

An Empirical Review on India's Trade Relations with SAARC Markets

Dr. Lakshmi Narayana Perarapu

Assistant Professor

Department of Economics

Adikavi Nannaya University.A.P, INDIA.

SAPTA. It has the largest irrigated land, second largest railway network of the world after the US. SAARC represents a hope for the largest pool of poor people of the world, with a consumer base surpassing 750 million people will be the largest single economic block in the world. Accelerate economic and social development in the region. SAARC region with just 3.3 world area houses 23 percent of the global population with 423 million people and also it is the most densely populated part of the world with about 263 people for every square kilometre. The region is characterised by large income disparities, in this paper Analysed Price Competition of India's Export to Shark markets.

Keywords: Accelerate, Consumer, Export, Global.

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I. Introduction

Regional trading arrangements are being pursued by different countries on account of a variety of reasons. However, apart from other reasons, possible prospects of enhanced economic growth are the common agenda of motivation for all countries. Economic integration of any type helps expand the regional markets, reaps economies of large scale production, promotes specialisation, foster foreign investments and makes available the foreign technology. Regional cooperative measures for promotion of trade dates back to 1950 during which, European Coal and Steel Community (ECSC) was initiated by France through the economic integration of the Steel and Coal industries of France, Italy, Belgium, Luxemburg, Netherlands and West Germany. Organisation for European Economic Cooperation (OEEC) was established in 1948 with all the European countries (excluding Communist bloc) with the objective of launching the Marshall Aid Programme. However, the then OEEC itself later transformed into the organisation for Economic Cooperation and Development (OECD).

II. Objectives:

The specific objectives of the paper are

1. To examine the trade performance of SAARC.
2. To analyse the trends and share of India's trade position in SAARC.
3. To study about the price competitiveness of Indian exports to SAARC.
4. Finding and Summary.

III. Data Sources And Techniques

In order to pursue the objectives, secondary data relating to exports, imports and commodity wise trade are drawn from official site of Ministry of Trade, Department of Commerce, Export Import Data Bank, while data relating to the GDP of SAARC countries is tapped from World Bank, World development indicators. Data relating to real effective exchange economy, published by reserve bank of India. The study is confined to 2005-2021. In order to analyse the trends in exports and imports growth rates are estimated by considering the semi log linear form given by $\log Y = \beta_0 + \beta_1 t$, where Y is the dependent variable, t is the trend variable, β_0 is the intercept term and β_1 is the slope. Thus β_1 indicates the growth rate. Further, in order to study the price competitiveness of Indian exports to SAARC, multiple log linear regression model given by $\log X_i = \beta_0 + \beta_1 \log \text{GDP SAARC} + \beta_2 \log \text{REER} + u$ is considered. In the model X_i is the export of i th commodity (i=1,2, ...,10) to SAARC (in US\$ million) and the list is given separately. The variable GDP SAARC is the summation of gross domestic product of SAARC countries other than India, REER is the India's real effective exchange rate, β_0 is the intercept term, while β_1 and β_2 are the parameters indicating the elasticity of Indian exports with respect to gross domestic product of SAARC countries other than India and India's real effective exchange rate. Further, u

is the stochastic term. The rationale for considering the variables is, because the demand for exports of a country depends on not only on income of the importer but also on the export price of the supplier country. Hence, the REER is considered to reflect the export price. On a priori grounds, the sign of β_1 expected to be positive since, higher the income, the greater will be the imports of a country. Further, if exports price is competitive, then greater will be the imports and vice versa, hence positive sign is expected for β_2 when price is competitive, while negative sign is expected for β_2 when the price is not competitive, the regression equation is estimated by applying OLS Method under given assumptions. Using SPSS -25 Version.

Commodities considered

Top ten principal commodities of India's exports to SAARC Countries are observed from the list of 2-digit HS code and is obtained from the official site of Ministry of trade, Department of Commerce, Export-Import data bank and the following is the list.

