Study of Economic Performance of India due to Trade with SAARC Countries

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The paper empirically examines the trade led growth paradigm for India with respect to SAARC countries for the period 1990-2014. The paper uses the co-integration model to test the causal relationship between trade and output growth. Granger causality test is applied for the period 1994-2015 to examine the nature of relationship between variables under study. The results indicate absence of long term relationship between India's GDP growth and trade among SAARC nations, thereby giving way to the existence of short term relationship. Granger causality revealed unidirectional nature of causality from exports to GDP and Imports to GDP for Nepal, Pakistan and Sri Lanka, GDP to export for Maldives, GDP to import for Bangladesh, Import to export for Bhutan and Sri Lanka and export to import for Pakistan.

INTRODUCTION

Economic growth is a fundamental objective for all the developing nations, SAARC being no exception (Khan and Reinhart, 1990). In the context of developing countries, the relationship between export growth and economic growth has been getting attention in theoretical and empirical literature. Trade promotes economic growth through a host of factors, such as efficient utilization of resources, exploitation of economies of scale, enhanced labour productivity (Tyler, 1981; Esfahani, 1991; Lal and Rajapatirana, 1987), technological advancements (Ram, 1987; Dash 2009), channelizing investments in productive sectors (Balassa, 1978) and firms (Melitz, 2003). Trade forces domestic companies to be more competitive, efficient and productive and therefore benefits the economy. Trade is an engine of prosperity (Bhagwati, 2009). Export growth has effect on internal trade and economic stability of an economy. According to Dee Kay (2009), the rate of economic growth is related to export growth. Balassa (1985) has mentioned that exports and imports play a critical role in achieving higher economic growth. Bakar (2010) has shown that in most of the economies, export growth make significant contribution to economic growth. International trade is a major indicator for economic growth (Ali and Talukder, 2009).

It is in this backdrop that the present study aims to study Export led growth (ELG) and Import led growth (ILG) in the context of India and the other seven SAARC member nations- Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka. India being the biggest economic power in South Asia contributes about 79 per cent of the total GDP of the region. During 2014-15, South Asian countries accounted for 6.6 per cent of India's exports and provided only 0.65 per cent of India's total

imports (International Monetary Fund, World Economic Outlook Database, October 2015). A study of relationship between trade and India's GDP in one of the prominent bloc with population of 1.67 billion people could provide valuable insights for trade and growth policies for SAARC and similar blocs.

Further, despite several studies, there is lack of clarity regarding the direction of causality between growth and trade- whether growth leads to enhanced trade or vice versa or if there is the existence of bi-directional causality. Further, such evidences are missing in context to India's bilateral trade relationship with SAARC and India's output growth. The present paper seeks to build up this empirical gap. The study employs Granger Causality test. Time series data spanning from 1990 to 2014 has been employed. The annual panel data has been extracted from WITS, World Bank. Section 2 explores the existing literature on the nexus between exports/ imports and output growth and the causal relationship between them. Section 3 presents the data sources. Section 4 discusses the methodological issues along with the empirical findings. Section 5 sets forth the conclusions of the study.

LITERATURE AND CONTROVERSY

The ELG hypothesis contends that exports unavoidably precede output growth. Economists have given due importance to this strategy. (Bhagwati, 1982; Keesing, 1967; Krueger, 1975; Srinivasan, 1985). While using a sample of 11 least developed economies, Balassa (1978) found significant positive association between export and economic growth. Bhasin (1999) employed the simultaneous equation model for the period 1966-1996 and concluded that exports boost economic growth. Using the long and short run model over the period 1965-1999, Bankole et al. (1999), validated the ELG hypothesis. Abdulai and Jacquet (2002) employed the co-integration and error correction estimation techniques and found the relationship between economic growth, and exports. They also found the existence of uni-directional causality from export to GDP, both in the short run as well as long run. In his work for Africa, Oyejide (2007) concluded that export expansion improved growth performance. In a recent study by Mijiyawa (2013), exports were found to be the most significant growth promoting factor. Hussain (2014) said that since export is one of the constituent of GDP, increase in exports lead to GDP growth. This hypothesis has got more support due to the success of outward oriented policies of Asian tigers (World Bank, 1991)

