Theoretical and Applied Economics
Volume XXXII (2025), No. 1(642), Spring, pp. 289-302

Macro analysis of linkages between export, import and economic growth: evidence from the Indian economy

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Abstract. *This paper examines the long run and short run relationship between export and import of goods and services and Gross Domestic Product (GDP) in India from 1991 to 2023 using cointegration analysis, Vector Autoregressive (VAR) test, VAR Granger Causality test and Impulse Response Function analyses. The Johansen cointegration tests find that, there is no consistent, long-term relationship between GDP, export, and imports. Further the result of VAR Granger causality Test shows that export cause effect GDP, Import cause effect GDP, and Export cause import, which confirm that causality between the variables.*

Keywords: economic growth, trade, cointegration and causality.

JEL Classification: C22, F14, F43.

1. Introduction

India's economy is commonly described as a 'mixed economy', which signifies a combination of government regulation in key sectors of industrial growth along with certain liberties for private businesses. Import substitution stands out as the primary feature of India's trade policy. Following independence in 1947, her import policy underwent liberalization, but it was halted by the foreign exchange crisis during 1956-57. However, in July 1991, more comprehensive reforms were introduced to address the balance of payments crisis. Concurrently, India began to further open up its economy to global trade (Konya and Singh, 2008). The World Bank suggested in the early 1990s that trade and macroeconomic policies be drastically altered in order to move the Indian economy into an export-oriented trajectory. Export is regarded an engine of growth, based on economists. However, trade has positive as well as negative impacts on economic growth. According to Dodaro (1991), economies in export-oriented nations would grow more rapidly than those in less export-oriented nations.

Export and import of goods and services is very fundamental source of economic development in Indian economy as India has not self-reliant in all aspects. In this situation, India depends on importing of goods and service from partner countries. Such as India after satisfy domestic needs exporting goods and service. India creates a more income besides it establishes mutual relationship with partner countries, thereby influencing Indian economic growth. Exporting and importing of goods and services reduces poverty, create employment opportunities, improves infrastructure, increases sale and profits, market diversity, commodity and service varieties, customer satisfaction, foreign exchange earnings, government revenue through duties, and ultimately increases standard of living.

2. Review of Literature

Chandra (2003) noted that, there exists a long-term relationship between real exports, GDP, and terms of trade in India, as they are cointegrated. The data indicates a bi-directional causal relationship between real exports and real income over the long term. Nevertheless, the causality that flows from income to exports is considerably more robust than the reverse relationship. Income growth promotes export growth, while export promotion strategies positively influence income growth. A balanced approach, emphasizing exports and domestic production, is more successful in India. Dawson (2005) and Singh and Konya (2006) found export-led growth, with GDP and imports jointly Granger-causing exports.

Guntukula's 2018 study on India's export, import, and economic growth found a long-term relationship and bidirectional causality between exports and economic growth, confirming the existence of this relationship. Devkota (2019) and Reddy (2020) found that a long-term equilibrium relationship and a bidirectional causality between economic growth and exports and imports. The study also confirmed that neither exports nor imports significantly boost India's economic growth, contradicting the validity of the ELG, growth led export (GLE), and import led growth (ILG) hypotheses.

Singh and Kumar (2020) showed that Johnson cointegration test revealed a long-term (1995 to 2018) cointegration between India's GDP, exports, and imports. The VECM

Granger causality test reveals a bidirectional relationship between India's GDP and exports, while a unidirectional relationship exists between GDP and imports, affecting India's export-import policy.

Sharma and Panagiotidis (2003) and (2005) reanalysed India's growth sources from 1971 to 2001, focusing on the export-led growth using Engle-Granger and Johansen approaches to examine cointegration of exports and GDP, Granger growth impact, and macroeconomic shocks. It contradict recent ELG hypothesis, but support it using the Johansen approach. It also argues against the Granger hypothesis and highlights India's import substituting economy. Singh (2008) and Paul, and Das (2012) both found no-cointegration between Indian exports and imports between 1949-50 and 2004-2005, indicating that India's macroeconomic policies have failed to achieve long-term equilibrium, violating its international budget constraint. Export growth significantly influences output growth, but the opposite is not true.

