

India's Trade Potential with SAARC Nations under SAFTA

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Abstract – In era of globalization, no country possesses all the facilities required for economic production of all goods and services consumed by its people. Therefore, to meet varied demands countries have to trade and maintain economic relations with other nations. REI (Regional Economic Integration) is also one of best way for increasing foreign trade especially among developing countries with the help of different measures such as trade liberalization and trade facilitation. It has been seen that RTA are proliferated in recent years due to slow progress of trade liberalization and trade facilitation through GATT and later by WTO (its successor). Therefore, countries entered into regional trade arrangement to get easy access and benefit of trade liberalization at small scale. It has been recognized that foreign trade can also play a significant role in economic integration of South Asian Region.

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INTRODUCTION

REI in context of South Asia will help to reduce economic dependence of SAARC Countries on developed countries and will help the member states to take competitive advantage over the globally traded items of other member states; a country will import those commodities that is produced relatively at higher cost. Relative comparative cost of production of goods taken as base for export and import.

The South Asian Association for regional cooperation was formed on 8th December 1985 as the first step towards regional cooperation after series of meetings of foreign secretaries and Foreign ministers of member states (Bajpai, 1996). In 1995 a decade after the formation of SAARC, the SAPTA was launched at the end of the year based on preferential trading arrangements. Further to enhance the scope of economic integration SAFTA (South Asian Free Trade Agreement) was signed in January 2004 and came into effect from January 2006. India and SAARC trade gained momentum after the existence of SAFTA. It is need to be identified that SAARC countries have huge underutilized trade potential to improve their trade relation, economic integration could also be useful. So to keep all these things in mind, in this research paper we have tried to find out future trade possibilities between India and SAARC. Although, Intra regional trade in South Asia is increasing steadily, it continues to be low. The region lags far behind other regions in terms of economic integration though considerable potential exists. this paper is basically is an attempt to critically examine the potential of SAFTA whether FTA in goods will benefit all member countries.

OBJECTIVE OF THE STUDY

To estimate the India's trade potential with SAARC nations under SAFTA.

To analyses Impact of SAFTA on SAARC countries.

DATA SOURCE

The fulfill the above objectives, the study has used the secondary data during 1991 to 2015, collected from different sources such as Direction of Trade Statistics, IMF, World Bank, Asian Development Bank, Handbook of RBI, Directorate General of Commercial Intelligence and Statistics, UNCOMTRADE and WITS etc., in particular, to compile Trade details of SAARC countries tariff rate data from TRAINS database (MFN applied rate) extracted from WITS software.

TECHNIQUES OF ANALYSIS

The present attempt has explored the trade potential and impact of SAFTA on different SAARC economies. The study also highlights the opportunity for enhancing merchandise trade for South Asian economies under SAFTA. To analyse the trade potential and impact of South Asian Free Trade Agreements on Indian economy as well as on rest of South Asian economies, study has used the gravity model, and partial equilibrium model.

First, to estimate the impact of SAFTA on Indian economy, the present attempt has used the three gravity model, specified as follows:

Model A:

$$\ln T_{ijt} = \alpha + \beta_1 \ln Y_{jt} + \beta_2 \ln Y_{it} + \beta_3 \ln POP_{jt} + \beta_4 \ln POP_{it} + \beta_5 \ln D_{ijt} + \beta_6 d_{1t} + \beta_7 d_{2t} + u_{ijt}$$

Model B:

$$\ln X_{ijt} = \alpha + \beta_1 \ln Y_{jt} + \beta_2 \ln Y_{it} + \beta_3 \ln POP_{jt} + \beta_4 \ln POP_{it} + \beta_5 \ln D_{ijt} + \beta_6 d_{1t} + \beta_7 d_{2t} + u_{ijt}$$

