IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

An Empirical Study On The Relationship Between Economic Growth, Exports, And Imports In India

Dr.Radhamma C[1] and Dr.T.P.Shashikumar[2]

[1]Associate Professor, Department of Economics, Government College for Women, Kolar
[1]Associate Professor, Department of Studies and Research in Economics, Karnataka State Open University, Mukthagangothri, Mysuru

Abstract

The present study investigates the interrelationship among Economic Growth, Exports, and Imports in India by employing advanced time series econometric techniques such as Cointegration analysis, the Vector Error Correction Model (VECM), and the Granger Causality test. The primary objective of this study is to examine both the long-run and short-run dynamics among these key macroeconomic variables that play a pivotal role in shaping India's economic performance. The analysis is based on secondary time series data covering the period from 1991–92 to 2022–23, corresponding to the post-liberalization era characterized by major economic reforms and increased openness to international trade. The results of the Johansen cointegration test confirm the existence of a long-run equilibrium relationship among Economic Growth, Exports, and Imports in India, indicating that these variables move together over time and are jointly influenced by underlying economic forces. The findings from the VECM further reveal the presence of a short-run adjustment mechanism, suggesting that deviations from long-run equilibrium are corrected over time, albeit gradually. Furthermore, the Granger causality analysis provides deeper insights into the direction of causality among the variables. The results indicate that Exports Granger-cause GDP, and GDP Granger-causes Exports, signifying a bidirectional causal relationship between economic growth and exports. However, in the case of imports, the findings show that GDP Granger-causes Imports, while Imports do not Granger-cause GDP, implying a unidirectional relationship from economic growth to imports. This suggests that India's rising income and production levels drive the demand for imports, whereas imports themselves do not

[1]Associate Professor, Department of Economics, Government College for Women, Kolar, Email Id: rdhcrdhc20@gmail.com
[2]Associate Professor, Department of Studies and Research in Economics, Karnataka State Open University, Mukthagangothri, Mysuru, Email Id: shashiksou85@gmail.com.

significantly influence the country's economic growth. Overall, the study underscores the crucial role of exports in stimulating economic growth and highlights the importance of maintaining a balanced trade structure to sustain long-term economic development in India.

Key Words: Agriculture, Globalization, Liberalization, Exports, Economic Growth, Industry, Imports, International Trade.

Introduction

India, as one of the fastest-growing major economies in the world, has witnessed substantial economic transformation over the past few decades. A critical element of this transformation is the country's increased integration into the global economy through international trade. Exports and imports play a vital role in shaping India's economic landscape by fostering industrial growth, enhancing employment, improving technological capabilities, and ensuring better utilization of resources. This document provides a comprehensive analysis of how exports and imports contribute to the economic development of India, exploring their impact on various sectors, government policy, trade relations, and the overall macroeconomic environment.

Exports and imports play a crucial role in the economic development of India by enabling the country to engage actively in global trade. Exports generate revenue for the nation by selling goods and services to foreign markets, leading to increased production, employment, and income generation. Sectors such as information technology, textiles, pharmaceuticals, and agriculture have significantly benefited from global demand, contributing to GDP growth and foreign exchange earnings. These earnings help stabilize the Indian rupee and support government spending on infrastructure and welfare programs.

On the other hand, imports allow India to access resources, technology, and raw materials that may not be available or are insufficient domestically. For example, India imports crude oil, machinery, and electronic goods, which are vital for industrial development and meeting domestic consumer demand. Access to advanced technology and capital goods through imports helps Indian industries improve productivity, quality, and competitiveness, which further enhances their export potential in the long term.

Moreover, a balanced trade policy that promotes exports while ensuring strategic imports fosters overall economic resilience. Trade partnerships and agreements with other countries open new markets for Indian products and attract foreign direct investment. By integrating with the global economy, India can diversify its economy, reduce poverty, and achieve sustainable economic development through job creation, innovation, and improved standards of living.

Review of Literature

Krishna Reddy (2020) investigated the relationship between exports, imports, and economic growth in India over the period 1980–2019. The findings confirm the existence of a long-run equilibrium relationship among these variables. In the short run, the analysis reveals unidirectional causality running from economic growth to exports, from exports to economic growth, from exports to imports, and from imports to economic growth. In the long run, the study identifies bidirectional causality between economic growth and exports, as well as between exports and imports. Overall, the results suggest that both exports and imports play a significant role in promoting economic growth in India.