X₁= cereals and cereal related preparations, flour, starch or milk Pastry cook Products (code 10 and 19)

X₂ = Salt; Sulphur; Earths and stone; plastering material, Lime and Cement (HS Code 25)

X₃ = Mineral Fuels and related Products (HS Code 27)

X₄ = Organic Chemicals (HS Code 29)

X₅ = Pharmaceutical Products (HS Code 30)

X₆= Plastic and Rubber related Products (HS Code 39 and 40)

X₇ = Iron and Steel and related articles (HS Code 72 and 73)

X₈= Nuclear Reactors, Boilers, Machinery and Mechanical Appliances (HS Code 84)

X₉= Electrical Machinery and related Equipment (HS Code 85)

X₁₀ = Motor Vehicles and Accessories (HS Code 87)

X_{TE} = Total Exports to SAARC

ANALYSIS OF TRENDS AND SHARE OF INDIA'S TRADE POSITION IN SAARC

Table 1 presents information about trends in India's total exports, imports, total exports to SAARC and total imports from SAARC. From the table, India's total exports which stood at US \$ 103090.5 million in 2005-06 increased to US \$ 291808.5 million by 2020-21 and registered an annual growth rate of 5.23 percent. At the same time, total imports of the country increased from US \$149165.7 million to US \$ 394435.9 million and recorded an annual growth rate of 4.81 percent. Thus total export-import gap has been decreasing at the rate of 0.42 percent points indicating an average gap of US \$ 126645.4 million over the study period.

Further, India's exports to SAARC increased from US \$ 5404.98 million to US \$ 22077.79 million during the period 2005-06 to 2020-21, while imports from SAARC increased from US \$ 1354.89 million to US \$ 3377.12 million. Further, annual growth rates of India's exports to SAARC and imports from SAARC are found to be 8.59 and 6.65 percent respectively. Thus total export-import gap has been decreasing at the rate of 1.94 percent points. However, in absolute terms on the average exportable surplus of India over the study period stood at US \$ 12797.64 million and thus accounted for 83.25 percent. Further, the share of exports to SAARC Countries in total Indian exports varied between 4.4 to 7.6 per cent. While the share of imports from SAARC Countries in total Indian imports accounted for less than one per cent. Thus India being giant country among the SAARC nations is not in a position to properly tap the SAARC market.

Table 2 presents information about trends in Indian commodity exports to different SAARC countries. During the study period among the SAARC countries, average indian commodity exports are observed to be highest to Bangladesh (about US \$ 5282 million) followed by Srilanka (about US \$ 3784 million), Nepal (about US \$ 3766 million), Pakistan (about US \$ 1618 million), Afghanistan (about US \$ 500 Million), Bhutan (about US \$ 339 million) and

Table 1
India 's Exports and Imports

US\$ Million

Note: * indicates the growth rates are statistically significant at 1 percent. Figures in the parenthesis indicate

Year	Total Exports	Total Imports	Exports to SAARC	Imports from SAARC
2005-06	103090.5	149165.7	5404.98 (5.24)	1354.89 (0.91)
2006-07	126414.1	185735.2	6291.7 (4.98)	1473.07 (0.79)
2007-08	163132.2	251654	9388.56 (5.76)	2007.38 (0.80)
2008-09	185295.4	303696.3	8172.83 (4.41)	1377.92 (0.45)
2009-10	178751.4	288372.9	8390.69 (4.69)	1657.34 (0.57)
2010-11	249815.6	369769.1	11656.59 (4.67)	2173.37 (0.59)
2011-12	305963.9	489319.5	13296.47 (4.35)	2524.74 (0.52)
2012-13	300400.6	490736.6	15110.7 (5.03)	2679.95 (0.55)
2013-14	314405.3	450199.8	17503.84 (5.37)	2472.98 (0.55)
2014-15	310338.5	448033.4	20480.02 (6.60)	2930.85 (0.65)
2015-16	262291.1	381007.7	18594.18 (7.09)	2975.01 (0.78)
2016-17	275852.4	384357	19222.14 (6.97)	2813.4 (0.73)
2017-18	303526.2	465581	23100.9 (7.61)	3202.66 (0.69)
2018-19	330078.1	514078.4	25348.82 (7.68)	4363.02 (0.85)
2019-20	313361	474709.3	21941.38 (7.00)	3835.58 (0.81)
2020-21	291808.5	394435.9	22077.79 (7.57)	3377.12 (0.86)
Growth Rate	5.23*	4.81*	8.59*	6.65*
Average	250907.8	377553.2	15373.85	2576.205
CV	29.64	29.81	42.47	34.21

share of SAARC in total exports and imports of India.

