the PSFTA could have the predominant effects on Sri Lankan imports due to their zero tariff rates since the early stage of their enforcement, thereby the trade effect of the SAFTA with the higher tariff rates being crowded out.

As for the effects on the Sri Lankan exports, the same stories as the Sri Lankan imports might be applied except for the effect of the PSFTA. The reason why the effect of the PSFTA on the Sri Lankan exports is insignificant could be speculated as follows. According to Nufile et al. (2013), the PSFTA still have a lot of items under the negative lists without duty free, whose total number is 1,237 (540 in Pakistan side and 697 in Sri Lanka side). The list in Pakistan side contains, for instance, tea, textiles and garment items, namely the major exporting products of Sri Lanka. The existence of the negative list might thus be one of the factors to explain an insignificant effect of the PSFTA. Nufile et al. (2013) then argued that Sri Lanka has been still depending on traditional exporting items that are competitive in the Pakistan market, and that she should diversify her exporting items to explore the benefits from the PSFTA.

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<sup>10</sup> In the enforcement year of 2006, the Non-Least Developed Contracting States are India, Pakistan and Sri Lanka, while the Least Developed Contracting States are Bangladesh, Bhutan, Maldives and Nepal.

<sup>11</sup> The second time frame of Sri Lanka is six years.

#### **4. Concluding Remarks**

This article examined the trade effects of the South Asian FTAs including regional and bilateral ones with a focus on Sri Lanka, by applying a gravity trade model as an analytical framework. The study specifically targeted the following three FTAs: the SAFTA enforced in 2006, the ISFTA in 2001, and the PSFTA in 2005. The reason for focusing on Sri Lanka is that her economy, belonging to a small open economy in the middle income group, has promoted manufacturing sector as a driving force of her economic growth, and has been in a better position to enjoy trade benefits among South Asian economies.

The outcomes of the gravity trade model estimation suggested that the trade creation effects were identified in the ISFTA, while those were not verified in the SAFTA, and that the PSFTA had the trade creation effects only on the Sri Lankan imports. Those results seem to reflect the differentials in the preferential tariff rates and in the presence of negative list among the individual FTA frameworks. In particular, ISFTA could have the predominant positive effects on Sri Lankan trade flows due to its lowest preferential tariff rates since the early stage of its enforcement, and thus the SAFTA effect might be crowded out at the current stage of Sri Lankan trade.

The strategic implication of the estimation outcomes is that there are still a great potential for the trade effects of the SAFTA and PSFTA to be further expanded in the longer time-horizon, if the schedule of tariff reductions in the SAFTA could be facilitated and the items of the sensitive list could be reduced in the SAFTA and PSFTA.

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**Table 1 Profile of South Asian Economies**

Indicator in 2016	Population [thousands]	GDP per capita [USD]	Trade Openness [a percentage of GDP]	Manufacturing [a percentage of GDP]
Afghanistan	34,656	584	32.9	11.5
Bangladesh	162,952	1,355	33.7	17.9
Bhutan	798	2,774	69.0	7.8
India	1,324,171	1,706	28.5	16.5
Maldives	428	9,875	55.7	2.3
Nepal	28,983	722	45.6	5.7
Pakistan	193,203	1,462	22.8	12.7
Sri Lanka	20,798	3,910	36.1	16.9

Note: The trade openness is defined as the sum of exports and imports in goods relative to GDP.

Source: UNCTAD Stat: <http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx>

**Table 2 Trade Partners of Sri Lanka in 2016**

2016	Exports		Imports	
	mil. USD	ratio to world	mil. USD	ratio to world
China	196	1.9	4,270	22.2
United States	2,809	28.0	539	2.8
United Kingdom	1,044	10.4	328	1.7
United Arab Emirates	234	2.3	1,066	5.5
Japan	200	2.0	951	4.9
Singapore	108	1.1	1,031	5.4
Malaysia	33	0.3	642	3.3
Hong Kong	130	1.3	466	2.4
Thailand	35	0.4	515	2.7
Taiwan	39	0.4	496	2.6
Canada	179	1.8	252	1.3
Indonesia	39	0.4	379	2.0
Korea	69	0.7	325	1.7
Russian Federation	182	1.8	200	1.0
Switzerland	100	1.0	274	1.4
Euro Area	1,861	18.5	1,302	6.8
SAARC countries	824	8.2	4,246	22.1
India	551	5.5	3,826	19.9
Pakistan	64	0.6	304	1.6
Maldives	95	0.9	86	0.4
Bangladesh	112	1.1	29	0.2
Nepal	1	0.0	0	0.0
Afghanistan	1	0.0	0	0.0
Bhutan	0	0.0	0	0.0
World (total ratio to world)	10,046	(80.4)	19,239	(89.8)