Hassan Mobeen Alam(2011) investigated the export-led growth hypothesis for Pakistan using quarterly time series data from 1971 to 2007. The main objective is to explore the relationship between exports, imports, and GDP growth through the application of co-integration techniques and an error correction model (ECM). After confirming that all variables were stationary at first difference using the Augmented Dickey-Fuller (ADF) test, the authors proceeded with the analysis. In the long run, the co-integration results show a positive relationship between exports, imports, and GDP, suggesting that trade (both imports and exports) supports economic growth. Based on this, the study recommended that the government of Pakistan should encourage trade by reducing restrictions such as tariffs and quotas, and avoid adopting a mercantilist approach that discourages imports.

Fouad Abou-Stait(2005) examined the export-led growth (ELG) hypothesis in the context of Egypt between 1977 and 2003, covering both the pre- and post-economic reform periods following the country's agreement with the IMF in 1991. The reforms aimed at trade liberalization, reducing government intervention, and promoting private investment, with an emphasis on exports as a key growth strategy. Using econometric tools such as the Johansen co-integration test, Granger causality tests, VAR models, and impulse response functions, the study finds that exports, imports, and GDP are not cointegrated, indicating no long-run equilibrium relationship among them. However, it finds that exports Granger cause GDP growth, validating the ELG hypothesis in the short run, though exports do not Granger cause capital formation, showing a weak link between exports and domestic investment. Shocks to exports significantly impact GDP, but not capital formation, reinforcing this conclusion.

Kumari, Jyoti (2014) explained exports and imports are crucial components of international trade and have consistently played a significant role in economic development. Exports enable a country to earn valuable foreign exchange, which in turn supports imports and contributes to overall economic growth. This study investigates the relationship between exports, imports, and GDP at factor cost (at constant prices) in India during the post-liberalization period from 1991–92 to 2012–13. The objective is to analyze how exports and imports have contributed to India's economic growth. The findings reveal that sustained economic growth requires a balanced approach, where imports are supported by corresponding export performance. While exports have a positive impact on economic growth when

imports are held constant, imports tend to have a negative impact on growth when exports are held constant. This suggests that policies promoting export expansion are essential to ensure the long-term benefits of international trade for India's economy.

Murat Karagoz(2005) the study employed time series econometric tools—including causality tests, cointegration analysis, and error-correction models—to examine the dynamic relationship between export growth and economic growth in the Turkish economy. The applied economics literature on the Export-Led Growth Hypothesis (ELGH) has produced mixed results across different countries, often utilizing methodologies such as simple descriptive statistics, Granger causality tests, cointegration techniques, and error-correction models. The cointegration analysis in this study indicates a unidirectional long-run causality from export growth to economic growth in Turkey. Additionally, there is evidence of long-run Granger causality running in the opposite direction-from economic growth to export growth-highlighting the complexity of their interaction.

Objectives of the Study

The objectives of the study are as follows:

1, To analyze the short and long run relationship among GDP, Export and Imports in India.

2, To examine the granger relationship among GDP, Export and Imports in India.

Hypotheses of the Study

The following are the hypotheses of the study

1, There is a s short and long run relationship among GDP, Export and Imports in India

2, There is a Bidirectional causality from exports to GDP in India

Methodology of the Study

The primary objective of this study is to investigate the dynamic relationship among three key macroeconomic variables—Gross National Income (GNI), Exports, and Imports—in India. To examine both the short-run and long-run relationships among these variables, the study employs the Johansen (1988) cointegration test, which allows for the identification of multiple long-run equilibrium relationships in a multivariate framework. To further assess the direction of causality, the Granger causality test is applied based on the Toda and Yamamoto (1995) methodology, which provides robust results irrespective of the integration or cointegration properties of the data. The study adopts a systematic econometric approach. As both the cointegration and Toda–Yamamoto causality tests require specific stochastic properties of the time series, the first step involves testing for stationarity. To determine the order of integration of each variable, the study employs the Augmented Dickey–Fuller (ADF) test, ensuring that the data satisfy the necessary preconditions for subsequent econometric

analysis.

