Journal DOI: 10.36713/epra1013 | SJIF Impact Factor (2023): 8.048 ISSN: 2347-4378
EPRA International Journal of Economics, Business and Management Studies (EBMS)
Volume: 11 | Issue: 1 | January 2024 -Peer-Reviewed Journal

EXPLORING THE NEXUS BETWEEN INTERNATIONAL TRADE DYNAMICS AND INDIA'S ECONOMIC GROWTH

Asha. Goudar[1], B.H.Nagoor
[1]*Research Scholar, Department of Studies in Economics, Karnatak University,Dharwad, Karnataka, India*
[2]*Professor, Department of Studies in Economics, Karnatak University, Dharwad, Karnataka, India*

ABSTRACT
This study investigates the relationship between key economic indicators in India, specifically focusing on economic growth (GDP), export, import, foreign direct investment (FDI), gross fixed capital formation (GFCF), and trade openness in India over the period from 1971-2021. The study involves cointegration analysis which establishes a longrun relationship between variables. we aim to provide valuable insights into the impact of international trade dynamics, exports, imports and foreign investments, and gross fixed capital formation on India's economic growth.
KEYWORDS: *Cointegration, Trade, FDI*

INTRODUCTION

The nexus between international trade dynamics and India's economic growth is a compelling area of study that explores the relationship between global trade patterns and India's economic development. This exploration seeks to understand the impact of international trade dynamics on various aspects of India's economy, including its industrial output, employment opportunities, technological advancement, and overall economic growth. By analyzing the interplay between trade policies, market access, and foreign investment, this paper aims to know the dynamic nature of India's integration into the global economy and its implications for the nation's economic prosperity because economists generally agree that when a country opens up to international trade and capital flows, it improves the efficient use of resources and adopts new technologies more quickly than a closed economy. In terms of accumulating capital, this leads to increased investment, positively impacting economic returns for exports. India's economic growth is intricately connected to its trade patterns, inflow of Foreign Direct Investment (FDI), and investments in fixed capital. The nation's exports and imports have a substantial impact on shaping its economic structure, with FDI acting as a pivotal source of external investment. Additionally, the extent of Gross Fixed Capital Formation (GFCF), which signifies the investment in physical assets, and the degree of trade openness serve as crucial indicators reflecting the overall economic well-being of the country. By exploring the relationships and cause-and-effect dynamics among these elements, we can gather valuable insights into the driving forces behind India's economic advancement and identify potential challenges in sustaining steady growth. Some theories of growth and trade offer explanations for the positive connections between these economic variables and growth rates. However, empirical studies sometimes yield conflicting results. The economic literature often highlights that external factors like stability and an efficient macroeconomic environment play a crucial role in determining the impact of Exports, Imports, FDI, GFCF, and Trade openness on an economy.

REVIEW OF LITERATURE

The relationship between FDI, economic growth, and exports in India has been extensively studied. Sharmiladevi (2020) found a significant long-term causality between these variables, with economic growth and exports causing inward FDI. Datta (2018) also explored this relationship, using an ARDL-Bound cointegration approach, and found that FDI inflow has a positive impact on economic growth. Kumari (2021) further confirmed this, showing a bi-directional causality between FDI and economic growth. However, the relationship between trade openness and economic growth is less clear, with Mitra (2014) finding a unidirectional short-run relationship between exports and GDP. Sharma (2005) and Bhat (1995) both found a bi-directional causal relationship between the two, with export growth Granger causing GDP growth. However, Mitra (2014) and Mishra (2011) challenged the export-led growth hypothesis, with Mitra finding a unidirectional short-run relationship between exports and GDP, and Mishra rejecting the hypothesis based on vector error correction model estimation. These studies collectively suggest a complex and dynamic relationship between exports and economic growth in India. Guntukula

Journal DOI: 10.36713/epra1013 | SJIF Impact Factor (2023): 8.048 ISSN: 2347-4378
EPRA International Journal of Economics, Business and Management Studies (EBMS)
Volume: 11 | Issue: 1 | January 2024 -Peer-Reviewed Journal

(2018) and Reddy (2020) both found a bidirectional causality between exports and economic growth, supporting the export-led growth hypothesis. However, Patel (2015) and Sharma (2005) reported unidirectional causality from GDP to exports, with no causality between GDP and imports. These findings suggest that while exports can drive economic growth, the relationship between imports and economic growth is less clear

DATA AND METHODOLOGY

The study uses the time series, secondary data relating to GDP, exports, imports, inflows of FDI, GFCF, and Trade openness as variables from 1971-2021. The data has been collected from various sources from World Development Indicator and UNCTAD. To achieve stationarity in variance, all data series are transformed to the natural logarithmic (ln) form and used for the analysis of the Vector Error Correction Model (VECM). The study examines the long-run and short-run relationship between variables by using Johansen's cointegration procedure and VECM as developed by Granger (1969) and (1986), Engel & Granger (1987).

