An Empirical Analysis On India's Foreign Trade And Economic Growth

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ABSTRACT

The high correlation registered between foreign trade and GDP per capita a result of income causing trade or trade causing economic growth. In this paper researcher, studies causal relationship between foreign trade and economic growth in India. In this study used data ranging from 1991-2018 in order to test the relationship between India's foreign trade and its economic growth. For this study the data were collected from United Nations Conference on Trade and Development (UNCTAD). This study used ADF test for stationary and Granger Causality test for casual relationship between foreign trade and Economic growth. Augmented Dickey-Fuller (ADF) test stand for that LnEx, LnIm and LnGDP are non-stationary at level but all the variables of the study have achieved stationary after first difference. Johansen Cointegration test results confirm the absence of long run relationship between Exports, Imports and GDP for during the period 1991-2018. Granger Causality test explaines firstly, no direct Granger Causality relationship between Indian exports and imports. Secondly, LNGDP is the Granger reason of LNEX, meanwhile, LNEX is not LNGDP Granger reason. Thirdly, LNGDP is the Granger reason of LNIM, while, LNIM is not LNGDP Granger reason. It shows that the increase in GDP will expand a country's national income, which will increase the demand for goods and services from outside the country.

Keywords: India, Exports, Imports, GDP, Stationary Test, Co-integration Test, Causality Test.

1. INTRODUCTION

International trade is the exchange of goods and services between countries. International trade allows countries to expand their markets for both goods and services that otherwise may not have been available domestically. As a result of international trade, the market contains greater competition, and therefore more competitive prices, which brings a cheaper product home to the consumer. In the long run, liberal international trade is a source of economic growth in any economy. Exports play an important role in the economic development of any country and are considered as a major stimulus for domestic production by making the best use of natural, human and other resources. The necessity of external trade arises mainly because no country is capable of producing everything equally efficiently for consumption of its people and the development of its economy. The role of foreign trade in economic development is considerable. The classical and neo-classical economists attached so much importance to foreign trade in a country's development that they regarded it as an engine of growth

Raju Guntukula (2018), in this paper examines the relationship between exports, imports and economic growth in an unexplored way. The results of the Granger causality test show that there is bidirectional causality running between exports and economic growth as well as imports and economic growth. *Dr. P. Mohanamani, et.al. (2018),* in his study focused the existence or nonexistence of relationship between imports, exports, and growth of Indian economy. Time series data for the study is taken from 1980:2016. Results imply the absence of long run relationship between the chosen variables for study. Vector autoregressive model shows that growth in GDP, imports and exports significantly depends on previous year's growth rate. Overall, the implication from the study is that both imports and exports play an important role in stimulating growth of Indian economy. *Ishita Ghoshal (2015),* the author has tried to check whether there has been any causal relationship between trade and growth in India in general and whether any change (positive or negative) was brought about by the implementation of the agreements. It is found here that, before India became a part of the trade agreements, exports led to growth but growth didn't lead to export formation. However, with the advent of the trade agreements, the relationship was seen to be swapped, the causation running in the opposite direction and the relation seemed to be strengthened. Also, it is seen that in the pre trade agreements regime, though exports caused growth, the effect on growth was insignificant; whereas in the post agreements regime GDP caused exports and the relationship is statistically significant and negative.

P.K. Mishra's (2011) analysis also proves that causality runs from growth in GDP to growth in exports. He analyzed time series data available on exports and GDP between the periods 1970 to 2009 using the techniques of co-integration and vector error correction estimation. His paper provides evidence for the existence of a long run relationship between the two variables and rejects the hypothesis of exports led growth in favor of growth led exports. *Narayan Chandra Pradhan (2010),* in his paper he proves the existence of a short-run and a long-run relationship between export growth and GDP growth. He establishes that causality runs from exports growth to GDP growth using the bi variate Granger causality test.

2. OBJECTIVE OF THIS STUDY

The present research mainly focused following objectives

1. The first objective of the study is to discuss the structure of the Foreign Trade in India after liberalization.

2. The second objective of this study is to compute stationary test for India's Exports, Imports and GDP.

3. The third objective of the study is to calculate casual relationship between foreign trade and GDP in India.

3. DATABASE AND METHODOLOGY

The main source of the data is to collect from the secondary data. The source for annual time series data for India's foreign trade and GDP for the period 1991-2018 is the United Nations Conference on Trade and Development (UNCTAD).