On the contrary, the ILG hypothesis suggests that output growth could be ensured by growth in imports. Through imports, domestic firms get access to much needed intermediate factors of production (Coe and Helpman, 1995) and thus aid in economic growth of the nation. Imports aid in enabling the diffusion of research, development and knowledge from the developed nations to developing ones; thereby stimulating growth (Lawrence and Weinstein 1999; Mazumdar, 2000). By employing a multivariate vector autoregressive (VAR) framework on few of the rapidly growing Asian economies, Thangavelu and Rajaguru (2004) assigned greater importance to the ILG hypothesis than the ELG hypothesis. Awokuse (2008) supports these results for three Latin American countries – Argentina, Peru and Columbia.

However, policy makers and researchers are yet to achieve a common consensus on the causal relationship existing between trade and GDP. There is inconclusive evidence in the literature whether trade (exports and imports) leads to economic growth or vice-versa. While studying 37 developing countries, Jung and Marshall (1985) found the presence of unidirectional causality from export to output growth in four of them. There emerged no evidence of causality in 47 African countries in the study by Ahmed and Kwan (1991). In their study, Sharma and Dhakal (1994) worked on the sample of 30 developing countries and found mixed presence of unidirectional, bidirectional and no causality between exports and GDP growth. Another study by Ahmad and Harnhirun (1996) on four ASEAN countries- Indonesia, Philippines and Singapore and Malaysia witnessed lack of systematic prediction of causality. Doganlar (2004) investigated the relationship between export and growth for eight Asian countries- India, Pakistan, Philippines, Thailand, Singapore, Sri Lanka, South Korea and Turkey for the pre- Asian Crisis period. By using the co-integration technique and specifying an error correction mechanism, he found the presence of bi-directional causality for Turkey, South Korea, Singapore, Philippines and India. As far as the direction of causality is concerned, it ran from export to GDP growth for Thailand and from GDP to

export growth for Pakistan and Sri Lanka. Shirazi and Manap (2005) used co-integration and multi variate Granger causality test for examining the ELG hypothesis for five south Asia countries. Other than Sri Lanka, the study found strong evidence for a long term relationship among export, import and GDP growth. Unidirectional causality from exports to output was found for Pakistan. According to Lancaster (1980) and Krugman (1984) economic growth enables technological advancements, hereby leading to trade expansion. Using the VAR model, Dhawan and Biswal (1999) studied the relationship between real GDP, real exports and terms of trade for India for the period 1961-1993. They found the existence of unidirectional causality flowing from GDP growth to exports in the long run and concluded that the causality from exports to Output growth is a short term phenomenon. Asafu-Adjaye and Chakraborty (1999) suggested the absence of causality between exports, imports and real output of India for the period 1960-1994.

Recent studies (Riezman, Whiteman and Summers, 1996; Thangavelu and Rajaguru, 2004; Awokuse, 2008) have shown that ignoring imports, while studying the causal relationship between trade and output growth would lead to spurious and misleading results. Thangavelu and Rajaguru (2004) and Awokuse (2008) studied few Asian and Latin American countries and reported strong causality from imports to GDP growth. Zang and Baimbridge (2012) found bidirectional causality between imports and output growth in Japan and Korea. Bidirectional relationship between export-output growth and import-output growth was present in Portugal (Ramos, 2001). Past studies have shown that increase in imports contribute to the growth of the nation (Achchuthan, 2013). According to Kim, Lim and Park (2009), imports play a significant role in the relationship between exports and growth rate. Rahman and Shahbaz (2013) conclude that growth in imports lead to higher exports. This happens due to the provision of better quality of intermediate goods. However while studying import, export and economic growth for South Africa, Ajmi, et. Al. (2015) found the absence of causality between them.