Source: Ministry of Commerce and Trade, Department of Commerce, Export Import Data Bank

Table 2
India 's Exports from SAARC Countries

US \$ Million

Year	Afghanistan	Bangladesh	Bhutan	Maldives	Nepal	Pakistan	Srilanka
2005-06	142.67 (2.57)	1664.36 (30.0)	99.17 (1.79)	67.58 (1.22)	859.97 (15.50)	689.23 (12.42)	2024.67 (36.50)
2006-07	182.11 (2.81)	1629.57 (25.17)	57.66 (0.89)	68.68 (1.06)	927.4 (14.33)	1350.09 (20.85)	2258.3 (34.88)
2007-08	249.21 (2.59)	2923.72 (30.34)	86.74 (0.90)	89.72 (0.93)	1507.42 (15.64)	1950.53 (20.24)	2830.43 (29.37)
2008-09	394.23 (4.60)	2497.87 (29.16)	111.1 (1.30)	127.91 (1.49)	1570.15 (18.33)	1439.88 (16.81)	2425.92 (28.32)
2009-10	463.55 (5.52)	2433.77 (29.01)	118.86 (1.42)	79.86 (0.95)	1533.31 (18.27)	1573.32 (18.75)	2188.01 (26.08)
2010-11	422.41 (3.62)	3242.9 (27.82)	176.03 (1.51)	100.14 (0.86)	2168.06 (18.60)	2039.53 (17.50)	3507.5 (30.09)
2011-12	510.9 (3.84)	3789.2 (28.50)	229.86 (1.73)	124.6 (0.94)	2721.57 (20.47)	1541.56 (11.59)	4378.79 (32.93)

2012-13	472.63 (3.13)	5144.99 (34.05)	233.22 (1.54)	122.36 (0.81)	3088.84 (20.44)	2064.79 (13.66)	3983.87 (26.36)
2013-14	474.34 (2.71)	6166.93 (35.23)	355.6 (2.03)	106.07 (0.61)	3592.3 (20.52)	2274.26 (12.99)	4534.35 (25.90)
2014-15	422.56 (2.06)	6451.47 (31.50)	333.94 (1.63)	152.38 (0.74)	4558.77 (22.26)	1857.18 (9.07)	6703.72 (32.73)
2015-16	526.6 (2.83)	6034.94 (32.46)	468.95 (2.52)	179.07 (0.96)	3902.7 (20.99)	2171.17 (11.68)	5310.75 (28.56)
2016-17	501.34 (2.61)	6820.11 (35.49)	509.28 (2.65)	197.79 (1.03)	5453.59 (28.38)	1821.87 (9.48)	3913.15 (20.36)
2017-18	709.75 (3.07)	8614.35 (37.29)	546.12 (2.36)	217 (0.94)	6612.96 (28.63)	1924.28 (8.33)	4476.46 (19.38)
2018-19	715.44 (2.82)	9210.06 (36.34)	657.33 (2.59)	223.02 (0.88)	7766.2 (30.64)	2061.56 (8.13)	4710.21 (18.59)
2019-20	997.58 (4.55)	8200.75 (37.38)	738.6 (3.37)	226.57 (1.03)	7160.35 (32.63)	816.62 (3.72)	3800.91 (17.32)
2020-21	825.78 (3.74)	9691.56 (43.90)	701.02 (3.18)	195.88 (0.89)	6838.46 (30.97)	326.87 (1.48)	3498.23 (15.85)
Growth Rate	8.62*	10.68*	14.19*	7.78*	12.77*	-0.29	4.27**
Average	500.69	5282.28	338.97	142.41	3766.38	1618.92	3784.08
CV	45.03	52.15	69.46	39.83	62.87	35.29	33.46

Note: * indicates the growth rates are statistically significant at 1 percent, ** indicates the growth rates are statistically significant at 5 percent. Figures in the parenthesis indicate share of SAARC in total exports of India.
Source: Ministry of Commerce and Trade, Department of Commerce, Export Import Data Bank