Model A:

$$\ln M_{ijt} = \alpha + \beta_1 \ln Y_{jt} + \beta_2 \ln Y_{it} + \beta_3 \ln POP_{jt} + \beta_4 \ln POP_{it} + \beta_5 \ln D_{ijt} + \beta_6 d_{1t} + \beta_7 d_{2t} + u_{ijt}$$

Where T_{ij} is the Total bilateral trade between countries i and j at time t ; X_{ij} is the total export to countries i to j at time t ; M_{ij} is the total import to countries i from j at time t ; Y_{it} and Y_{jt} are the gross domestic product at constant prices of countries i and j ; D_{ij} is the distance between the two partners; POP_{it} and POP_{jt} are the populations in country i and country j at time t ; d_{1t} is dummy variable for time before the SAFTA or after SAFTA implemented among SAARC members; and d_{2t} is dummy variable for the countries share common border or not.

Where $d_{1t} = 1$, if the time period after the SAFTA implantation among members

$= 0$, if the time period before the SAFTA implantation among members

$d_{2t} = 1$, if SAARC Member countries share common border

$= 0$, if SAARC Member countries not share common border

Annual data on bilateral trade flows for the period 1991–2015 for SAARC countries has been collected from WITS data set. GDP (at constant prices) data has been gathered from World Development Indicators (World Bank). The information on distance variable has been downloaded from <http://www.cepii.com/distance>.

Smart Model to assess the impact of SAFTA on India's Foreign Trade

The SMART model, a widely used computable partial equilibrium model, used to analyze the impact of reduction non tariff barriers in SAFTA region and to address the trade policy analysis, developed by World Bank/UNCTAD (UNCTD, 1986), WITS User Manuel, (WITS, 2011).

The importing country j 's import demand function for commodity i produced in country k may be expressed as

$$(M_{ijk} = F(Y_j, P_{ij}, P_{ik})) \dots \dots \dots (1)$$

The producer/exporting country k 's export supply function for commodity i may be expressed as:

$$X_{ijk} = F(P_{ik}) \dots \dots \dots (2)$$

Expressions (1) and (2) are related by the following identity:

$$M_{ijk} = X_{ikj} \dots \dots \dots (3)$$

Assuming that in a free trade situation the domestic price of the commodity i in the importing market j will be equal to exporting country k 's export price plus transport and insurance charges, it follows that this price will rise by an amount equivalent to the *ad valorem* incidence of any tariff or non-tariff distortion applied to the good. Thus:

$$P_{ijk} = P_{ikj} (1 + t_{ijk}) \dots \dots \dots (4)$$

It is also clear that the export revenues earned by k are :

$$R_{ikj} = X_{ikj} . P_{ikj} \dots \dots \dots (5)$$

3.2.4.9 Trade Effects

(A) Trade Creation Effect

The **trade creation** effect is the increased demand in country j for commodity i from exporting country k resulting from the price decrease associated with the assumed full transmission of price changes when tariff or non-tariff distortions are reduced or eliminated.

Given the basic model consisting of expressions (1) to (5), it is possible to write the basic formula for trade creations. First, from expression (4) it is possible to derive the total differential of domestic price with respect to tariffs and foreign price:

$$(6) dP_{ijk} = P_{ikj} . dt_{ijk} + (1 + t_{ijk}) . dP_{ikj}$$

Now, the standard expression for the elasticity of import demand with respect to the domestic price can be rearranged as follows:

$$(7) dM_{ijk} / M_{ijk} = E_m . (dP_{ijk} / P_{ijk})$$

Substituting from expression (4) and (6) into expression (7) gives:

$$(8) dM_{ijk} / M_{ijk} = E_m . (dt_{ijk} / (1 + t_{ijk}) + dP_{ijk} / P_{ikj})$$