Kumari and Malhotra (2014) observed no long-term equilibrium relationship between exports and GDP per capita in India, supporting the Export-led Growth Hypothesis. Khemka et al. (2018) revealed that exports don't significantly impact economic growth in the long run, but their short-term impact is significant. It suggests enhancing domestic demand and capital accumulation for long-term growth, rather than export enhancement. Javed and Farhat (2022) also found no evidence of export-led growth. The VAR model and Granger causality test confirm GDP leads to long-term export growth.

Many studies examine the export, import and GDP relationship for India, but the results are inconclusive. It is therefore clear that the evidence regarding exports, imports and economic growth nexus is rather ambiguous and results are mixed. Some studies included imports and some studies are excluded imports, there are gap in the study period. So, the present study examines the trade of goods and services and their relationship with GDP in India during 1991 to 2023.

3. Methodology

3.1. Data

The study uses secondary data from 1991 to 2023. Dash (2009) and Paul and Das (2012) highlighted that liberalization has significant role in India's export-led growth, so the study focusing from the post-liberalization period. The research information gathered from the World Development Indicators, World Bank Data Bank and measures economic growth using GDP aggregate series, export and import data based on current US$.

The study transforms GDP, Export, and Import data into natural logarithms to examine stationarity, and employs the Johansen cointegration test.

3.2. Unit Root Test

Before testing for Johansen cointegration econometric methodology needs to examine the stationarity for each individual time series. For this study used Augmented Dickey Fuller unit root test (Dickey and Fuller; 1979, 1981) at the levels and first differences of the

variables. The ADF statistics are calculated using Fuller's table's critical values. If the test statistic is less than the critical value, the null hypothesis is rejected, indicating non-stationary or non-integrated series of order zero. A variable is considered integrated of order zero if it is stationary without differencing, and order one if it is stationary only after the first difference. Having concluded from the ADF results, each time series is non-stationary at level, but the series have been found to be stationary at first difference i.e. integrated of order one I(1).

3.3. Johansen Cointegration Test

Through cointegration, a linear combination of two or more time series can be stationary even though they are not stationary separately. Economically, cointegrated variables have a long-term, equilibrium relationship between them (Gujarati 2010). The Engle Granger approach and Johansen-Juselius can be used to study the cointegrating relationship between variables with unit roots and same order.

This study applies Johansen cointegration test to find the long-run relationship among the economic growth, exports and imports, (Johansen, 1988; and Johansen and Juselious, 1990). The study test Johansen cointegration between GDP, export of goods and services and import of goods and services in India. The Johansen method for testing cointegration relies on two statistical measures: the trace test statistic and the maximum eigenvalue test statistic. This methodology evaluates the null hypothesis of no cointegration in contrast to the alternative hypothesis that suggests the presence of cointegration. The decision to reject or accept the null hypothesis is determined by the p-value and the comparison of the trace statistics with the critical value, as well as the maximum eigenvalue statistic with its corresponding critical value.

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^{n} \ln(1 - \lambda_i)$$

$$\lambda_{max}(r, r+1) = -T \ln(1 - \lambda_{r+1})$$

Where,

The symbol λ represents the ith largest eigenvalue of a matrix, and T denotes the number of observations. Additionally, λi signifies the ith latest established correlation, while λr+1 corresponds to the squared eigenvalue of the $(1+r)^{th}$ largest eigenvalue. The λtrace test is employed to assess the null hypothesis $r = 0$ against the alternative of $r > 0$, whereas the λmax test is utilized to evaluate the null hypothesis $r = 0$ against the alternative of $r = 1$.

3.4. Vector Autoregressive

In this investigation, the three variables GDP, Export, and Import are found to be non-co-integrated, thereby allowing for the implementation of a Vector Autoregressive (VAR) Model. The study uses a VAR model to analyse the dynamic impact of unitary shocks on macroeconomic variables, focusing on the first differences of these variables. A VAR representation is utilised in order to analyse the dynamic impact of random disturbances on the system of variables. VAR is a statistical model that captures the relationship between multiple quantities over time, generalizing the single-variable autoregressive model to include multivariate time series.