Table 3
India's Imports from SAARC Countries

Year	Afghanistan	Bangladesh	Bhutan	Maldives	Nepal	Pakistan	Srilanka
2005-06	58.42 (4.13)	127.03 (8.99)	88.77 (6.28)	1.98 (0.14)	379.85 (26.88)	179.56 (12.70)	577.7 (40.88)
2006-07	34.37 (2.28)	228 (15.12)	142.05 (9.42)	3.05 (0.20)	306.02 (20.30)	323.62 (21.47)	470.33 (31.20)
2007-08	109.97 (5.19)	257.02 (12.14)	194.72 (9.20)	4.15 (0.20)	628.56 (29.69)	287.97 (13.60)	634.96 (29.99)
2008-09	126.24 (8.39)	313.11 (20.82)	151.79 (10.09)	3.97 (0.26)	496.04 (32.98)	370.17 (24.61)	42.84 (2.85)
2009-10	125.19 (7.55)	254.66 (15.37)	153.11 (9.24)	3.63 (0.22)	452.61 (27.31)	275.94 (16.65)	392.19 (23.66)
2010-11	146.03 (6.72)	446.75 (20.56)	201.57 (9.27)	31.38 (1.44)	513.4 (23.62)	332.51 (15.30)	501.73 (23.09)
2011-12	132.5 (5.25)	585.73 (23.20)	202.55 (8.02)	18.89 (0.75)	549.97 (21.78)	397.66 (15.75)	637.43 (25.25)
2012-13	159.55 (5.95)	639.33 (23.86)	164 (6.12)	6.29 (0.23)	543.1 (20.27)	541.87 (20.22)	625.81 (23.35)
2013-14	208.77 (8.44)	484.34 (19.59)	152.17 (6.15)	3.97 (0.16)	529.93 (21.43)	426.88 (17.26)	666.93 (26.97)

2014-15	261.91 (8.94)	621.37 (21.20)	149.87 (5.11)	4.32 (0.15)	639.91 (21.83)	497.31 (16.97)	756.17 (25.80)
2015-16	307.9 (10.35)	727.15 (24.44)	281.27 (9.45)	4.29 (0.14)	470.59 (15.82)	441.03 (14.82)	742.79 (24.97)
2016-17	292.9 (10.41)	701.68 (24.94)	307.82 (10.94)	9.17 (0.33)	445.13 (15.82)	454.49 (16.15)	602.2 (21.40)
2017-18	433.78 (13.55)	685.65 (21.41)	377.49 (11.79)	5.68 (0.18)	438.38 (13.69)	488.56 (15.26)	772.63 (24.13)
2018-19	435.44 (9.97)	1044.8 (23.92)	370.96 (8.49)	20.41 (0.47)	508.14 (11.63)	499.87 (11.44)	1488.4 (34.07)
2019-20	529.84 (13.81)	1264.74 (32.97)	405.73 (10.58)	6 (0.16)	711.61 (18.55)	13.97 (0.36)	903.69 (23.56)
2020-21	509.49 (15.09)	1091.66 (32.33)	433 (12.82)	24.49 (0.73)	673.16 (19.93)	2.39 (0.07)	642.94 (19.04)
Growth rate	13.35*	11.04*	8.64*	6.63	2.22**	-0.56	5.77**
Average	242.02	592.06	236.05	9.48	517.90	345.86	653.67
CV	66.31	55.76	46.56	95.30	20.75	47.26	45.04

Note: * indicates the growth rates are statistically significant at 1 percent, ** indicates the growth rates are statistically significant at 5 percent. Figures in the parenthesis indicate share of SAARC in total imports of India. Source: Ministry of Commerce and Trade, Department of Commerce, Export Import Data Bank

TABLE – 4
Share of Principal Commodities in India's Exports to SAARC (%)

Year	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2005-06	6.55	1.98	21.77	5.12	3.05	4.63	6.47	3.25	2.28	8.22
2006-07	3.80	1.92	19.79	5.55	3.58	5.05	5.26	2.73	2.03	7.93
2007-08	9.32	1.16	22.49	6.13	2.38	3.64	4.89	2.70	1.70	5.51
2008-09	4.63	1.47	19.68	5.50	3.32	3.82	6.38	4.05	2.99	6.18
2009-10	2.64	1.98	12.90	4.97	3.08	3.69	6.43	3.15	2.30	7.85
2010-11	2.42	1.84	14.26	3.40	2.37	3.60	5.17	3.40	2.26	9.69
2011-12	3.56	2.16	13.31	3.27	2.57	4.41	5.48	4.02	2.52	11.57
2012-13	5.53	1.85	13.93	2.85	2.40	4.14	6.08	4.04	2.12	6.73
2013-14	7.42	1.67	12.24	2.61	2.38	4.28	5.92	3.62	2.08	6.92
2014-15	7.90	1.81	12.82	2.13	2.04	3.87	5.76	4.10	2.15	8.26
2015-16	4.08	2.03	10.09	2.14	2.38	4.07	5.78	5.29	2.77	10.31
2016-17	3.25	2.55	11.79	2.80	2.79	4.44	7.52	6.63	3.04	11.48
2017-18	7.23	2.37	14.19	2.57	2.52	3.92	8.39	6.78	2.76	9.88
2018-19	3.68	2.03	16.09	3.14	2.37	4.21	8.51	6.98	2.83	9.70
2019-20	2.76	1.77	16.14	2.91	2.99	4.27	9.40	7.27	3.56	8.33
2020-21	8.47	3.85	13.85	2.46	3.37	3.79	8.13	5.92	3.52	6.36
Average	5.30	2.13	14.48	3.14	2.65	4.09	6.97	5.17	2.68	8.66