DATA SOURCES AND DESCRIPTIVE STATISTICS

Annual data for India's export to SAARC (U.S. $ million), India's imports from SAARC (US $ million), India's GDP growth (annual percentage) measured with GDP at market prices (constant 2010 US$) have been taken from World development Indicators, World Bank. The data is for the period 1990-2014. Data on India's trade (exports and imports) with Afghanistan was available from 2005-06 onwards. Table 1 and 2 below present the descriptive statistics of export and import growth of India with SAARC countries.

TABLE 1
DESCRIPTIVE STATISTICS OF EXPORT GROWTH OF INDIA WITH SAARC COUNTRIES (1994-2015)

	EXAFG	*EXBAN*	*EXBHU*	*EXMAL*	*EXNEP*	*EXPAK*	*EXSRI*
Mean	0.049306	0.13177	0.228494	0.135755	0.188213	0.163575	0.149917
Standard Error	0.030258	0.053817	0.171573	0.07615	0.045881	0.074358	0.041375
Median	0	0.117555	0.201912	0.103713	0.177524	0.256069	0.134787
Standard Deviation	0.141924	0.252422	0.804749	0.357173	0.215199	0.34877	0.194068
Coefficient of variation	287.8433	191.5626	352.197	263.1012	114.338	213.2172	129.4503
Sample Variance	0.020142	0.063717	0.64762	0.127573	0.04631	0.12164	0.037662
Kurtosis	2.626156	-0.14401	2.227702	3.129848	0.769094	-1.12695	0.20707
Skewness	1.652081	-0.23295	-0.12344	1.115549	-0.05006	-0.00488	0.439388
Range	0.586291	1.030872	3.865676	1.68972	0.97581	1.111821	0.796535
Minimum	-0.12067	-0.44768	-1.93284	-0.47485	-0.3285	-0.39551	-0.17632
Maximum	0.465625	0.583196	1.932838	1.214872	0.647306	0.716314	0.620213
Sum	1.084735	2.89895	5.026866	2.9866	4.14068	3.59866	3.298179
Count	22	22	22	22	22	22	22

Source: Authors

The reported mean for exports is highest for Bhutan, followed by Nepal, Pakistan, Sri Lanka, Maldives, Bangladesh and Afghanistan. The volatility of exports is highest in Bhutan followed by Afghanistan, Maldives, Pakistan, Bangladesh, Sri Lanka and Nepal. This indicates that among the SAARC nations, the exports of Bhutan are growing at a faster rate. The coefficient of variation for the seven nations taken together is 221.6728, which indicates the presence of huge differentials in exports of SAARC countries.

TABLE 2
DESCRIPTIVE STATISTICS OF IMPORT GROWTH OF INDIA WITH SAARC COUNTRIES (1994-2015)

	IMAFG	*IMBAN*	*IMBHU*	*IMMAL*	*IMNEP*	*IMPAK*	*IMSRI*
Mean	0.06854	0.199521	0.219378	0.170964	0.147784	0.06109	0.182169
Standard Error	0.060783	0.08112	0.124253	0.165061	0.049922	0.1198	0.068149
Median	0	0.193995	0.191304	0	0.171433	0.163235	0.190441
Standard Deviation	0.285099	0.380486	0.582798	0.774203	0.234156	0.561914	0.319648
Coefficient of Variation	415.96	190.6997	265.659	452.8456	158.4448	919.8134	175.4678
Sample Variance	0.081282	0.14477	0.339653	0.59939	0.054829	0.315747	0.102175
Kurtosis	10.99513	-0.96702	2.043952	0.869121	0.434252	2.508253	0.636454
Skewness	2.428311	0.291138	0.613515	0.861629	0.198205	0.135751	-0.57079
Range	1.678578	1.166409	2.733495	3.289743	0.965318	2.720003	1.343797
Minimum	-0.52636	-0.32283	-0.92521	-1.11436	-0.24684	-1.1454	-0.581
Maximum	1.152222	0.84358	1.808289	2.175383	0.718477	1.574604	0.762801
Sum	1.507875	4.389466	4.826312	3.7612	3.251249	1.343969	4.007728
Count	22	22	22	22	22	22	22

Note: In case of Afghanistan, data is available from 2007 onwards
Source: Authors

The mean imports are highest from Bhutan followed by Bangladesh, Sri Lanka, Maldives, Nepal, Afghanistan and Pakistan. In respect of imports, few of the low exporting nations like Afghanistan and Maldives are comparatively more volatile than the high exporting nations. This indicates that the high exporting nations like Nepal, Bhutan and Sri Lanka are also the major importing nations from India.

