Trade-Led Growth in India and China: An Econometric Analysis

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Abstract

This study investigates the dynamics of trade-led growth in the contexts of India and China, employing cointegration analysis, Vector Error Correction Model, and Pairwise Engle-Granger causality tests to provide insights into the nature of this relationship. The aim is to understand the interplay between trade, economic growth, and causal relationships between GDP, Export, Import, GCF, Trade Openness variables in the two rapidly growing economies by Using time series data from 1971-2021. The findings provide insights into the extent to which trade has driven economic growth in India and China. The cointegration analysis offers an understanding of the long-term equilibrium relationship between trade and growth, while the VECM sheds light on the short-term adjustments to deviations from this equilibrium. The Pairwise Engle-Granger causality test identifies the causal relationships between trade and growth, enhancing our understanding of the causal dynamics in the two economies. The study gives different results for both countries. The cointegration test confirm the existence of long run equilibrium relationship among variables for China and India. Export-driven growth hypothesis is valid and also growth-driven imports are confirmed in India. Furthermore, unidirectional causality running from exports to imports indicating that only exports stimulate imports for India and imports do not direct their exports. Therefore, the results confirmed trade-led growth in case of India. For China, we can say that the unidirectional causal relationship between export to GDP is explored in the case of China, implying the validity of the Export-Led Growth hypothesis in this country. Although India has made tremendous progress toward trade-led prosperity, there is still room for improvement. While the nation has extended its export base and attracted international investment, issues including infrastructural shortages, regulatory barriers, and a lack of skilled workers require addressing. China has become the world's industrial powerhouse and a major player in global commerce as a result of its trade-led expansion. However, factors like as growing labour costs, trade disputes, and environmental issues need strategy changes. Both China and India have made significant strides toward integrating trade-led development to strengthen their economies. However, every nation has its own problems and chances. Infrastructure, innovation, diversity,

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and sustainable practises must all continue to get attention if trade-led development is to be sustained and improved in these two burgeoning economies.

Keyword: Trade-led, Economic growth, Export-driven, Cointegartion, GCF

Introduction

No country is completely Independent or self-sufficient enough to meet its demands and requirements in the dynamic competitive world. Every region of the country is specifically depending to every other region. The adoption of an inward looking, domestic driven economic structure makes it challenging for a country to enjoy growth and advancement. Many trade theories argued international trade is an engine of growth for any economy (D. H. Robertson). Trade-led growth postulates that a nation's engagement in international trade can stimulate economic expansion and development. This hypothesis rests on several foundational principles, including the theory of comparative advantage, which posits that countries should specialize in producing goods and services in which they have a relative efficiency. By trading these specialized goods with other countries, they can achieve optimal resource allocation and efficiency, thereby enhancing growth prospects. Several empirical studies have affirmed the positive relationship between international trade and economic growth. Research by economists like Jeffrey Sachs and Andrew Warner, as well as Paul Romer, highlights that countries with open economies and high levels of trade tend to experience faster economic growth compared to those with closed economies. Various Cross-country analyses often reveal a strong correlation between trade openness and Gross Domestic Product growth. The two nations China and India have a lot of things in common historically. According to UNFPA figures, India has the world's largest population with 1.4286 billion people, compared to China's 1.4257 billion. Around the middle of the twentieth century, they attained political independence. Like many other emerging nations, India and China adopted the import substitution approach for industrial development in the 1950s. The strategy is suitable for industrialisation regulated by state-owned industries and independent from the global economy. There has been a paradigm shift in many emerging nations, notably India and China, from import substitution to outward orientation. In 1978, China made a significant contribution to the progress of trade liberalisation. In the 1980s, India's liberalisation efforts were primarily focused on internal deregulation rather than trade liberalisation. In response to a severe balance of payment problem, India's trade policy system underwent its most significant revision towards the beginning of the 1990s.

The rationalisation for trade liberalisation emphasises that more competition will encourage producers to increase productivity, which is essential for boosting economic growth in general. Since enterprises react to indications from the global market, the commodity structure of the nation's trade would alter in line with shifting patterns of specialisation. According to accepted understanding based on the Heckscher-Ohlin-Samuelson model, trade liberalisation would lead to a reallocation of productive resources from industries that compete with imports to those where the nation has comparative advantages. As a result, even if both imports and exports are predicted to rise more quickly, trade liberalisation inevitably comes at a cost since it may cause some local industries to go out of industry. The main focus of trade reforms has been on liberalization, openness and export promotion activity (Kaur,2012). Focusing on trade liberalization in particular, a considerable increase in exports took place with tariff reduction and removal of other barriers. Prior to the reforms all imports were either submitted to licensing or prohibited altogether (Khan, 2005). It was realized that the import substituting inward looking development policy was no longer suitable in the modern globalizing world. Before the reforms, trade policy was characterized by high tariffs and extensive import restrictions. Imports of manufactured consumer goods were completely banned. For capital goods, raw materials and intermediates, certain lists of goods were freely importable, but for most items where domestic substitutes were produced, imports were only possible