The demonstration will perform by using a VAR model, which can be written as the following,

$$GDP_t = \beta_0 + \sum_{i=1}^{p} \beta_{1i}\, GDP_{t-i} + \sum_{i=1}^{p} \beta_{2i}\, EXPORT_{t-i} + \sum_{i=1}^{p} \beta_{3i}\, IMPORT_{t-i} + \epsilon_{1t}$$

$$EXPORT_t = \beta_0 + \sum_{i=1}^{q} \beta_{1i} EXPORT_{t-i} + \sum_{i=1}^{q} \beta_{2i}\, GDP_{t-i} + \sum_{i=1}^{q} \beta_{3i}\, IMPORT_{t-1} + \epsilon_{2t}$$

$$IMPORT_t = \beta_0 + \sum_{i=1}^{r} \beta_{1i} IMPORT_{t-i} + \sum_{i=1}^{r} \beta_{2i}\, GDP_{t-i} + \sum_{i=1}^{r} \beta_{3i}\, EXPORT_{t-i} + \epsilon_{3t}$$

The β short term coefficients and p, q and r are the log orders, ε_{it} (i = 1,2,3) are serially uncorrelated error terms.

3.5. Granger Causality Test

To examine the causal relationship between exports, imports and economic growth in India the study used Granger causality technique proposed by Granger (1969). The Granger causality method involves regressing a variable y against its own lagged values as well as the lagged values of another variable x. If the variable x is found to be statistically significant, it accounts for a portion of the variance in y that is not explained by the lagged values of y. This indicates that x precedes y in a causal manner and is described as dynamically influencing y.

3.6. Impulse Response Functions

The analysis is extended using the VAR system, generating impulse response functions. A shock to one variable directly affects all endogenous variables through the dynamic structure. An impulse response function (IRF) traces the effect of a one-time shock on endogenous variables.

The construction of the VAR model, along with the estimated impulse response functions, enables the simulation of the effects of shocks on a specific variable and their subsequent influence on other variables. The primary objective of the impulse response function (IRF) is to assess how the model's variables respond or change over a defined time period (Lutkepohl, 2010). In conclusion, the VAR model encompassing "GDP-EXPORT-IMPORT" serves as a suitable representation for illustrating the autoregressive relationships among exports, imports, and GDP in India. This model allows for the identification of nine impulse responses, which assess the impact of shocks on the fluctuations in current or future values of the export, import, and GDP variables.

The study examines long-run and short-run relationships among GDP, export, and import endogenous variables using cointegration analysis, VAR, and response, commonly using Granger Causality and Impulse Response Function analyses.

The research examined the contributions of several researches concerning cointegration, including Sharma and Panagiotidis (2003, and 2005), Bakari (2019), Mukit (2020), and Kumari et al. (2023), as the VAR framework analysis represent a multifaceted investigative approach.

4. Results and Discussion

Table 1 shows summary of the data, for this analysis data take as form of log.

4.1. Summary of the Data

Table 1. *Summaries of the Data*

	LNGDP	LNEXPORT OF GOODSAND SERVICES	LNIMPORT OF GOODS AND SERVICES
Mean	27.63875	25.83130	25.94850
Median	27.81242	26.25696	26.43635
Maximum	28.89795	27.38002	27.52294
Minimum	26.32208	23.85630	23.85621
Std. Dev.	0.862297	1.178775	1.212404
Skewness	-0.079775	-0.302567	-0.332498
Kurtosis	1.505707	1.532021	1.544444
Jarque-Bera	3.105257	3.466583	3.521189
Probability	0.211691	0.176702	0.171943
Sum	912.0786	852.4329	856.3006
Sum Sq. Dev.	23.79382	44.46437	47.03757
Observations	33	33	33