Since the average value of export and import of SAARC nations with India as a trade partner are relatively high, the question arise that whether these variables can contribute to the economic growth of India or can the GDP growth of Indian economy influence the trade volumes of SAARC nations. To address this query, the present research aims at the empirical investigation of the causal relationship between trade (exports and imports) of SAARC countries and India's growth rate.

EMPERICAL METHODOLOGY AND FINDINGS

This paper uses the co-integration models, to test the causal relationship between gross domestic product (GDP) of India with its exports and imports among SAARC Nations. As shown in the following equation, all variables are systematically and endogenously considered at first.

$$Y_t = A_0 + A_t Y_{t-1} + A_2 Y_{t-2} + \cdots + A_s Y_{t-s} + \varepsilon_t \quad (1)$$

Where $Y_{t-i} = [GDP\ (India)_{t-i}, Export_{\ t-i}, Import_{t-i}]$, A_i (i>0) are 3X3 matrices of parameters, and $\varepsilon_t \sim \text{IID}(0, \Omega)$, ε_t is column vector of stochastic error term, Ω is 3X3 variance-covariance matrix. To identify the causal relationship, variables should be stationary.

Unit root test

In order to avoid spurious regression in time series analyses, whether variables are integrated of order zero, or in other words, that the series are stationary must be tested. This is accomplished by performing

the augmented Dickey-Fuller (ADF) test. The ADF test is based on the regression equation of following form:

$$\Delta X_t = \alpha + \beta \cdot t + \rho \cdot X_{t-1} + \sum_{i=1}^{m} \theta_i \Delta X_{t-i} + \varepsilon_t \quad (2)$$

Where $\Delta X_t = X_t - X_{t-1}$ and X is the variable under consideration, m is the number of lags in dependent variable (chosen so as to induce a white noise term) and ε_t is the stochastic error term. The optimum lag length is selected using the Akaike information criterion. For the distribution of ADF statistic is not standard, we use Mackinnon critical values to judge.

Co-integration test

To investigate stochastic trends of the stationary series we have used Johansen-Juselius(JJ) technique for cointegration between variables. According to the JJ method, VAR (n) can be written as follow:

$$Y_t = \pi_0 + \pi_1 Y_{t-1} + \cdots + \pi_m Y_{t-m} + \varepsilon_t \quad (3)$$

Where Y_t, π_0 are column vectors, π_i (i>0) are $n \times n$ matrices, lag intervals are determined by AIC.

Johansen and Juselius provides two methods to test cointegration: Trace Test and Maximum Eigenvalues Test., but this paper used the latter only. The test statistic is:

$$MET = -T \cdot \ln(1 - \lambda_{r+1}) \quad (4)$$

Where λ_{r+1} are eigenvalues. If MET is greater than the critical value, then we reject the null hypothesis H_0.

Granger Causality Test:

During the period of 1994-2015, Granger Causality Test is applied to examine the causal relationship between all selected variables of India and SAARC countries. The model for examining the causal relationship between same is shown as follows for all possible pairs of (X, Y) series in the group

$$X_t = \alpha_0 + \sum_{t=1}^{m} \alpha_m X_{t-m} + \sum_{t=1}^{m} \beta_m Y_{t-m} + \varepsilon_t \quad (5)$$

$$Y_t = \alpha_0 + \sum_{t=1}^{m} \alpha_m Y_{t-m} + \sum_{t=1}^{m} \beta_m X_{t-m} + \mu_t \quad (6)$$

The reported F-statistics are the Wald statistics for the joint hypothesis: all βi=0 for each equation. The null hypothesis is that does *not* Granger-cause in the first regression and that does *not* Granger-cause in the second regression (see Granger and Newbold, 1974).