with import licenses. The criterion for issue of licenses was non-transparent, delays were endemic and corruption was unavoidable. The economic reforms sought to phase out import licensing and also to reduce import duties (www.indianbusiness.nic.in).The development of export markets can lead to economies of scale as industries expand and develop their markets overseas in response to foreign demand. Industries may promote world-class skills in product design, research and development and marketing, which increase their export capacity and promote economic development in their own country. The promotion of international trade leads to free trade policies that promote exports from the country and attract direct foreign investment into local industries (Hann, 2014). In this context, the rise of two new economic giants, China and India, have followed distinct paths of economic growth over the past few decades. Both countries have embraced trade as a vital component of their growth strategies, but their approaches and outcomes have differed significantly. This paper provides a comparative analysis of trade-led growth in China and India, highlighting through important variables.

Review of Literature

Trade-led growth refers to a theory suggesting that an increase in international trade can lead to economic growth and development in a country. The concept has been widely discussed and analysed in economic literature, with various studies examining the relationship between trade and economic growth from different perspectives. Below is a review of the literature on trade-led growth:

Adam Smith and David Ricardo, two classical economists, laid the groundwork for theories of trade-led prosperity. According to Ricardo's theory of comparative advantage, countries should trade with other countries and specialise in producing goods in which they have a comparative advantage. As a result, efficiency, resource allocation, and total economic growth all rise.

The causal link between exports and economic growth has been extensively and empirically studies. Export-led growth hypothesis suggests that promoting exports can drive economic growth. The idea is that exporting goods generates revenue, which can then be reinvested into the economy to stimulate further growth. Researchers have examined this hypothesis empirically, with some studies finding evidence of a positive relationship between export expansion and economic growth, especially in developing countries. In order to investigate the causal relationship between exports growth and output growth, time series analysis was used by Bhat (1995), Ghatak and Price (1997), Dhawan and Biswal (1999), and Nataraj Sahoo and Kamaiah (2001), Chandra (2003), Sharma and Panagiotidis (2004), Padhan (2004), Pandey (2006), Pradhan (2010), Mishra (2011), Ray (2011), Kaur and Sidhu (2012), and Devi (2013) and for the analysis of causality, the studies employed the Engle-Granger (1987) cointegration and error correction modelling method. Kwan & Kwok (1995) supported the export-led growth theory to demonstrate its validity for China. Tsen (2010) also discovered support for the export-led development theory. The results confirmed the existence of a feedback link between the variables. Additionally, it was proven that domestic demand-led growth and vice versa are both supported by data.

Some economists argue that imports can also contribute to growth by providing access to necessary capital goods, technology, and raw materials that may not be available domestically. Import-led growth theories emphasize the role of imports in enhancing productivity and efficiency, leading to overall economic expansion. Exports even provide foreign exchange that may be used to buy capital and intermediate goods, which when combined with imports of consumer and intermediate goods, can encourage the spread of technology and economic progress (Nguyen, 2011.Jagdish Bhagwati and T.N. Srinivasan (1975) examined the effects of import-substitution policies in India. While not strictly advocating for import-led growth, their work discussed how a balance between self-sufficiency and imports could be more effective in promoting economic development.

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Trade Openness and economic growth is a substantial body of empirical research has investigated the relationship between trade openness and economic growth. Many studies have found a positive correlation between trade openness and growth, particularly in countries that have effectively managed their trade policies and integrated into the global economy. Acemoglu, Aghion, and Zilibotti (2006) they explored the link between trade openness, innovation, and economic growth. They proposed that trade openness can foster innovation by exposing firms to foreign technologies and ideas. This process, known as "creative destruction," can lead to higher productivity and economic growth in the long run. World Bank Reports (Various Years) Reports, has consistently emphasized the importance of trade openness as a driver of economic growth, especially for developing countries. The World Development Reports have highlighted how trade openness can lead to technology transfer, increased investment, and productivity gains, ultimately contributing to poverty reduction and improved living standards.