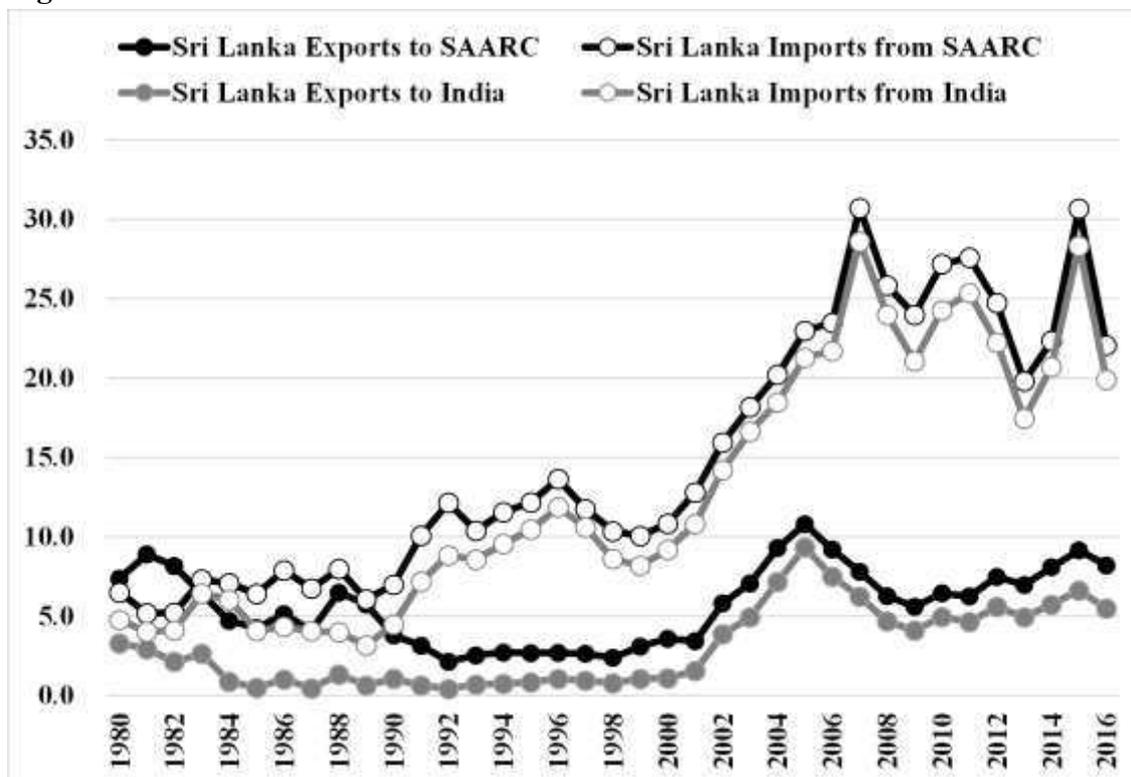
Source: Direction of Trade Statistics by International Monetary Fund: <http://www.imf.org/en/data>

**Table 3 Trade Products of Sri Lanka in 2016**

2016, mil. USD	Exports	Imports
<b>Total all products</b>	<b>10,546</b>	<b>19,501</b>
<b>Food and live animals</b>	<b>2,349</b>	<b>2,025</b>
Coffee, tea, cocoa, spices, and manufactures thereof	1,546	179
<b>Beverages and tobacco</b>	<b>131</b>	<b>140</b>
<b>Crude materials, inedible, except fuels</b>	<b>311</b>	<b>534</b>
<b>Mineral fuels, lubricants and related materials</b>	<b>164</b>	<b>2,334</b>
<b>Animal and vegetable oils, fats and waxes</b>	<b>97</b>	<b>148</b>
<b>Chemicals and related products, n.e.s.</b>	<b>183</b>	<b>2,096</b>
<b>Manufactured goods</b>	<b>1,334</b>	<b>5,558</b>
Textile yarn and related products	302	2,610
<b>Machinery and transport equipment</b>	<b>581</b>	<b>5,169</b>
<b>Miscellaneous manufactured articles</b>	<b>5,396</b>	<b>1,109</b>
<b>Commodities and transactions, n.e.s.</b>	<b>0</b>	<b>388</b>

Source: UNCTAD Stat: <http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx>

**Figure 1 Share of Sri Lanka’s Trade with SAARC out of its Trade to the World**



Source: Direction of Trade Statistics by International Monetary Fund: <http://www.imf.org/en/data>

**Table 4 Estimation Outcomes of Gravity Trade Model**

	Exports	Imports
ISFTA	1.480*** (4.799)	1.523*** (3.176)
PSFTA	-0.234 (-0.699)	1.426*** (2.735)
SAFTA	-1.240*** (-7.557)	-1.887*** (-7.361)
<i>rex</i>	-1.546*** (-10.877)	-1.750*** (-7.859)
Constant	9.278*** (13.851)	11.027*** (10.509)
Adjusted RR	0.753	0.649
Observation	740	732

Note: T-statistics are in parentheses. \*\*\* denotes statistical significance at 99 percent level.  
Source: Author's estimation based on DOT, WEO and IFS

**Table 5 Comparison of Average Tariff Rates among FTAs in Sri Lanka in 2015**

	Average Tariff Rate for Total Items		Average Tariff Rate for Common Items	
	Number of Items	Tariff Rate	Number of Items	Tariff Rate
MFN	6,921	9.4		16.9
ISFTA	1,482	0.0		0.0
PSFTA	2,217	0.0	1,445	0.0
SAFTA	1,765	11.3		11.3
SAFTA for LDCs	1,901	4.6		4.4

Note: LDC means the least developed country that is defined by the United Nation, and Afghanistan, Bangladesh, Bhutan and Nepal belong to this category.

See the website: <https://www.un.org/development/desa/dpad/least-developed-country-category.html>

Source: World Integrated Trade Solutions (WITS).

See the website: <https://wits.worldbank.org/WITS/WITS/Restricted/Login.aspx>.