For this study, the time series properties of India's Exports, Imports and GDP are examined by performing unit root test (ADF). The long run association between foreign trade and GDP measured using the Johansen Co-integration Test.
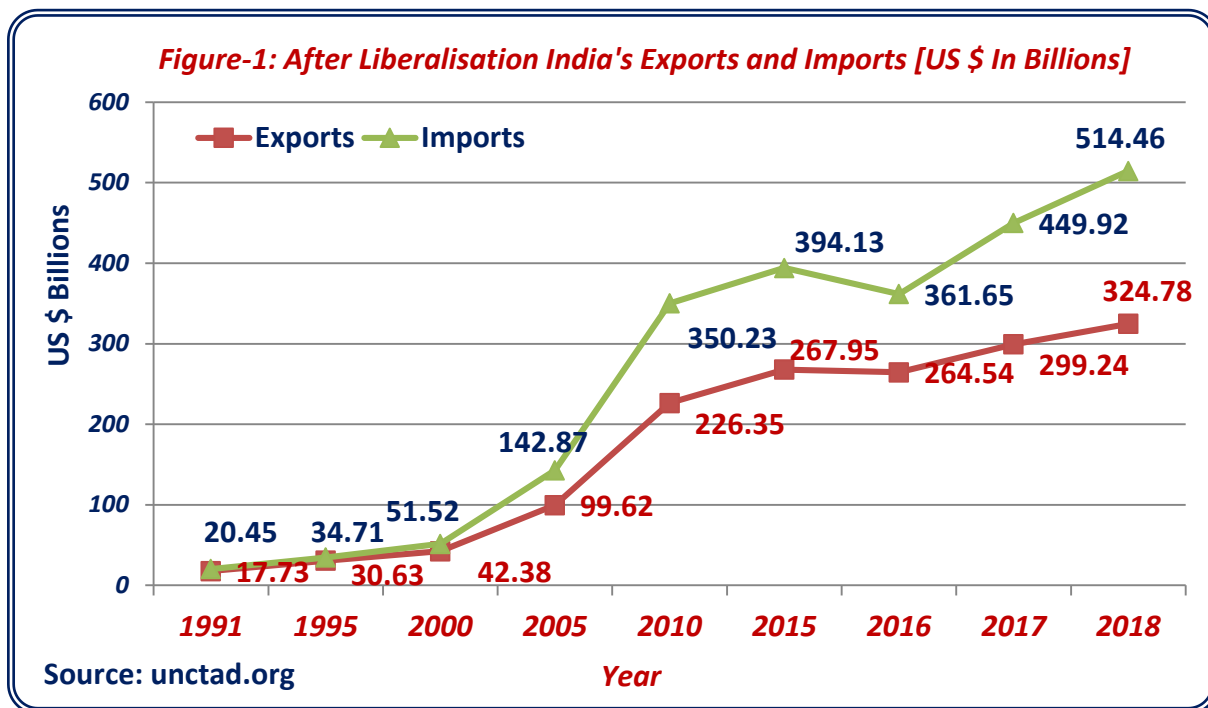
If the series are not co-integrated then the selection of either the Vector Autoregressive (VAR) or the Vector Error Correction (VEC) models for efficient estimation and forecasting can be tested. Lag length for VAR is selected based on Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC). The estimation of co integration using the above said method, involves estimation of following unrestricted VAR model. Finally, examined the Casual relationship between India's Exports, Imports and GDP, using the Granger Causality Test. For the purpose of analyzing data we have used Eviews software.

4. RESULTS AND DISCUSSIONS

This section broadly divided into two sections, first section explores structure of the foreign trade India, and Second section presents casual relationship between foreign trade and GDP in India.

4.1 Structure of the Foreign Trade in India

Foreign trade and Indian economy are closely interlinked. The early policy initiatives aimed at liberalization of India's foreign trade; the outward looking trade policy measures announced in 1991 marks the initiation of a new era in India's foreign trade. According to the United Nations Conference on Trade and Development the total value of India's merchandise exports increased from US $ 17.73 billion in 1991 to US $ 324.78 billion in 2018. The proportions of high value and differentiated products have increased our export basket. The composition of trade is now dominated by manufactured goods and services. Though the gradual liberalization had picked up trade growth, the trade deficit has widened much more following the reforms. The Ministry of Commerce & Industry is working on an action plan to with the objective of making India a US $ 5 trillion economy by 2025. The Department of Commerce has targeted doubling of India's exports by that year.

Figure-1: After Liberalisation India's Exports and Imports [US $ In Billions]

Source: unctad.org

In the year 2018, India's total merchandise imports registered a 10.41 per cent growth to hit a new high of US $ 514 billion, from US $ 20.45 billion in 1991. The Government of India, Ministry of Commerce and Industry announced New Foreign Trade Policy on April 2015 for the period 2015-2020, earlier this policy known as Export Import (Exim) Policy. After five years foreign trade policy needs amendments in general, aims at developing export potential, improving export performance, encouraging foreign trade and creating favorable balance of payments position.