The standard expression for the elasticity of export supply with respect to the world price can be rearranged as follows:

$$(9) dP_{ikj} / P_{ikj} = (dX_{ikj} / X_{ikj}) / Ex$$

From expression (3) it follows that:

$$(10) dM_{ijk} / M_{ijk} = dX_{ikj} / X_{ikj}$$

Substituting expression (10) into (9) and the result into (8) produces the expression that can be employed to compute the trade creation effect. From expression (3) this is equivalent to exporting country k's growth of exports of commodity i to country j. The expression for *trade creation* can be written:

$$(11) TC_{ijk} = M_{ijk} \cdot Em \cdot dt_{ijk} / ((1 + t_{ijk}) \cdot (1 \cdot (Em/Ex)))$$

It may be noted that if the elasticity of export supply with respect to the world price is infinite then the denominator on the right hand side of expression (11) becomes unity and can be ignored.

(B) Trade Diversion Effect

Following standard practice, the term **trade diversion** is used to account for the tendency of importers to substitute goods from one source to another in response to a change in the import price of supplies from one source but not from the alternative source. Thus, if prices fall in one overseas country there will be a tendency to purchase more goods from that country and less from countries whose exports are unchanged in price. Trade diversion can also occur not because of the change in the export price as such but because of introduction or elimination of preferential treatment for goods from one (or more sources) while treatment for goods from other sources remains unchanged.

(C) Total Trade Effect

The total trade effect is obtained simply by summing together the trade creation and trade diversion effects. Results can be summed for the imported across product groups and/or across sources of supply. Results can be summed across groups of importers for single products or groups of products as well as for single sources of supply or for groups of suppliers. Results can also be summed for suppliers across product groups. Finally, results can be summed for groups of suppliers either for individual products or across product groups.

(D) Price effect

If the export supply elasticity is infinite then there is no **price effect** on exports. Otherwise the price effect can be obtained by substituting expression (10) into (9), giving:

$$(12) dP_{ikj} / P_{ikj} = (dt_{ijk} / (1 + t_{ijk})) \cdot (Em / (Em - Ex))$$

(E) Revenue effect

Expression (12) has direct application in estimating the **revenue effect** for the exporting country. If the export supply elasticity is infinite, there is no price effect – as noted above – and consequently revenue increases in proportion to the increase in exports. Otherwise the percentage increase in revenue is equal to the percentage increase in exports **plus** the percentage increase in prices. This can be shown by taking from expression (5) above the total differential of revenue with respect to export price and the volume of exports:

$$(13) dR_{ikj} = P_{ikj} \cdot dX_{ikj} + X_{ikj} \cdot dP_{ikj}$$

Dividing the left-hand side (LHS) of (13) with the LHS of expression (5) and the right-hand side (RHS) of (13) with the RHS of (5) gives:

$$(14) dR_{ikj} / R_{ikj} = (P_{ikj} \cdot dX_{ikj} + X_{ikj} \cdot dP_{ikj}) / (P_{ikj} \cdot X_{ikj})$$

Reducing and substituting from expression (10) gives:

$$(15) dR_{ikj} / R_{ikj} = (dM_{ijk} / M_{ijk}) + (dP_{ikj} / P_{ikj})$$

Alternatively, this can be written:

$$(16) dR_{ikj} / R_{ikj} = (dt_{ijk} / (1 + t_{ijk})) \cdot Em \cdot ((1 + Ex) / (Ex - Em))$$

(F) Welfare effect

The **welfare effect** arises from the benefits consumers in the importing country derive from the lower domestic prices after the removal or reduction of tariffs or the **ad valorem** incidence of non-tariff distortions. As noted by Cline (*op.cit.*), "for the pre-existing level of imports, any price reduction to the consumer merely represents a transfer away from the government of tariff revenue formerly collected on the import and therefore no net gain to the country as a whole. But for the increase in imports, there is a net welfare gain equal to the domestic consumers' valuation of the extra imports minus the cost of extra imports at supply price (excluding tariffs)". Thus, the net welfare gain is normally estimated as the increase in import value times the average between the **advalorem** incidence of the trade barriers before and after their elimination. This welfare gain can also be thought of as the increase in consumer surplus. It can be written:

$$(17) W_{ijk} = 0.5(dt_{ijk} \cdot dM_{ijk})$$

In the case where the elasticity of export supply is less than infinity the supply price is higher than previously. The new domestic price of imports does not decline to the full extent of the tariff change and import expansion is less than in the case of infinitely elastic export supply.