TABLE 3
UNIT ROOT TEST OF ALL DATA SERIES OF SAAR COUNTRIES

Augmented Dickey-Fuller test						Phillips-Perron Test				
		Test critical values:					Test critical values:			
Data Series:	ADF Test Statistic	1% level	5% level	10% level	Prob.*	PP Test Statistic	1% level	5% level	10% level	Prob.*
GDPGIND	-3.957593	-4.4679	-3.64496	-3.26145	0.0275	-3.91931	-4.4679	-3.64496	-3.26145	0.0296
EXAFG	-3.02488	-6.29206	-4.45043	-3.70153	0.0470	-5.89421	-5.83519	-4.2465	-3.5905	0.0095
EXBAN	-5.76571	-4.4679	-3.64496	-3.26145	0.0007	-6.32547	-4.4679	-3.64496	-3.26145	0.0002
EXBHU	-4.29295	-4.4679	-3.64496	-3.26145	0.0142	-4.29762	-4.4679	-3.64496	-3.26145	0.0141
EXMAL	-4.90751	-4.4679	-3.64496	-3.26145	0.0041	-4.92533	-4.4679	-3.64496	-3.26145	0.0040
EXNEP	-3.7978	-4.4679	-3.64496	-3.26145	0.0375	-3.79173	-4.4679	-3.64496	-3.26145	0.0379
EXPAK	-4.66056	-4.4679	-3.64496	-3.26145	0.0068	-4.67169	-4.4679	-3.64496	-3.26145	0.0066
EXSRI	-4.6123	-4.49831	-3.65845	-3.26897	0.0080	-7.77911	-4.4679	-3.64496	-3.26145	0.0000
IMAFG	-4.85603	-5.83519	-4.2465	-3.5905	0.0269	-4.85603	-5.83519	-4.2465	-3.5905	0.0269
IMBAN	-3.69387	-4.4679	-3.64496	-3.26145	0.0456	-4.60035	-4.4679	-3.64496	-3.26145	0.0076
IMBHU	-3.50444	-4.4679	-3.64496	-3.26145	0.0864	-3.9966	-4.4679	-3.64496	-3.26145	0.0930
IMMAL	-5.41518	-4.4679	-3.64496	-3.26145	0.0015	-5.4089	-4.4679	-3.64496	-3.26145	0.0015
IMNEP	-5.86547	-4.4679	-3.64496	-3.26145	0.0006	-6.15309	-4.4679	-3.64496	-3.26145	0.0003
IMPAK	-5.81927	-4.4679	-3.64496	-3.26145	0.0006	-6.64652	-4.4679	-3.64496	-3.26145	0.0001
IMSRI	-3.72314	-4.4679	-3.64496	-3.26145	0.0432	-3.76078	-4.4679	-3.64496	-3.26145	0.0402