RESULTS AND DISCUSSIONS

Table 1: Unit-Root Test Results

Variables	Phillips Perron (PP)- Unit Root Test		Conclusion
India	**Level**	**First Difference**	**Stationary**
LnGDP	-2.5584 ***(0.3003)***	-7.3751 ***(0.0000)***	I (1)
LnExports	-2.1892 ***(0.4850)***	-5.8796 ***(0.0001)***	I (1)
LnImports	-2.0213 ***(0.5756)***	-5.9524 ***(0.0000)***	I (1)
LnFDI	-3.1102 ***(0.1152)***	-9.6939 ***(0.0000)***	I (1)
LnGFCF	-1.1452 ***(0.9106)***	-8.3240 ***(0.0000)***	I (1)
LnTrade Openness	-1.6953 ***(0.7387)***	-5.4572 ***(0.0002)***	I (1)

Source: Eviews-9 Results

Notes: *** Significant at the 1% for p value which is in parenthesis.

Time series analysis necessitates that the variables exhibit stationarity. It is crucial to examine whether the considered data possesses a unit root or not, as emphasized. When conducting the unit root computation, the assumption is made that data trends are both trend and constant. As a result, given above in Table 1, the PP-Unit root test has been employed. The series are non-stationary at a level, because the critical value is less than the calculated value of the test statistics for lnGDP, lnExports, LnImports, lnFDI, lnGFCF and lnTradeopenness variables, and stationary at the first difference. Further, the variables are integrated in the order of one I (1). The unit root results suggest that the series may be co-integrated or that there may be a long-term relationship between variables. Based on the Akaike Information Criteria, the study only employed one lag (AIC) for selection of lags

The test of Philip-Perron Unit root test yields stationary at the first level as conclusion as given in Table 1. The next step is to test for cointegration using Johansen's cointegration approach.

Table 2: Johansen Co-integration test statistics results

Hypothesized No. of CE(s)	*Trace Statistic*	*0.05 Critical Value*	*Max-Eigen Statistic*	*0.05 Critical Value*
None *	242.5043	95.75366	85.72163	40.07757
At most 1 *	156.7827	69.81889	60.73706	33.87687
At most 2 *	96.04561	47.85613	48.61341	27.58434
At most 3 *	47.43220	29.79707	26.15394	21.13162
At most 4 *	21.27826	15.49471	15.51273	14.26460
At most 5 *	5.765534	3.841466	5.765534	3.841466

Source: The researcher computed the results by using actual data in Eviews 9

Trace test and max-eigenvalue test indicates 6 cointegrating eqn (s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Journal DOI: 10.36713/epra1013 | SJIF Impact Factor (2023): 8.048 ISSN: 2347-4378
EPRA International Journal of Economics, Business and Management Studies (EBMS)
Volume: 11 | Issue: 1 | January 2024 -Peer-Reviewed Journal

To explore whether there is any long-run relationship between economic growth and variables, such as Exports, Imports, foreign direct investment, gross fixed capital formation, and Trade openness. Johansen's cointegration test has been applied as shown in table 2. The number of lags in cointegration analysis is chosen based on Akaike Information Criteria at four. Table 2 presents the result of Johansen co-integration test results. Both the trace and maximum eigenvalue statistics detect six cointegrating relationships at the 5% level. In other words, results indicate that GDP, Exports, Imports, foreign direct investment, gross fixed capital formation, and Trade openness are co-integrated in the long run. As a result, the vector error correction model is estimated.

Table 3: Vector error correction estimates for GDP equation

Short-run Variable	Coefficient	Std. error	t-Statistic
ECT	-0.117351	0.06476	-1.91202
D(LNGDP)	-0.895040	0.35804	-2.49983
D(LNEXPORTS)	-0.360789	0.14914	-2.41913
D(LNIMPORTS)	-0.180481	0.09821	-1.83776
D(LNFDI)	0.023553	0.00956	2.46256
D(LNGFCF)	-0.169259	0.15035	-1.12578
D(LNTRADE_OPENNESS)	0.624067	0.16899	3.69298
C	0.112830	0.03744	3.01373

This is revealed by the estimated coefficient of the error correction term from Table 3, which is negative, as expected, and statistically significant in terms of its associated t-value. The purpose of the VECM model is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The error correction term for the GDP equation is found to be -0.117 for India. This suggests a return to equilibrium by around 11% in India's economic growth when deviations from long-term equilibrium occur.