Based on this table mean GDP has the highest average value, with exports having a slightly lower mean than imports. The median follows the same pattern as the mean, with GDP being the highest, followed by imports and then exports. The range of values is highest for GDP, as seen from both the maximum and minimum values. The range of exports and imports is comparable, although exports exhibit slightly lower minimum and maximum values in relation to imports. Imports exhibit the greatest standard deviation, signifying the highest level of variability, with exports following closely behind. In contrast, GDP demonstrates the least variability among the three categories. All the variable show minimum in 1991. The maximum in 2023 except import, import has maximum in 2022. All variables exhibit a minor negative skewness and a lower kurtosis compared to a normal distribution.

4.2. Unit Root Test

Table 2. *Unit Root Test*

Variables		Model	Test Statistics	5% critical	p-value	Result
LNGDP	Level	Intercept	-0.456389	-2.957110	0.8871	Do not Reject
		Intercept with trend	-1.513251	-3.557759	0.8038	Do not Reject
	First Difference	Intercept	-5.416042	-2.960411	0.0001	Reject Null Hypothesis
		Intercept with trend	-5.338370	-3.562882	0.0007	Reject Null Hypothesis
LNEXPORT	Level	Intercept	-1.346619	-2.957110	0.5955	Do not Reject
		Intercept with trend	-0.742819	-3.557759	0.9607	Do not Reject
	First Difference	Intercept	-4.135363	-2.960411	0.0031	Reject Null Hypothesis
		Intercept with trend	-4.261866	-3.562882	0.0105	Reject Null Hypothesis
LNIMPORT	Level	Intercept	-1.478985	-2.957110	0.5312	Do not Reject
		Intercept with trend	-0.881841	-3.557759	0.9460	Do not Reject
	First Difference	Intercept	-4.193423	-2.960411	0.0026	Reject Null Hypothesis
		Intercept with trend	-4.291743	-3.562882	0.0098	Reject Null Hypothesis

The test statistics are significant, with p-values below 0.05, indicating the null hypothesis of a unit root can be rejected and the series is stationary at the first difference, it means that they are integrated of order one.

The ADF unit root test indicates that all series are integrated at the first difference, denoted as I (1), rather than at the level, I (0). The test results indicate that a series of GDP, exports, and imports contain a single unit root, which is necessary for the cointegration test.

4.3. Johansen Cointegration Test

Table 3. *Johansen Cointegration Test*

Series: LNGDP, LNEXPORT and LNIMPORT
Lags interval (in first differences): 1 to 1
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.341295	24.80454	29.79707	0.1685
At most 1	0.268113	11.86268	15.49471	0.1636
At most 2	0.068107	2.186662	3.841465	0.1392

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.341295	12.94185	21.13162	0.4576
At most 1	0.268113	9.676021	14.26460	0.2341
At most 2	0.068107	2.186662	3.841465	0.1392

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The number of cointegrating relationships can be determined using the trace statistic or the maximum eigenvalue statistic. The findings indicate that the Trace statistic value is less than the critical value of 5%, which means that the null hypothesis of no cointegration, is not rejected. In a similar vein, the Max-Eigen statistic value is less than the critical value of 5%, meaning that the null hypothesis of no cointegration, is not rejected. Thus, the findings imply that there is no consistent, long-term relationship between GDP, export, and imports. This result is contradictory to the findings of Mehta (2015), Guntukula (2018), Devkota (2019), Reddy, (2020), and Singh and Kumar (2020).

Multivariate cointegration analysis over the period of 1963–92 finds that no long-run effect of exports on Indian output by Dhawan and Biswal (1999). They, however, find that a short-run causality from exports to GDP. The study reveals no long-term cointegration relationship between India's exports, imports, and GDP, despite conducting tests with VAR and impulse responses.

4.4. Lag Selection Criterion

The VAR model can be applied after demonstrating exogenous variables are not cointegrated, but a lag selection criterion must be explained before construction. The VAR lag order selection criteria are used to select the optimal lag length for the VAR time series model, based on Schwarz Information and Akaike Information criteria.