4.2 Casual relationship Exports, Imports and GDP

Stationary Test

In order to analyze the present study, we employ 'Johansen's Co-integration as well as Granger Causality test' for Exports, Imports and GDP. But before examining these two tests it is essential that the data are examined for stationary or non-stationary (testing the time series properties of yearly data). For this purpose, we used Augmented Dickey-Fuller (ADF) test. The tests are based on the null hypothesis that a unit root exists in the variables. The stationary test is very much helpful to avoid spurious and bias result, which may lead to false conclusions. To avoid this problem, the study conducted the unit root tests for all the variables.

The tests were carried out for the series LnEx, LnIm and lnGDP. The Table-1 shows that LnEx, LnIm and LnGDP are non-stationary at level. But, the null hypothesis of a unit root test is rejected in the first difference at the appropriate significant level. Therefore, all variables which we have taken for the present study are following the first order of integration I (1). That means all the variables of the study have achieved stationary after first difference.

Table-1: Unit Root Test - Augmented Dickey Fuller test [ADF]					
Variables		**At Level**		**At First difference**	
		Intercept	*Intercept & Trend*	*Intercept*	*Intercept & Trend*
LnEx I(1)	*ADF Statistic value*	-0.9844	-0.9878	-4.1874*	-4.2060*
	P-value	0.7441	0.9292	0.0032	0.0139
LnIm I(1)	*ADF Statistic value*	-0.8479	-1.0815	-3.9614*	-3.9185*
	P-value	0.7888	0.9138	0.0056	0.0258
LnGDP I(1)	*ADF Statistic value*	0.3919	-2.7064	-3.8358*	-3.7245*
	P-value	0.9788	0.243	0.0075	0.0385

* represent at 5% level significant

Co-integration Test

Co-integration means that despite being individually non stationary, a linear combination of two or more-time series can be stationary. Co-integration of two or more-time series suggests that there is a long run or equilibrium relationship between them (Gujarati & Sangeetha, 2010). The Johansen approach is followed here to check for co-integration which is based on the Trace statistic and maximum Eigen value test statistic. The two tests were carried out for all the three series.

Table-2: Johansen Co-integration test results				
Series: LNEX LNIM LNGDP				
Unrestricted Co-integration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.445546	27.34584	29.79707	0.0934
At most 1	0.306725	12.01176	15.49471	0.1564
At most 2	0.091229	2.487224	3.841466	0.1148
Trace test indicates no co-integration at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigen value)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.445546	15.33408	21.13162	0.2662
At most 1	0.306725	9.524533	14.26460	0.2451
At most 2	0.091229	2.487224	3.841466	0.1148
Max-Eigen value test indicates no co-integration at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values				

Johansen Cointegration test results are presented in Table-2. The empirical result confirms that the values of the trace tests and those of the Eigen value tests are statistically not significant (p>0.05) and lesser than the critical values. This confirms that the H_0 of no co-integration is accepted by both the trace

test and Maximum Eigen value test statistics. This indicates the absence of long run relationship between Exports, Imports and GDP for during the period 1991-2018.

Granger Causality Tests

The direction of causality cannot be traced only through Cointegration tests; therefore, to test the existence of short run causation among the variables, the Granger Causality test under Vector Auto Regression model is applied. The study focuses on bi variate Granger causality analysis to examine the causal impact of Trade on India's economic growth. For the empirical analysis, there are three models to be estimated via using bi variate Granger causality tests. The Findings of the causality analysis are presented in Table-3.

Table-3: Granger Causality Tests			
Null Hypothesis	Obs	F-Statistic	Prob.
LNIM does not Granger Cause LNEX	26	0.24615	0.7840
LNEX does not Granger Cause LNIM		0.27207	0.7644
LNGDP does not Granger Cause LNEX	26	5.15773	**0.0151**
LNEX does not Granger Cause LNGDP		1.64264	0.2174
LNGDP does not Granger Cause LNIM	26	10.5530	**0.0007**
LNIM does not Granger Cause LNGDP		2.38837	0.1163

Firstly, the relationship between India's Exports (LNEX) and its imports (LNIM). At 5% level of significance, LNEX is not LNIM's Granger reason, and also LNIM is not LNEX's Granger reason, which indicates that there exist no direct Granger Causality relationship between Indian exports and imports. Secondly, the relationship between India's GDP (LNGDP) and its Exports (LNEX). At 5% level, the test result rejects the null hypothesis that "LNGDP does not Granger Cause LNEX" with probability of 0.0151. That is to say, LNGDP is the Granger reason of LNEX. At meanwhile, the hypothesis that "LNEX does not Granger Cause LNGDP" with a probability of 0.2174 is accepted at 5% level, which indicates that LNEX is not LNGDP Granger reason. Thirdly, the relationship between India's GDP (LNGDP) and its Imports (LNIM). At 5% level, LNGDP is the Granger reason of LNIM, while, LNIM is not LNGDP Granger reason. It shows that the increase in GDP will expand a country's national income, which will increase the demand for goods and services from outside the country.