Table 4: Granger-Causality Test results

Null Hypothesis	F-Statistic.	Prob
LNEXPORTS does not Granger Cause LNGDP	1.74931	0.0860*
LNGDP does not Granger Cause LNIMPORTS	3.80822	0.0300**
LNFDI does not Granger Cause LNGDP	2.36393	0.1062*
LNGDP does not Granger Cause LNFDI	4.69691	0.0143***
LNTRADE_OPENNESS does not Granger Cause LNGDP	2.32839	0.1096*
LNFDI does not Granger Cause LNEXPORTS	3.38373	0.0430**
LNFDI does not Granger Cause LNIMPORTS	2.76760	0.0738***
LNGFCF does not Granger Cause LNFDI	3.04845	0.0576**
LNFDI does not Granger Cause LNTRADE_OPENNESS	5.36030	0.0083***

Notes: (*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1%.

The Granger-Causality Test results presented in Table 4 offer valuable insights into the interrelationship between international trade dynamics and India's economic growth. The analysis reveals several significant relationships that underscore the intricate nexus between these variables. Firstly, LNEXPORTS is found Granger cause LNGDP, with a probability value of 0.08, suggesting a potential influence of export dynamics on India's economic growth. For LNGDP, the LNGDP does not Granger Cause LNIMPORTS, with a significant F-Statistic of 3.80822 and a probability of 0.03 at the 5% level, suggests that India's economic growth, as represented by LNGDP, has a causal impact on the country's imports. This implies that as India's economy grows, there is a corresponding effect on the volume and nature of its imports, reflecting the influence of economic expansion on trade dynamics. Similarly, the result indicating that LNFDI does not Granger Cause LNGDP, with a substantial F-Statistic of 2.36393 and a probability of 0.1062 at the 10% level, highlights the causal relationship between foreign direct investment (FDI) and India's economic growth. This suggests that FDI inflows play a significant role in driving India's economic expansion, potentially through avenues such as capital infusion, technology transfer, and employment generation. Furthermore, the significant relationship between LNFDI and LNTRADE_OPENNESS, with a notable F-Statistic of 5.36 and a probability of 0.008 at the 1% level, underscores the link between FDI and trade openness. This signifies that FDI inflows contribute to shaping India's trade dynamics and openness to international markets, indicating a symbiotic relationship between foreign investment and trade integration.

Journal DOI: 10.36713/epra1013 | SJIF Impact Factor (2023): 8.048 ISSN: 2347-4378
EPRA International Journal of Economics, Business and Management Studies (EBMS)
Volume: 11 | Issue: 1 | January 2024 -Peer-Reviewed Journal

Overall, the Granger-Causality Test results provide empirical evidence of the nexus between international trade dynamics, FDI, and India's economic growth. The significant causal relationships identified highlight the interconnected nature of these variables, emphasizing the importance of understanding and analyzing international trade dynamics in the context of India's economic development. These findings support the premise that exploring the intricate interplay between international trade dynamics and India's economic growth is crucial for comprehending the multifaceted factors that drive the nation's economic progress.

Residual Diagnostic

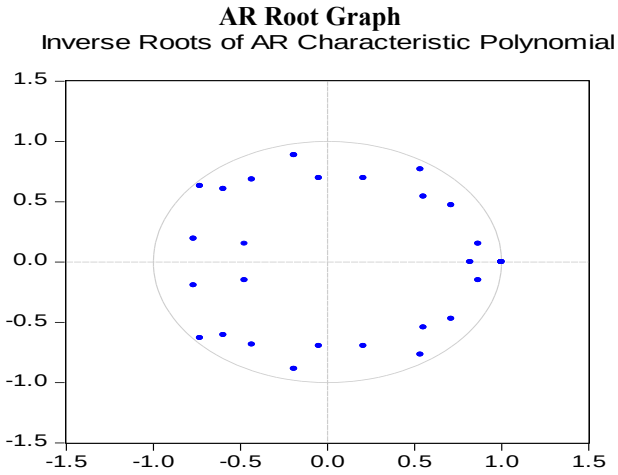
Several diagnostic tests, including the ARCH Heteroscedasticity test, the Breusch-Godfrey LM Test for serial correlation, and the Jarque-Bera test for normality and AR Root Graph have been conducted in the study. The test findings are presented in the table below as presented.