Statistical Tools and Models for the Data Analysis

The present study utilized the advanced time series techniques to test the objectives and hypotheses. In order to test the empirical relationship between exports and GDP, the study has used the test of Granger causality. In order to test the long run relationship between exports and SDP, the study employed the co integration techniques. Johansen test is used to trace the co integrating relationship between exports and GDP. The Vector Error Correction Model is also used to account explicitly for the dynamics of short run adjustment towards long run equilibrium. The time series properties of the variables are tested using Augmented Dickey Fuller and Phillips-Perron test. In the present study all the variables are measured in terms of rupees.

Unit Root Test:

The first step involves determining the order of integration of the variable under consideration. To test the order of integration, the Augmented Dickey-Fuller (ADF) test is employed. In this study, both forms of the unit root test are utilized to ensure a more accurate assessment of the stationarity of the data series. The ADF test is conducted by regressing the first difference of the series on its lagged level, lagged differences, and, if necessary, including a constant and a time trend. The results of the unit root tests are presented in Table 1.

Table 1 : Results of Augmented Dickey Fuller Unit root Test:

Variable	Level		First Difference		Second Difference	
	ADF-T Statistic	P-Value	ADF-T Statistic	P-Value	ADF- T Statistic	P-Value
LNEXPORT	2.400529	0.9999	-3.953035	0.0050**	…….	…..
LNGDP	-1.441414	0.5465	-0.353907	0.9042	-7.779521	0.0000*
LNIMPORT	2.543977	1.0000	-2.091043	0.2495	-8.439768	0.0000*

Note: * and **indicate the statistical significance at the 1%, and 5% levels of significance respectively.

The above Augmented Dickey-Fuller of unit root test results show that, all time series are non-stationary at level, which indicates we do not reject the null hypothesis of unit root at 5% level of significance. Because The ADF test values lesser than the test critical value, therefore we accept null hypothesis (HO) of a unit root i,e the existence of non-stationarity. But the time series have been found to be stationary at first difference and second difference, therefore we do reject null hypothesis of unit

root at 5% level of significance. Because the ADF test values are greater than the test critical value, therefore we reject null hypothesis (HO) of a unit root i,e the existence of non-stationarity.

Co integration Test:

After testing the order of integration of the data series, the next logical step is to estimate the long-run relationship using appropriate econometric techniques. To assess the existence of a long-run equilibrium relationship among exports, Gross Domestic Product (GDP), and imports, a co-integration test is conducted. In the present study, the Johansen co-integration test is employed to examine the long-run relationship among the variables. The results of the co-integration test, indicating the long-run association between exports and the other variables, are presented in Table 2.

Table 2 : Results of Johansen Tests for Co integration

Maxi. Rank	LL	Eigen Value	5%Critical Value	P Value
0	0.880284	82.39193	35.01090	0.0000
1	0.466109	20.83565	18.39771	0.0224
2	0.086897	2.636293	3.841466	0.1044

The results of Johansen Co integration test reveals that, the null hypothesis of no co integration is rejected at both 1% and 5% level of significance, which implies that there is one co integrating relationship exists between the selected variables. But, the study can reject the hypothesis of more than one co integrating relationship, since the calculated value of trace statistics is greater than (20.83565) critical value at 5% level of significance. Hence, it can be concluded that there is only one co integrating relationship, which means there is long run relationship between our chosen variables.

Vector Error Correction Model:

Once co-integration among the variables is confirmed, the third step involves constructing an Error Correction Mechanism (ECM) to model the dynamic relationship. The purpose of the ECM is to capture the speed at which the system adjusts from short-run disequilibrium to long-run equilibrium. It provides a framework through which a portion of the short-run deviation is corrected in the subsequent period. Thus, the ECM serves to reconcile short-run fluctuations with long-run behavior. The results of the Vector Error Correction Model (VECM) are presented in Table 3.

Table 3: Results of Vector Error Correction Model:

DLNGSDP	Coefficient	Std. Error
U_{t-1}	-.5642	.07214
Dlngexport	.34036	. 242165
Dlnaggdp	.98393.19	.68961
Dlnsgimport	.49217	.120740
Constant	.3962315	.1117176

The error corrects the short run disturbance of the long run equilibrium. The value of lag error term in the result is negative with a value of -.5642 and statistically significant at 5% level of significance. It means that the error in the short period is corrected by .5% for every period and the variable tends towards long run equilibrium. Precisely, the speed of adjustment of any disequilibrium towards a long run equilibrium is that about .6% of the disequilibrium in each year. Furthermore, the negative and statistically significant value of error correction coefficient indicates the existence of long run causality among the variables.