Source: Ministry of Commerce and Trade, Department of Commerce, Export-Import Data Bank.

TABLE – 5
Estimated Indian Export Demand Functions (to SAARC Countries)

S. NO	Regression equation	R ²	F-Statistic	D. W. Statistic
(1)	(2)	(3)	(4)	(4)
1.	Log X ₁ = -51.169*+ 1.572**log GDP SAARC + 2.897 log REE	.445	7.016	1.594
2.	Log X ₂ = -68.265* + 2.485* log GDP SAARC + .877 log REE	.891	62.360	1.508

3.	$\text{Log } X_3 = -34.080^* + 1.291^* \log \text{ GDP SAARC} + 1.173 \log \text{ REE}$	.760	24.747	1.719
4.	$\text{Log } X_4 = -16.798^* + .724^* \log \text{ GDP SAARC} + .559 \log \text{ REE}$	.492	8.260	1.247
5.	$\text{Log } X_5 = -46.818^* + 1.867^* \log \text{ GDP SAARC} + .066 \log \text{ REE}$	.978	338.489	2.234
6.	$\text{Log } X_6 = -49.007^* + 1.728^* \log \text{ GDP SAARC} + 1.459^* \log \text{ REE}$	.887	60.099	.649
7.	$\text{Log } X_7 = -68.214^* + 2.504^* \log \text{ GDP SAARC} + 1.004^* \log \text{ REE}$	.963	198.338	1.438
8.	$\text{Log } X_8 = -88.192^* + 3.035^* \log \text{ GDP SAARC} + 2.008^* \log \text{ REE}$	.962	191.590	1.413
9.	$\text{Log } X_9 = -69.132^* + 2.580^* \log \text{ GDP SAARC} + .542 \log \text{ REE}$	.967	219.144	1.754
10.	$\text{Log } X_{10} = -57.749^* + 1.830^* \log \text{ GDP SAARC} + 2.870^* \log \text{ REE}$	.825	36.261	.708
11.	$\text{Log } X_{TE} = -47.290^* + 1.807^* \log \text{ GDP SAARC} + 1.304 \log \text{ REE}$	.900	68.184	.534

*denotes that the Coefficients are significant at 1% level of significance.

** denotes that the Coefficients are significant at 5% level of significance.

*** denotes that the Coefficients are significant at 10% level of significance.

Table 4 furnishes the details about India's export of top ten commodities to SAARC markets in terms of percentage. During the study period, among the different commodities that are exported by India to SAARC markets, Mineral fuels and related products (X_3) topped the list with an average share of 14.48 percent followed by, motor vehicles and accessories (X_{10}) with an average share of 8.66 percent, Iron and steel and related articles (X_7) with an average share of 6.97 percent, Cereals and cereal related preparations (X_1) with an average share of 5.30 percent, Nuclear reactors, Boilers etc (X_8) with an average share of 5.17 percent, Plastic and rubber related products (X_6) with an average share of 4.09 percent, Organic Chemicals (X_4) with an average share of 3.14 percent, Electrical machinery and related equipment (X_9) with an average share of 2.68 percent, Pharmaceutical Products (X_5) with an average share of 2.65 percent and Salt; Sulphur; Earths and stone; plastering material, Lime and Cement (X_2) with an average share of 2.13 percent. The average share of the top 10 commodities considered for the study is noticed to be about 55 percent in the total commodity exports of India to SAARC markets.

IV. Analysis Of Price Competitiveness Of Indian Exports To Saarc Markets

Table 5 presents the estimated Indian export demand functions by considering the top 10 principle commodities exported to SAARC countries along with the total commodity export demand function.