Residual diagnostic	P- Value
JB Test	0.2742
ARCH Test	0.5954

VEC Residual Serial Correlation LM Tests

Lags	LM-Stat	Prob
1	29.39120	0.7741
2	34.86265	0.5226
3	37.00333	0.4224
4	34.01023	0.5635

AR Root Graph



All of the polynomial roots fit within the unit circle, according to the graph for India. This conclusion shows that the VECM model is stationary or stable

CONCLUSION

The findings of this study provide compelling evidence of a robust relationship between exports, foreign direct investment (FDI), trade openness, and GDP in the context of India. The results indicate that these economic indicators have a significant impact on the overall GDP of the country, with unidirectional causality suggesting that economic activities related to exports, FDI, and trade openness exert considerable influence on India's economic growth. The existence of cointegration among these variables implies a long-term equilibrium relationship, highlighting the interconnected nature of these factors in shaping India's economic landscape. These insights offer valuable implications for policymakers and stakeholders, providing a deeper understanding of the complex interplay between economic indicators in the Indian context and emphasizing the importance of fostering a conducive environment for exports, FDI, and trade openness to drive sustainable economic growth.

REFERENCES

1. *Bhat, S. (1995). Export and Economic Growth in India.* Artha Vijnana: Journal of The Gokhale Institute of Politics and Economics, *37, 350-358.*

2. *Datta, K., & Lahiri, A. (2018). FDI Inflow, export and economic growth relationship in India: An ARDL-Bound cointegration approach.* Economic Affairs, 63*, 533-545.*
3. *Goswami, C., & Saikia, K.K. (2012). FDI and its Relation with Exports in India, Status, and Prospect in North East Region.* Procedia - Social and Behavioral Sciences, 37*, 123-132.*
4. *Granger, C., (1969). Investigating Causal Relations by Econometric Models and Cross-Spectral Methods. Econometrica, 37, 424-438.*
5. *Granger, C.W.J., (1986). Developments in the study of Cointegrated Economic Variables. Oxford Bulletin of Economics and Statistics, 48, 213-228.*
6. *Granger, C.W.J., (1988). Some Recent Developments in Concepts of Causality. Journal of Econometrics, 39 (1), 1-2.*
7. *Guntukula, R. (2018)- Exports, imports, and economic growth in India: Evidence from cointegration and causality analysis.* Theoretical and Applied Economics*, 221-230.*
8. *Ismail, Saba and Ahmed, Shahid, Economic Growth and Macro Variables in India: An Empirical Study (December 28, 2015). Ismail, Saba and Ahmed, Shahid, Economic Growth and Macro Variables in India: An Empirical Study, Journal of Economics and Development, Vol.17, No.3, December 2015, pp. 42-59, ISSN 1859 0020, Available at SSRN: https://ssrn.com/abstract=2709306*
9. *Johansen S., (1991). Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models. Econometrica, 59 (6), 1551-1580.*
10. *Johansen, S (1988). Statistical Analysis of Cointegrated Vectors. Journal of Economic Dynamics and Control, 12, 255-54.*
11. *Johansen, S (1995). Likelihood-Based Inference in Cointegrated Vector Autoregressive Models.Oxford University Press: Oxford.*
12. *Kumari, R., Shabbir, M.S., Saleem, S., Yahya Khan, G., Abbasi, B.A., & López, L.B. (2021). An empirical analysis among foreign direct investment, trade openness, and economic growth: evidence from the Indian economy.* South Asian Journal of Business Studies*.*
13. *Manoj Kumar DAS & Titiksha DAS, 2020. "Determinants of economic growth in India: A time series perspective," Theoretical and Applied Economics, Asociatia Generala an Economistilor din Romania - AGER, vol. 0(2(623), S), pages 263-280, Summer.*
14. *Mishra, P.K. (2011). The Dynamics of Relationship between Exports and Economic Growth in India.* Econometrics: Applied Econometrics & Modeling eJournal*.*
15. *Mitra, P., & Khan, G.S. (2014). Impact of Trade Openness, FDI Inflows and Total Exports on Economic Growth of India: An Econometric Approach.* IOSR Journal of Economics and Finance, 4*, 60-68.*
16. *Patel, D.R. (2015)-The Dynamics of Relationship between Exports, Import and Economic Growth in India.*
17. *Pathania Rajni (2013)- Linkages between Export, Import and Capital Formation in India. International Research Journal of Social Sciences. Vol. 2(3), 16-19, March (2013)*
18. *Reddy, K.K. (2020)-Exports, imports, and economic growth in India: An empirical analysis.*
19. *Sharma, Abhijit, and Theodore Panagiotidis.(2019)- "An Analysis of Exports and Growth in India: Cointegration and Causality Evidence (1971 - 2001)". figshare. https://hdl.handle.net/2134/334.*
20. *Sharmiladevi, J.C. (2020). Cointegration and Causality Study Among Inward FDI, Economic Growth and Exports: An Indian Perspective.* Int. J. Asian Bus. Inf. Manag.*, 11, 63-77.*