The relationship between trade-led growth and gross capital formation is symbiotic. Engaging in international trade often requires investments in infrastructure, logistics, and technology to meet global standards. Export-oriented industries may need to modernize their production processes to remain competitive in the international market. These investments contribute to gross capital formation. Simultaneously, the revenue generated from increased exports can be channelled into further investments, creating a positive feedback loop. Additionally, trade can attract foreign direct investment (FDI), which injects capital into the domestic economy, further contributing to gross capital formation. Kumar and Pradhan (2005) study analysed the relationship between gross capital formation, trade openness, and economic growth in South Asia. They found that trade openness positively affects both gross capital formation and economic growth, indicating that engaging in international trade can lead to higher investment levels and overall development. Wacziarg and Welch (2008) they have explored the historical relationship between trade, capital accumulation, and economic development and found that countries with higher trade volumes tend to invest more in physical and human capital, leading to higher income levels and growth.

Database and Research Methodology

Database

The time series data covers the period from 1971 to 2021. The annual data at the 2015 constant US dollar prices been obtained from two sources. Data on GDP, gross capital formation, Trade Openness has been compiled from World Development Indicators while data on, exports, imports GDP has been collected from UNCTAD.

The Model

The Model The model is based on the Cobb- Douglas production function, i.e.

$$Y=f(K, L) \qquad (1)$$

Gross domestic product is represented by Y, while capital and labour are represented by K and L, respectively. In order to capture the causal relationship between exports, imports, and economic growth, the study extends this equation by including additional significant variables such as exports and imports & gross capital formation, trade openness in a multivariate time series model. Consequently, the expression for the aggregate production function is

$$Y= f(K, L, X, M, G, TO) \qquad (2)$$

1. GDP = Log of Gross Domestic Product

2. EXP = Log of Exports

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3.IMP=Log of Imports

4.GCF=Log of Gross Capital Formation

5.TO= Log of Trade openness

LN= Natural Log

The prefix "LN" represents for the time series' natural logarithm. In equation (2), X and M have included as exports and imports in aggregate production function. In this paper, All the variables are taken in their natural logarithms. Log transformation can reduce the problem of heteroscedasticity because it compresses the scale in which the variables are measured, thereby reducing a tenfold difference between two values to a twofold difference (Gujarati 1995). The entire estimation procedure consists of three steps: first, unit root test; second, cointegration with VECM test; third causality test. The following time series are analysed in this study:

If cointegrationhas been detected between series we know that there exists a long-term equilibrium relationship between them so we apply VECM in order to evaluate the short run properties of the cointegrated series. The equation form for VECM is as follows

$$\Delta Y_t = \alpha_1 + p_1\, e_1 \sum_{i=0\, i}^{n} \Delta Y_{t-i} + \sum_{i=0}^{n} \delta_i\, \Delta X_{t-i} + \sum_{i=0}^{n} \gamma_i\, Z_{t-i}$$

$$\Delta X_t = \alpha_2 + p_2\, e_{i-1} \sum_{i=0\, i}^{n} Y_{t-i} + \sum_{i=0}^{n} X_{t-i} + \sum_{i=0}^{n} Z_{t-i}$$