1. Export Demand Function of X_1

In the estimated equation 1, X_1 indicates the export of cereals and cereal related preparations, flour, Starch or Milk Pastry cook products. From the equation it is clear that, the coefficients of GDP SAARC and REE are positive and GDP SAARC Statistically significant at 5 percent level of significance. Further based on the value of R^2 , the two variables included in the regression model explain about 45 percent variation in Indian exports. The coefficients of the variables imply that, a one percent increase in GDP SAARC (income) result in an increase of 2.89 percent increase in Indian exports to SAARC. Though, the export product is found to be price competitive, yet they are price inelastic as the coefficient is less than unity.

2. Export Demand Function of X_2

in respect of, X_2 Salt; Sulphur; Earths and stone; plastering material, Lime and Cement. the coefficients of both variables namely GDP SAARC and REE are noticed to be positive and GDP SAARC Statistically significant at 1 percent level of significance. Further those two variables are observed to provide explanation for about 89 percent variation in the exports of X_2 . Moreover, the elasticity coefficients imply that a one percent increase in income and REE would push up Indian exports to SAARC countries by about the coefficients of the variables imply that, a one percent increase in GDP SAARC (income) result in an increase of .87 percent increase in Indian exports to SAARC. Though, the export product is found to be price competitive, yet they are price inelastic as the coefficient is less than unity.

3. Export Demand Function of X_3

In case of X_3 (Mineral Fuel related products), the fit is very good and the coefficients of both variables turned out with expected signs. However, the coefficient of income is statistically significant at 1 percent, while that of exchange rate is statistically not significant. Further, the coefficient of variables imply that a one percent increase in income would increase the Indian exports to SAARC by about 1.29 percent, while a one percent real devaluation of Indian rupee against the US dollar will increase the Indian exports to SAARC by about 1.17 percent. Thus, mineral fuels and related products are observed to be more income elastic rather price elastic.

4. Export Demand Function of X_4

The fit corresponding to X_4 i.e., Organic Chemical, From the equation it is clear that, the coefficients of GDP SAARC and REE are positive and GDP SAARC Statistically significant at 1 percent level of significance. Further based on the value of R^2 , the two variables included in the regression model explain about 49 percent

variation in Indian exports. The coefficients of the variables imply that, a one percent increase in GDP SAARC (income) result in an increase of 0.55 percent increase in Indian exports to SAARC. Though, the export product is found to be price competitive, yet they are price inelastic as the coefficient is less than unity.

5. **Export Demand Function of X₅**

In respect of X₅ i.e., Pharmaceutical products, the fit is seen to be exceptionally good as it provides explanation to the extent of 97 percent of variation in the exports of the product to SAARC markets. Both the coefficients, income of SAARC and REE are positive. Moreover, the coefficient of REE is noticed to be statistically not significant. Thus, the coefficient of income implies that a one percent increase in income would push up the Indian exports of Pharmaceutical products to SAARC markets by about 1.8 times. However, the product is found to be price competitive, yet they are price inelastic as the coefficient is less than unity.

6. **Export Demand Function of X₆**

Corresponding to Plastic and Rubber products, both variables namely income and real effective exchange rate are noticed to turn out with expected signs and statistically significant coefficients. Thus, a one percent increase in income of SAARC would result in a 1.7 percent increase in the Indian export of Plastic and Rubber products to SAARC markets, while a one percent real devaluation of the Indian rupee against the US dollar would increase its exports of Plastic and Rubber products to SAARC markets by about 1.45 percent. Thus, export of India's Plastic and Rubber products are observed to be relatively more income elastic rather than price elastic.

7. **Export Demand Function of X₇**

In case of X₇, i.e., Iron and Steel related articles, the coefficients of both variables are noticed to turn out with expected signs and with a good explanatory power as the value of R² is recorded as .96. Thus a one percent increase in GDP SAARC is found to effect the Indian export of Iron and Steel related articles to SAARC by about 2.5 percent, while a one percent increase in REE is noticed to increase the Indian export of Iron and Steel related articles to SAARC by 1 percent. Thus, export of India's Plastic and Rubber products are observed to be relatively more income elastic rather than price elastic.