TABLE 4
RESULTS OF THE CO-INTERATION TEST

Country	Unrestricted Cointegration Rank Test (Trace)					Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Bangladesh	Hypothesized		Trace	0.05		Hypothesized		Max-Eigen	0.05	
	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	None *	0.653700	48.10771	29.79707	0.0002	None *	0.653700	21.20900	21.13162	0.0488
	At most 1 *	0.535917	26.89870	15.49471	0.0006	At most 1 *	0.535917	15.35385	14.26460	0.0335
	At most 2 *	0.438556	11.54486	3.841466	0.0007	At most 2 *	0.438556	11.54486	3.841466	0.0007
	Trace test indicates 3 cointegrating eqn(s) at the 0.05 level					Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05				
Bhutan	Hypothesized		Trace	0.05		Hypothesized		Max-Eigen	0.05	
	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	None *	0.783002	67.01150	35.01090	0.0000	None *	0.783002	30.55739	24.25202	0.0064
	At most 1 *	0.633267	36.45412	18.39771	0.0001	At most 1 *	0.633267	20.06242	17.14769	0.0183
	At most 2 *	0.559385	16.39170	3.841466	0.0001	At most 2 *	0.559385	16.39170	3.841466	0.0001
	Trace test indicates 3 cointegrating eqn(s) at the 0.05 level					Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05				
Maldeves	Hypothesized		Trace	0.05		Hypothesized		Max-Eigen	0.05	
	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	None *	0.578078	36.02101	35.01090	0.0388	None	0.578078	17.25870	24.25202	0.3186
	At most 1 *	0.432483	18.76231	18.39771	0.0445	At most 1	0.432483	11.32968	17.14769	0.2866
	At most 2 *	0.310392	7.432627	3.841466	0.0064	At most 2 *	0.310392	7.432627	3.841466	0.0064
	Trace test indicates 3 cointegrating eqn(s) at the 0.05 level					Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05				
Nepal	Hypothesized		Trace	0.05		Hypothesized		Max-Eigen	0.05	
	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	None *	0.785462	54.84960	35.01090	0.0001	None *	0.785462	30.78537	24.25202	0.0059
	At most 1 *	0.548452	24.06423	18.39771	0.0072	At most 1	0.548452	15.90147	17.14769	0.0752
	At most 2 *	0.335113	8.162758	3.841466	0.0043	At most 2 *	0.335113	8.162758	3.841466	0.0043
	Trace test indicates 3 cointegrating eqn(s) at the 0.05 level					Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05				
Pakistan	Hypothesized		Trace	0.05		Hypothesized		Max-Eigen	0.05	
	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	None *	0.772069	46.47280	35.01090	0.0020	None *	0.772069	29.57422	24.25202	0.0090
	At most 1	0.412090	16.89858	18.39771	0.0800	At most 1	0.412090	10.62363	17.14769	0.3423
	At most 2 *	0.269297	6.274955	3.841466	0.0122	At most 2 *	0.269297	6.274955	3.841466	0.0122
	Trace test indicates 1 cointegrating eqn(s) at the 0.05 level					Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05				
Srilanka	Hypothesized		Trace	0.05		Hypothesized		Max-Eigen	0.05	
	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
	None *	0.780020	57.38964	35.01090	0.0001	None *	0.780020	30.28433	24.25202	0.0071
	At most 1 *	0.650910	27.10531	18.39771	0.0024	At most 1 *	0.650910	21.04851	17.14769	0.0129
	At most 2 *	0.261282	6.056792	3.841466	0.0138	At most 2 *	0.261282	6.056792	3.841466	0.0138
	Trace test indicates 3 cointegrating eqn(s) at the 0.05 level					Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level				

TABLE 5
RESULTS OF GRANGER CAUSALITY TEST FOR GDP, EXPORT AND IMPORT OF SAARC COUNTRIES

Country	GDP to Export	GDP to Import	Export to GDP	Import to GDP
Afghanistan	No	No	No	No
Bangladesh	No	Yes** (at lag 3 & 4)	No	No
Bhutan	No	No	No	No
Maldives	Yes** (at lag 4)	No	No	No
Nepal	No	No	Yes * (at lag 2 &3)	Yes* (at lag 2 & 3)
Pakistan	No	No	Yes ** (at 3 lag)	Yes ** (at 2 lag)
Sri Lanka	No	No	Yes * (at 2 &3 lag)	Yes ** (at 2 & 3 lag)

Note: *5% level of significance, ** 10 % level of significance

Granger causality reveals unidirectional nature of causality from exports to GDP and Imports to GDP for Nepal, Pakistan and Sri Lanka, GDP to export for Maldives, GDP to import for Bangladesh, Import to export for Bhutan and Sri Lanka and export to import for Pakistan.