Welfare can still be computed using expression (17) but needs to be interpreted as a combination of consumer surplus and producer surplus.

RESULTS AND DISCUSSION

The present attempt discusses the South Asian Free Trade Agreement creates the opportunity for Indian economy. The study also explores the South Asian economies' effective additional market access or export potential for Indian economy under SAFTA. The study also tries to find out that what will be effect of SAFTA on total trade, welfare, consumer surplus and revenue of Indian Economy. To know the total trade effect, it will be find out the trade creation and trade diversion due to implementation of SAFTA. The study tries exploring that if zero tariff rates apply by SAARC members under SAFTA, what will be effect on the export of India.

Table: 2 India's Export Potential with SAARC's Countries under SAFTA in 2015

Partner Name	Actual Export (US\$)	Potential Export (US\$)	GAP between Actual and Potential Trade (%)
Afghanistan	534258.3	7188606.8	-92.2
Bangladesh	5521517.6	42537192.4	-87.0
Bhutan	375222.5	616480.1	-39.1
Maldives	166865.1	1729984.9	-90.4
Nepal	3195121.9	3416972.3	-6.5
Pakistan	1963455.9	42026188.8	-95.3
Sri Lanka	5501015.4	13466215.2	-59.1
SAARC	17257456.7	500734669.3	-96.6

Source: Calculation based on WITS

Table 2 presents India's potential and actual export with different SAARC trading partners in SAFTA. The results show that the gap between India's actual and potential export with SAARC partner is of around 96%. The trading partners have very little import from India and can increase their import by almost 100 percent. These are Afghanistan, Bangladesh, Maldives, Pakistan and Sri Lanka. On the other hand, Nepal as trading partners are import from India so little bit gap India potential export and actual export. Highest India export potential exists with Pakistan followed by Bangladesh, Maldives, Pakistan and Sri Lanka.

Table:1 Gravity Model Estimates for Indian Economy Under SAFTA

	Model A			Model B			Model C		
Coefficients	$\hat{\beta}$	SE	T	$\hat{\beta}$	SE	t	$\hat{\beta}$	SE	t
lnY _{it}	0.48	0.15	3.17*	-0.54	0.16	-3.20*	-0.49	0.24	-2.00*
lnY _{jt}	0.11	1.06	0.11	1.41	1.16	1.21	-0.90	1.69	-0.53
lnPOP _{it}	1.24	0.14	8.56*	1.33	0.16	8.30*	1.30	0.23	5.59*
lnPOP _{jt}	7.37	3.82	1.93*	2.90	4.20	0.68	11.97	6.12	1.95*
lnD _{ij}	-0.73	0.08	-8.57*	-0.60	0.09	-6.32*	-1.04	0.13	-7.55*
Dummy1	0.49	0.24	2.02*	0.43	0.26	1.60	0.64	0.39	1.65
dummy2	-1.51	0.21	-6.93*	-2.08	0.24	-8.66*	-0.00	0.35	-0.01
R ²	0.86			0.86			0.77		
F	160.38*			154.16*			084.9*		

Source: Calculation based on WITS

B is estimated coefficient; SE is standard error of estimated $\hat{\beta}$. t is t test value and * shows the level of significance at 5 percent.