Table 4. *VAR Lag Order Selection Criteria*

Lag	Log L	LR	FPE	AIC	SC	HQ
0	25.36194	NA	4.74e-05	-1.442706	-1.303933	-1.397469
1	133.0639	187.6099*	8.17e-08*	-7.810575	-7.255483*	-7.629629*
2	142.1037	13.99715	8.31e-08	-7.813144*	-6.841734	-7.496489

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion

The AIC criteria, which suggests a lag of 2 for the GDP, export, and import of the VAR model, was taken into consideration. The AIC value for lag 2 is the lowest among the computed AIC values. AIC penalizes models with more parameters to avoid over fitting.

4.5. Vector Autoregressive Model

Table 5. *Vector Autoregressive Test*

	LNGDP	LNEXPORT OF GOODS AND SERVICES	LNIMPORT OF GOODS AND SERVICES
LNGDP(-1)	0.637472	0.507716	0.552226
	(0.27478)	(0.44640)	(0.51475)
	[2.31997]	[1.13737]	[1.07280]
LNGDP(-2)	-0.024127	-0.720428	-0.851654
	(0.24433)	(0.39694)	(0.45772)
	[-0.09875]	[-1.81497]	[-1.86065]
LNEXPORT OF GOODS AND SERVICES(-1)	0.781686	1.772257	1.591117
	(0.33423)	(0.54298)	(0.62613)
	[2.33878]	[3.26393]	[2.54119]
LNEXPORT OF GOODSAND SERVICES(-2)	0.249178	0.108117	-0.091356
	(0.38781)	(0.63004)	(0.72652)
	[0.64252]	[0.17160]	[-0.12574]
LNIMPORT OF GOODS AND SERVICES(-1)	-0.591974	-0.781831	-0.426590
	(0.29274)	(0.47558)	(0.54841)
	[-2.02219]	[-1.64395]	[-0.77787]
LNIMPORT_OF GOODS AND SERVICES(-2)	-0.142494	0.045520	0.145234
	(0.31465)	(0.51118)	(0.58946)
	[-0.45286]	[0.08905]	[0.24639]
C	3.207012	2.315259	2.835922
	(1.15752)	(1.88050)	(2.16846)
	[2.77058]	[1.23120]	[1.30780]
R-squared	0.994639	0.992157	0.990091
Adj. R-squared	0.993298	0.990196	0.987614
Sum sq. resids	0.108732	0.286975	0.381595
S.E. equation	0.067309	0.109349	0.126094
F-statistic	742.0666	506.0140	399.6890
Log likelihood	43.63212	28.58929	24.17234
Akaike AIC	-2.363363	-1.392857	-1.107893
Schwarz SC	-2.039559	-1.069054	-0.784089
Mean dependent	27.72160	25.95533	26.07748
S.D. dependent	0.822200	1.104390	1.133011
Determinant resid covariance (dof adj.)		4.51E-08	
Determinant resid covariance		2.09E-08	
Log likelihood		142.1037	
Akaike information criterion		-7.813144	
Schwarz criterion		-6.841734	
Number of coefficients		21	

Based on the above table, LNGDP(-1) has a coefficient of 0.637472 and a t-statistic of 2.31997, suggesting that a 1% increase in LNGDP from the previous period is associated with a 0.64% increase in current GDP, and this is statistically significant. LNGDP (-2) has a small negative coefficient (-0.024127), but its t-statistic (-0.09875) indicates it's not statistically significant. LNEXPORT (-1) has a coefficient of 0.781686 with a t-statistic of 2.33878, suggesting a strong and statistically significant positive relationship between exports (at lag 1) and GDP. LNIMPORT (-1) has a negative coefficient (-0.591974) and is significant (t-statistic -2.02219), indicating that higher imports reduce GDP in the short run.

In the case of export of goods and services is dependent variable, LNGDP (-1) has a positive but insignificant effect (0.507716, t = 1.13737). LNGDP (-2) has a negative but insignificant effect. LNEXPORT (-1) significant positive effect (1.772257, t = 3.26393), indicating exports are highly autoregressive. LNIMPORT (-1) has a negative but insignificant effect.