8. **Export Demand Function of X₈**

In case of X₈ i.e., Nuclear Reactors, Boilers, Machinery and Mechanical appliances, the fitted equation reveals expected signs and good explanatory power. However, the coefficients of both variables is seen to be statistically significant at 1 percent level of significance. The results imply that, a one percent increase in GDP SAARC and REE are noticed to increase the Indian export of product to the SAARC markets by 3.03 and 2.008 percent respectively. Thus Indian export of Nuclear Reactors, Boilers, Machinery and Mechanical appliances products to SAARC markets are observed to be more income elastic and price competitive.

9. **Export Demand Function of X₉**

In respect of Electricity and related equipment, the coefficients of both variables are turned out with positive signs and the fit is noticed to be reasonably good. However, the coefficient of income variable is found to be statistically significant at 1 percent, while the coefficient of real effective exchange rate is statistically not significant. Further, the coefficient of variables implies that a one percent increase in GDP SAARC and REE would affect the Indian export of Electricity and related equipment to SAARC markets by about 2.58 and 0.54 respectively. Thus Indian export of Electricity and related equipment to SAARC markets are observed to be more income elastic and price competitive.

10. **Export Demand Function of X₁₀**

Corresponding to Motor vehicles and Accessories, both variables namely income and real effective exchange rate are noticed to turn out with expected signs and statistically significant at 1 percent level of significance. Thus, a one percent increase in income of SAARC would result in a 1.8 percent increase in the Indian export of Motor vehicles and Accessories to SAARC markets, while a one percent real devaluation of the Indian rupee against the US dollar would increase its exports of Motor vehicles and Accessories to SAARC markets by about 2.8 percent. Thus, export of India's Motor vehicles and Accessories are observed to be relatively more Price elastic rather than income elastic.

11. **Export Demand Function of X_{TE}**

In respect of All Commodities, the coefficients of both variables are turned out with positive signs and the fit is noticed to be very good. However, the coefficient of income variable is found to be statistically significant at 1 percent, while the coefficient of real effective exchange rate is statistically not significant. Further, the coefficient of variables implies that a one percent increase in GDP SAARC and REE would affect the Indian export of Electricity and related equipment to SAARC markets by about 1.8 and 1.3 respectively. Thus Indian export of Electricity and related equipment to SAARC markets are observed to be more income elastic and price competitive. The analysis implies that, in addition to GDP of SAARC countries, price competitiveness is also a significant variable effecting Indian exports to SAARC countries.

V. Summary

India's total exports during the study period are observed to increase 5.23 percent per annum, while total imports are found to increase at 4.81 percent per annum. Thus total export import gap has been decreasing at 0.42 percent points indicating an average gap (deficit) US \$ 126645.2 million over the study period. The share of exports to SAARC countries varied between 4 to 7 per cent, while the share of imports from SAARC countries in total Indian imports accounted for less than one per cent. Among the SAARC markets, highest growth (14.19 percent) is observed in commodity exports to Bhutan and followed by Nepal (about 12.7 percent), Bangladesh (about 10.6 per cent), Afghanistan (8.62 per cent), Maldives (about 7.78 percent), Sri Lanka (about 4.2 percent), while exports to Pakistan are found to be highly volatile and registered negative growth in terms of commodity exports from India is about -0.29 per cent in order. During the study period among the SAARC countries, average Indian commodity imports are found to be highest from Srilanka (about US \$ 653 million) followed by Bangladesh (about US \$ 592 million), Nepal (about US \$ 518 million), Pakistan (about US \$ 346 million), Afghanistan (about US \$ 242 million), Bhutan (about US \$ 236 million) in the order. During the study period, among the different commodities that are exported by India to SAARC markets, Mineral fuels and related products (X_3) topped the list with an average share of 14.48 percent followed by, motor vehicles and accessories (X_{10}) with an average share of 8.66 percent , Iron and steel and related articles (X_7) with an average share of 6.97 percent, Cereals and cereal related preparations (X_1) with an average share of 5.30 percent, Nuclear reactors, Boilers etc (X_8) with an average share of 5.17 percent, Plastic and rubber related products (X_6) with an average share of 4.09 percent, Organic Chemicals (X_4) with an average share of 3.14 percent, Electrical machinery and related equipment (X_9) with an average share of 2.68 percent, Pharmaceutical Products (X_5) with an average share of 2.65 percent and Salt; Sulphur; Earths and stone; plastering material, Lime and Cement (X_2) with an average share of 2.13 percent. The average share of the top 10 commodities considered for the study is noticed to be about 55 percent in the total commodity exports of India to SAARC markets.

Notes and References

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