The table 1 show the gravity model estimates for Indian economy during the 1991 to 2015. The present attempt uses the three gravity equations to find out the potential trade for India. The gross domestic product, population, distance, common border and time period are regressor in the all three gravity model. The regressand is India's total trade with SAARC in model A, in model B India's total export with SAARC and in model c India's total import with SAARC. The coefficient estimates in the logarithmic forms which are interpreted as elasticities. The coefficient of GDP of i and j countries has positive relationship with India's total trade with SAARC' nations in model A. The

coefficient estimates on the j countries' GDP ($\hat{\beta}_1$) is 0.48 with a standard error of 0.15. Therefore, a statistically significant relationship exists between bilateral trade and the j countries' GDP. The

coefficient estimates on i countries' GDP ($\hat{\beta}_2$) is 0.11 with a standard error of 1.06. Therefore, a statistically significant relationship exists between bilateral trade and the j countries' GDP. The coefficients of population of i and j countries have positive relations with India's total trade. The

coefficients $\hat{\beta}_3$ and $\hat{\beta}_4$ are statistically significant. The coefficient of distance variable has negative relationship with India's total trade with SAARC.

The coefficient $\hat{\beta}_5$ is statistically significant at 5 percent level of significance. The coefficients of $\hat{\beta}_6$

and $\hat{\beta}_7$ are also statistically significant at 5 percent level of significance. In the model B, India's total export to SAARC is dependent variable. The

result shows that the coefficient of $\hat{\beta}_1$, $\hat{\beta}_3$, $\hat{\beta}_5$ and $\hat{\beta}_7$ are statistically significant. In the Model C, total import from SAARC is dependent variable. The

table reveals that the coefficients of $\hat{\beta}_1$, $\hat{\beta}_3$, $\hat{\beta}_4$ and $\hat{\beta}_5$ are statistically significant.

Impact of SAFTA on multilateral trade among SAARC Member: A Partial Equilibrium Model

The present section analyses the impact of SAFTA among SAARC members with the help partial equilibrium model. The study highlights the trade effect, trade creation effect, diversion effect, welfare effect, revenue effect and consumer surplus effect of zero tariffs under SAFTA among SAARC nations. To highlights the effect of zero tariff rate on different SAARC economics under SAFTA, the SMART model is used with the help of WITS Global Tariff Cuts and Trade Simulator.

Table: 3 Trade Total Effect, Trade Creation Effect and Trade Diversion Effect of zero tariffs among SAARC Countries under SAFTA

Countries	Trade Total Effect (in 1000 USD)	Trade Creation Effect (in 1000 USD)	Trade Diversion Effect (in 1000 USD)
India- Afghanistan	12637.306	7949.508	4687.8
India- Bangladesh	50607.748	45866.79	4740.951
India- Bhutan	12548.435	10423.689	2124.743
India- Maldives	549.093	418.041	131.054
India- Nepal	369813.544	358189.592	11623.966
India- Pakistan	51687.896	42356.327	9331.574
India- Sri Lanka	124594.652	104311.772	20282.869
Afghanistan – India	13252.817	11621.108	1631.718
Bangladesh – India	415405.048	271979.981	143425.121
Bhutan –India	0	0	0
Maldives –India	23956.377	15620.17	8336.233
Nepal –India	307616.01	272513.464	35102.513
Pakistan –India	64100.896	41056.41	23044.48
Sri Lanka- India	132401.482	94992.705	37408

Source: Calculation based on WITS

Table 3 reveals the overall impact of zero tariffs under SAFTA on other SAARC countries. If India reduce 100 percent tariff with Afghanistan total trade effect, creation effect and diversion effect were found to be 12637.306, 7949.508 and 4687.8 respectively, with Bangladesh total trade effect, creation effect and diversion effect were 50607.748, 45866.79 and 4740.951 respectively; with Bhutan total trade effect, creation effect and diversion effect were 12548.435, 10423.689 and 2124.743 respectively; with Maldives total trade effect, creation effect and diversion effect were 549.093, 418.041 and 131.054 respectively; with Nepal total trade effect, creation effect and diversion effect were 369813.544, 358189.592 and 11623.966 respectively; with Pakistan total trade effect, creation effect and diversion effect were 51687.896, 42356.327 and 9331.574 respectively; and with Sri Lanka total trade effect, creation effect and diversion effect were 124594.652, 104311.772 and 20282.869 respectively.