Import of goods and services as dependent variable, LNGDP (-1) has a positive but insignificant effect (0.552226, t = 1.07280). LNEXPORT (-1) has a positive and significant effect (1.591117, t = 2.54119), suggesting that exports increase imports. LNIMPORT (-1) has a negative and insignificant effect (-0.426590, t = -0.77787).

The R-squared for the GDP equation is 0.9946, meaning that 99.46% of the variation in LNGDP is explained by the model. All the R-squared values are high, suggesting a good fit.

4.6. VAR Granger Causality Test

After that, the VAR causality test was used to examine the causality between GDP, export of goods and services, and import of goods and services based on the following hypotheses:
H0. Export and Import do not cause GDP.
H0. GDP and import do not cause Export.
H0. GDP and export do not cause Import.

This study identifies two types of cause-effect relationships: individual and jointly variable cause-effect.

Table 6. *VAR Granger Causality/Block Exogeneity Wald Tests*

Dependent variable: LNGDP					
	Chi-sq	df	Prob.	Decision	Outcomes
LNEXPORT OF GOODS AND SERVICES	8.984027	2	0.0112	Reject H0	Export cause GDP
LNIMPORT OF GOODS AND SERVICES	6.597414	2	0.0369	Reject H0	Import cause GDP
All	11.36891	4	0.0227	Reject H0	Export and Import cause GDP
Dependent variable: LNEXPORT OF GOODS AND SERVICES					
	Chi-sq	df	Prob.	Decision	Outcomes
LNGDP	4.144379	2	0.1259	Accept H0	GDP cannot cause Export
LNIMPORT OF GOODS AND SERVICES	3.295639	2	0.1925	Accept H0	Import cannot cause Export
All	5.578954	4	0.2329	Accept H0	GDP and Import cannot cause Export
Dependent variable: LNMPORT					
	Chi-sq	df	Prob.	Decision	Outcomes
LNGDP	4.754551	2	0.0928	Accept H0	GDP cannot cause Import
LNEXPORT OF GOODS AND SERVICES	7.706593	2	0.0212	Reject H0	Export cause import
All	11.11342	4	0.0253	Reject H0	GDP and Export cause import

Table 6 shows individual cause effects are 1) export cause effect GDP. 2) import cause effect GDP. 3) export cause import. 4) GDP cannot cause effect export. 5) import cannot cause effect export. 6) GDP cannot cause effect import. Figure 1 shows individual cause effects.

The following types of jointly variables cause effect, 1) export and Import to GDP: jointly (export and import) cause effect GDP. 2) GDP and import to export: jointly (GDP and import) cannot cause effect export. 3) GDP and export to import: jointly (GDP and export). Figures 2 and 3 show the jointly cause effects relationship. Shortly both exports and imports have a unidirectional causality towards GDP. Also export has a unidirectional causality towards import.

Based on the results, we reject the null hypothesis that export and import do not cause GDP. There is evidence to suggest that both export and import have a significant effect on GDP. We fail to reject the null hypothesis that GDP and Import do not cause export. There is no significant evidence that GDP and Import jointly affect export. Also we reject the null hypothesis that GDP and export do not cause import. Based on the result exports increase GDP, export-friendly policies may help to spur economic expansion. Feder (1983) pinpoints two pathways through which exports affect growth: firstly, through positive externalities of the export sector on the non-export segment, and secondly, through a greater productivity differential within the export sector.