Granger Causality Test:

While the co-integration test examines the long-run relationship among the selected variables, it does not identify the direction of causality between them. Therefore, the Granger causality test is employed to determine the cause-and-effect relationship. This statistical hypothesis test assesses whether one time series is useful in forecasting another. In the Granger sense, variable X is said to cause Y if past values of X help improve the prediction accuracy of Y, beyond what is possible using only past values of Y. The results of the Granger causality test are presented in Table 4.

Table 4 : Pairwise Granger Causality Tests

Null Hypothesis	Obs	F-Statistic	Probability
LNEXPORTS does not Granger Cause LNGDP	32	3.94031	0.0325
LNGDP does not Granger Cause LNEXPORTS	32	6.15930	0.0067
LNIMPORT does not Granger Cause LNGDP	32	2.08063	0.1459
LNGDP does not Granger Cause LNIMPORTS	32	5.42482	0.0110

For the null hypothesis 1, in the above results depicts reject the null hypothesis, therefore alternative hypothesis has been accepted which means export does granger cause GDP. Whereas, for the null hypothesis 2, the study reject the null hypothesis that means GDP does granger cause exports. The third null hypothesis is accepted which means Import does not granger cause GDP. As for as fourth null hypothesis is concerned it is rejected null hypothesis which means GDP does granger cause Imports. From the above granger causality test, it can be concluded that only the exports granger cause GDP and GDP granger cause exports. But GDP granger cause Imports but Imports does not granger cause GDP. Therefore the relationship between GDP and Imports are unidirectional relationship.

Conclusion

In conclusion, exports and imports are two sides of the same coin that together drive India's economic development. Exports generate income, create jobs, and encourage industrial growth, while imports provide essential inputs, technology, and consumer goods that support domestic development. A balanced and strategic approach to trade policy, backed by infrastructure development, investment in human capital, and global cooperation, can ensure that international trade continues to be a pillar of India's growth story. By leveraging trade effectively, India can achieve inclusive and sustainable economic development, improving the lives of millions and securing its position as a global economic powerhouse. The cointegration test confirmed a long-run relationship India's Economic Growth, Exports and Imports, while the VECM results indicated the presence of a short-run equilibrium relationship. Furthermore, the Granger Causality test concluded that only the exports granger cause GDP and GDP granger cause exports. But GDP granger cause Imports but Imports does not granger cause GDP. Therefore the relationship between GDP and Imports are unidirectional relationship.

References

1. Afexntion, P.C. and Serletis, A., (1991), "Exports and GNP Causality in the Industrial Countries : 150- 1985". Kyklos, Vol. 442, P.No. 167-174.
2. Anwer, M.S. and Sampath, R.K., (2001), "Exports and Economics Growth", Indian Economic Journal", Vol. 47, No. 3, P.No. 79-88.
3. Chandra, R., (2001), "Export Growth and Economic Growth : An Investigation of Causality in India", The Indian Economic Journal, Vol. 49, No. 3, pp. 64-73.
4. Fouad Abou-Stait(2005), "Are Exports the Engine of Economic Growth? An Application of Cointegration and Causality Analysis for Egypt, 1977-2003", African Development Bank, Economic Research Working Paper No 76, P.No.01-18.
5. Hassan Mobeen Alam(2011), "An Econometric Analysis of Export - Led Growth Hypothesis: Reflections from Pakistan", Interdisciplinary Journal of Contemporary Research in Business, Vol- 2, No- 12.P.No.329-338.
6. Jyothi Kumar (2014), "Export, Import and Economic Growth in India: A Study", Management Dynamics: Vol.14: No. 1, P.No.62-73.

7. Krishna REDDY(2020), "Exports, imports and economic growth in India: An empirical analysis", Theoretical and Applied Economics Volume XXVII, No. 4(625), Winter, P.No. 323-330.
8. Murat Karagoz and Ali Sen (2005), "Exports and Economic Growth of Turkey: Co-integration and Error-Correction Analysis" Elektronik Sosyal Bilimler Dergisi C.4 S.13, P.No.1-15.
9. Sachin N. Mehta(2015), The Dynamics of Relationship between Exports, Import and Economic Growth in India, International Journal of Research in Humanities & Soc. Sciences Vol. 3, Issue: 7.