CONCLUSION

The purpose of this study has been to investigate the trade led growth paradigm for SAARC countries with India's GDP using panel data for the period 1990-2014. In the initial examination of India's top 25 trading partners during 2014-15 (Export-Import database, Ministry of Commerce, India), none of the South Asian countries qualified to be featured in the list. In order to examine the research objective, the study uses the co-integration model to test the causal relationship between trade and output growth. While conducting the co-integration test, both Trace and Maximum Eigenvalue indicated no co-integration at 5 per cent level of significance. The results indicate absence of long term relationship between India's GDP growth and trade among SAARC nations, thereby giving way to the existence of short term relationship. To determine the direction of causality among variables, in the short run, pairwise Granger causality was conducted. Granger causality revealed unidirectional nature of causality from exports to GDP and Imports to GDP for Nepal, Pakistan and Sri Lanka; GDP to export for Maldives; GDP to import for Bangladesh.

India, being the largest nation in South Asia, contributes around 80 per cent of the region's GDP. Around 90 per cent of the regional and global trade of three partner nations- Bangladesh, Nepal and Sri Lanka is with India. Although Indo-Bangladesh trade relations have seen many ups and downs, bilateral trade strengthened since early 1990s. During 1991-1996, the formal bilateral trade increased five times with the major increase in India's exports to Bangladesh. It increased Bangladesh's dependence on India. However Bangladesh's imports from India were not matched by its exports to India. There has been further considerable improvement in trade relations following Sheikh Hasina Wajed coming into power in 2009. Throughout these years, Bangladesh has been running trade deficit with India. All this supports our result of granger India's GDP affecting Bangladesh's Imports from India.

A look at the global merchandise trade relationship of Maldives show that India is the third principal import sources of Maldives. India continues to be the dominant trading partner of Nepal. Nepal exports

textiles, GI sheets, Polyester yarn, threads, readymade garments, noodles, tooth paste, shoes and sandals, soap etc and import diesel, transport vehicles and spare parts, kerosene, medicine, synthetic thread, readymade garments, electric equipment etc. In the year 2007-08, out of the total Nepal's imports from SAARC, India's share was 99.41 per cent. It has remained more or less stable over the years. Similarly, in 2007-08, Nepal exported 87 per cent of its total value to India, just 10 per cent to Bangladesh and 3 per cent to rest of the countries. Thus granger Nepal's export and import affect India's GDP.

Within South Asia, Sri Lanka is the largest trade partner of India. Trade between both the countries grew rapidly after the signing of Indo-Sri Lanka Free Trade Agreement (ISFTA) in 2002. India is the third principal export destination of Sri Lanka (6.8%). Amongst Sri Lanka's principal export sources, India stands first at 22.5 % (compiled by Economic diplomacy, Trade Advocacy and Statistics Section, DFAT). This validates our finding of Sri Lankan exports and imports leading to causality to India's GDP.

Within the South Asia region, Pakistan and India collectively account for around 92 per cent of GDP, 85 per cent of population, 80 per cent of surface area but only 20 per cent of region's trade. In 1996, India extended the most favoured nation (MFN) status to Pakistan. For several years, talk of India receiving the MFN status from Pakistan has been on hold. In spite of all this, the bilateral trade between both the nations is quite significant. Pakistan primarily exports cotton, cement and copper waste to India, which comprise just 0.09 per cent of total Indian imports globally. Pakistan imports tomatoes, soya bean products and polypropylene from India. Similarly, even though India claims 0.63 per cent of Pakistani imports from the world, the percentage is quite high within the region. This explains the empirical finding of granger Pakistan exports and Imports on India's GDP.

However, trade within the region is costlier than trade outside the regions. As per the World Bank (The potential of Intra regional trade for South Asia, The World Bank, May 24, 2016), it is 20 per cent cheaper for India to trade with Brazil than with its neighbor Pakistan. Circuitous routes to markets, inadequate transport arrangements, congested border crossings, lack of transportation infrastructure and connectivity issues have been the major impediments. In order to enhance the intra-regional trade and reap benefits out of it, it is essential to undergo the elimination of tariffs and reduction in non-tariff barriers, leverage private and intra-regional investments, invest in efficient connectivity and border crossings, liberalize services like shipping, logistics, air travel etc.

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