Figure 1. *Individual Cause effect*

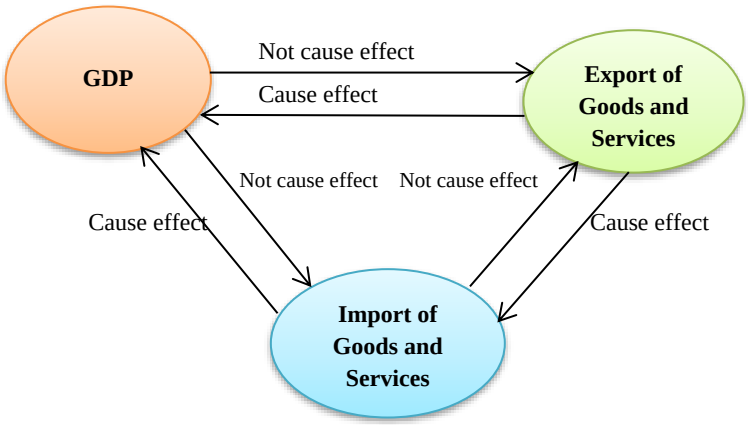


Figure 2. *Joint Cause effect of Export and Import to GDP*

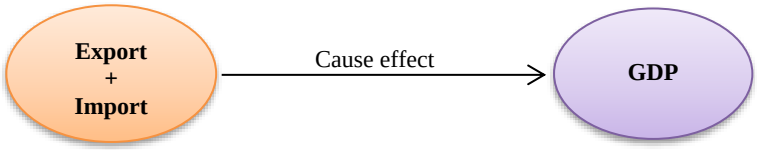
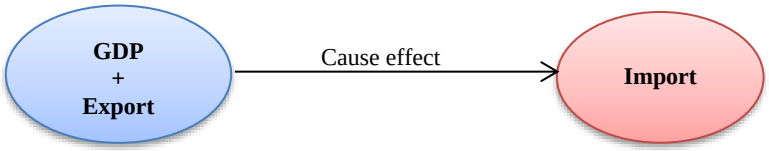
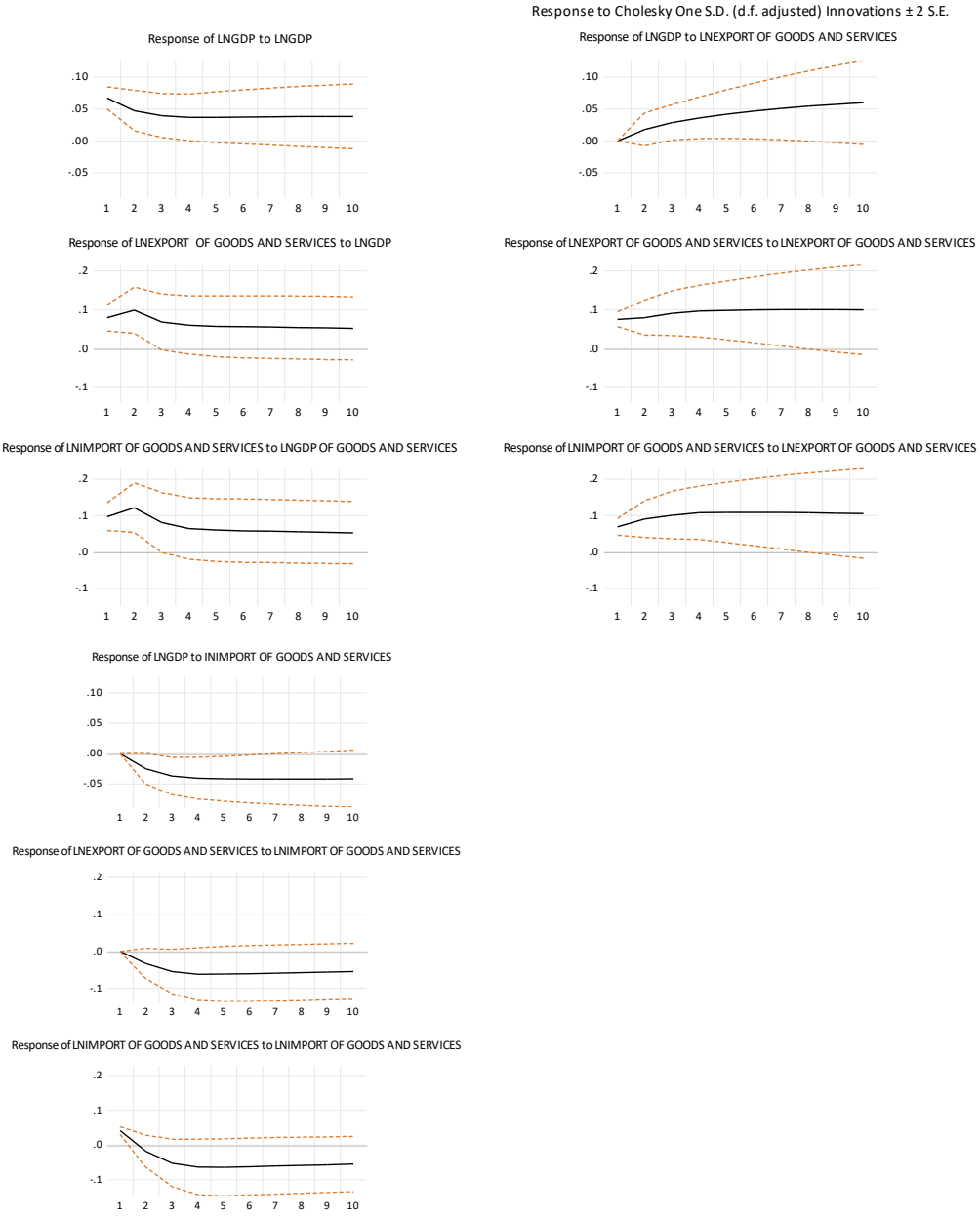