Obviously tariff reduction by other countries impacted the total trade effect, creation effect and diversion effect of India. Impact of tariff reduction by Afghanistan, India's total trade effect, creation effect and diversion effect are 13252.817, 11621.108 and 1631.718 respectively. Impact of tariff reduction by

Bangladesh, India's total trade effect, creation effect and diversion effect are 415405.048, 271979.981 and 143425.121 respectively. Impact of tariff reduction by Bhutan, India's total trade effect, creation effect and diversion effect are zero each. Impact of tariff reduction by Maldives, India's total trade effect, creation effect and diversion effect are 23956.377, 15620.17 and 8336.233 respectively. Impact of tariff reduction by Nepal, India's total trade effect, creation effect and diversion effect are 307616.01, 272513.464 and 35102.513 respectively. Impact of tariff reduction by Pakistan, India's total trade effect, creation effect and diversion effect are 64100.896, 41056.41 and 23044.48 respectively. Impact of tariff reduction by Sri Lanka, India's total trade effect, creation effect and diversion effect are 132401.482, 94992.705 and 37408 respectively. It means zero tariff rate among SAARC member under SAFTA create the market for each other's.

Table: 4 Welfare Effect, Revenue Effect and Consumers' Surplus Effect of zero tariffs among SAARC Countries under SAFTA

Countries	Welfare Effect in 1000 USD	Change in Revenue Effect in 1000 USD	Change in Consumers' Surplus in 1000 USD
Afghanistan	3019.1	-10486.3	2656.2
Bangladesh	51111.3	-239581	51111.3
Bhutan	0	0	0
India	167792.5	-281324	167792.5
Maldives	6294.3	-19061.8	6294.3
Nepal	55132.9	-229707	55132.9
Pakistan	4351.4	-29428.7	4351.4
Sri Lanka	31287.2	-149916	31287.2

Source: Calculation based on WITS (access date 14/12/2016)

As a result of tariff reduction by India, the welfare effect, change in revenue effect and change in consumer's surplus of Afghanistan are 3019.1, -10486.3 and 2656.2 respectively. The welfare effect, change in revenue effect and change in consumer's surplus of Bangladesh are 51111.3, -239581 and 51111.3 respectively. The welfare effect, change in revenue effect and change in consumer's surplus of Bhutan are zero each. The welfare effect, change in revenue effect and change in consumer's surplus of Maldives are 167792.5, -281324 and 167792.5 respectively. The welfare effect, change in revenue effect and change in consumer's surplus of Nepal are 55132.9, -229707 and 55132.9 respectively. The welfare effect, change in revenue effect and change in consumer's surplus of Pakistan are 4351.4, -29428.7 and 4351.4 respectively. The welfare effect, change in revenue effect and change in consumer's surplus of Sri Lanka are 31287.2, -149916 and 31287.2 respectively.

In short, welfare impact with all seven countries has been positive, except Bhutan indicating zero welfare impact. However, welfare impact across SAARC Countries is found to be varying hugely in the range of 3019.1\$ as in the case of Afghanistan to 167792.5 \$ in the case of Maldives. SAFTA facilitates increase in intra-regional trade net effect on the economy of individual countries more or less in a positive way. Thus in order to maximise welfare gains, it would be important to give flexibility to countries to protect employment intensive manufacturing sectors in the smaller LDCs. The adoption of a transparent and effective regional safeguard mechanisms for agriculture products could help to take care of sensitivities in agriculture that are bound to exist. Much higher gains for the region can be secured if SAFTA is simultaneously implemented with measures to reduce transaction costs and create more efficient regional transportation and infrastructure networks. Increasing the scope for intra-regional trade in energy, improving road, rail and air links within the region, building modern border customs crossings, developing sophisticated telecommunications links may prove to be vital to this endeavor, despite some revenue losses

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