5. Conclusions

Foreign trade and Indian economy are closely interlinked. According to the United Nations Conference on Trade and Development the total value of India's merchandise exports increased from US $ 17.73 billion in 1991 to US $ 324.78 billion in 2018. In the year 2018, India's total merchandise imports registered a 10.41 per cent growth to hit a new high of US $ 514 billion, from US $ 20.45 billion in 1991. Augmented Dickey-Fuller (ADF) test stand for that LnEx, LnIm and LnGDP are non-stationary at level but all the variables of the study have achieved stationary after first difference. Johansen

Cointegration test results confirm the absence of long run relationship between Exports, Imports and GDP for during the period 1991-2018. Granger Causality test explaines firstly, the relationship between India's Exports (LNEX) and its imports (LNIM) indicates that there exist no direct Granger Causality relationship between Indian exports and imports. Secondly, LNGDP is the Granger reason of LNEX, meanwhile, LNEX is not LNGDP Granger reason. Thirdly, LNGDP is the Granger reason of LNIM, while, LNIM is not LNGDP Granger reason. It shows that the increase in GDP will expand a country's national income, which will increase the demand for goods and services from outside the country.

References

1. Chow, P.C.Y. (1987), "Causality between Export Growth and Industrial Development; Empirical Evidence from the NICs", Journal of Development Economics, vol. 26, pp. 55-63.

2. Esfahani, H.S. (1991), "Exports, Imports, and Economic Growth in Semi-Industrial Countries", Journal of Development Economics, vol. 35, pp. 93-116.

3. Ishita Ghoshal (2015), "Trade-Growth Relationship in India in the Pre and Post Trade Agreements Regime", 3rd Economics & Finance Conference, Rome, Italy, April 14-17, 2015 and 4th Economics & Finance Conference, London, UK, August 25-28, 2015.

4. Luan,V.(2015), "Relationship between Import-Exports and Economic Growth: The Kosova Case Study", Revista Shkencore Regjionale (REFORMA), 3, 262-269.

5. Mohanamani, P, et.al. (2018), "Causality between Trade and Economic Growth: Evidence from India", International Journal of Pure and Applied Mathematics, ISSN: 1314-3395, Volume 119, No. 17, pp: 2549-2566, 2018.

6. Mishra, P. K. (2011) : The dynamics of relationship between exports and economic growth in India, International Journal of Economic Sciences and Applied Research, ISSN 1791-3373, Vol. 4, Iss.2, pp. 53-70, 2011.

7. Narayan Chandra Pradhan (2010), Reserve Bank of India Occupational papers. Vol.31, No.3. 2010.

8. Raju Guntukula (2018), "Exports, imports and economic growth in India: Evidence from co-integration and causality analysis", Theoretical and Applied Economics, Volume XXV, No. 2(615), summer, pp. 221-23, 2018.

9. Ramos, F. F. R. (2001). Exports, imports, and economic growth in Portugal: Evidence from causality and cointegration analysis. Economic Modelling, 18(4), 613-623.

10. Surya Kumar, P (2012), "Foreign Trade trends in India: Growth and Instability", ISBN: 978-3-659-25302-7, Lap Lambert Academic Publishing GmbH & Co. KG, Germany.

11. Surya Kumar, P et all, (2014) "Growth and Instability of Foreign Trade in India" Asian Academic Research Journal of Multidisciplinary, Online ISSN: 2319 – 2801, Volume-1, Issue-12, pp. 14-23.

12. Surya Kumar, P (2012), "Growth Performance of Foreign Trade in India", published in Education and society, New Delhi, ISSN No: 2319-9687, vol.1, No.1, pp.105-109.

13. Sampath kumar, T., & Rajesh kumar, S. (2016). "Causal Relationship between Export and Economic Growth: Evidence from SAARC Countries", IOSR Journal of Economics and Finance Ver. I, 7(3), 2321-5933. https://doi.org/10.9790/5933-0703013239.

14. United Nations Conference on Trade and Development (UNCTAD), UNCTAD.org, https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en.

15. Uğur, A. (2008), "Import and economic growth in Turkey: Evidence from multivariate VAR analysis", Journal of Economics and Business, 11(1-2), 54-75.