Figure 3. *Joint Cause effect of GDP and Export to Import*



4.7. Identification of impulse Response function



Export shocks lead to a positive GDP response, peaking around the eighth period, emphasizing exports' significant contribution to economic growth over time. Import shocks initially reduce GDP; likely due to higher imports reduce domestic production and aggregate demand. GDP shocks boost exports due to increased domestic economic activity, production capacity, and global market competitiveness, indicating a positive response to GDP shocks. Import shocks initially cause negative export responses, stabilizing over time due to potential substitution effect, where increased imports reduce domestic demand, negatively impacting exports. Imports respond positively to GDP shocks, as increased domestic activity increases demand for imported goods and services, indicating that economic growth. A shock to exports leads to a positive response in imports, indicating a complementary relationship between exports and imports, as higher exports boost income and demand.

The null hypothesis of the Jarque-Bera test is that the data is normally distributed. The p-values are greater than 0.05. This means there is no significant evidence to reject the null hypothesis, indicating that the data for each component and the joint distribution appear to be normally distributed.

5. Conclusion

This study examined the export and import of goods and services and Economic growth/GDP relationship in India from 1991 to 2023 with an objective of the study is to examine long run and short run relationship between exports, import and GDP in Indian economy. All the variables are taken in their natural logarithms. The study used unit root test, Johansen co-integration test, Vector Autoregression (VAR) test, VAR Granger causality test and impulse Response function. The study finds that there is no consistent, long-term relationship between GDP, export, and imports. There is no co-integration in the study, proceed with VAR, VAR Granger causality test and impulse Response function. VAR Granger Causality/Block Exogeneity Wald Tests and impulse responses, it is evident that export growth significantly contributes to GDP, but there is no reverse. There is a cause effect between export and GDP, import and GDP, and export and import. Also jointly cause effect of export and import to GDP and cause effect of GDP and export to import. The finding of export-led growth for India as an outcome of trade liberalisation has implications for other developing economies that aspire to grow fast but confront dilemmas with trade liberalisation policy as observed by Paul and Das (2012). Exports influence imports, but there is no reverse causality from import to export and GDP to exports or imports in this analysis. Based on the result, exports increase GDP, export-friendly policies may help to spur economic expansion in Indian economy. Javed and Farhat (2022) suggested that enhancing economic and political stability in a country can lead to higher GDP growth and improved export performance. Focusing solely on export promotion policies will be ineffective without a stable economy.

Acknowledgment

Athira thanks Indian Council of Social Science Research (ICSSR) for the Fellowship. I would will to sincere gratitude M Mahesha for their suggestions.

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