Results and Discussions

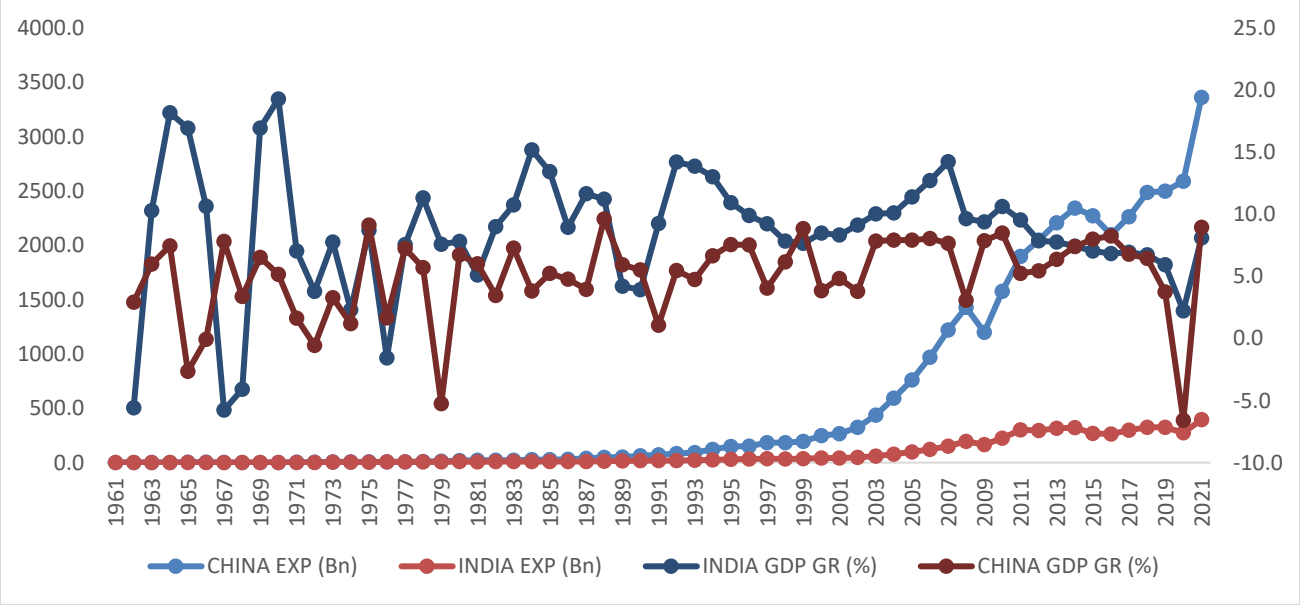

Figure 1:
China and India's View of export

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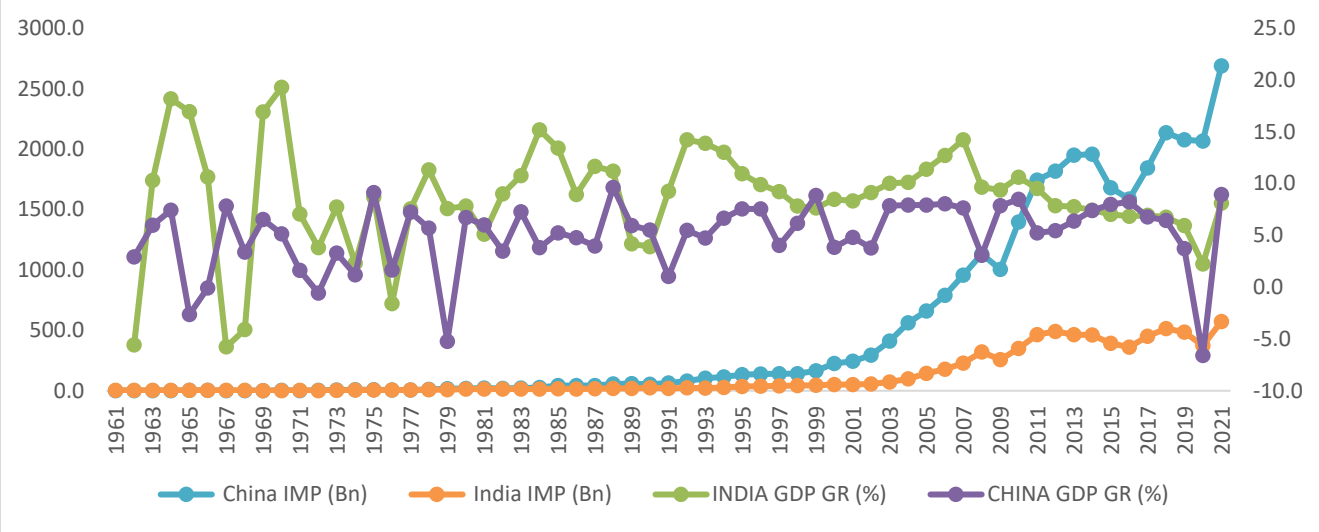

Figure 2:
China and India's View of Import

Table:1
Descriptive Statistics

	LNGDP		LNEXPORTS		LNIMPORTS		LNGCF		LNTO	
	India	**China**	**India**	**China**	**India**	**China**	**India**	**China**	**India**	**China**
Mean	13.42	14.47	3.56	5.01	3.86	4.93	11.74	12.97	3.13	3.24
Median	13.37	14.51	3.49	5.01	3.63	4.93	11.52	12.71	3.11	3.52
Maximum	14.82	16.57	5.97	8.12	6.35	7.89	13.81	15.84	4.02	4.16
Minimum	12.22	12.42	0.71	1.02	0.79	0.75	9.35	10.44	2.03	1.59
Std.Dev	0.83	1.34	1.58	2.15	1.64	2.08	1.33	1.67	0.58	0.67
Skewness	0.18	0.00	0.07	-0.11	0.07	-0.17	0.04	0.33	-0.01	-0.68
Kurtosis	1.74	1.66	1.73	1.71	1.83	1.84	1.82	1.76	1.7	2.44
JB	3.65	3.77	3.44	3.63	2.92	3.09	2.94	4.17	3.54	4.61
Probability	0.16	0.15	0.17	0.16	0.23	0.21	0.22	0.123	0.16	0.09
Sum	684.72	738.28	181.83	255.59	197.21	251.56	598.74	661.6	159.94	165.41
Sum.sq. Dev	32.49	89.96	125.63	232.97	136.06	217.68	89.25	140.71	17.27	22.9

Source: EViews 9 Results

Individual Analysis for India and China

Individual Analysis for India and China Countries, The ADF and PP unit root test results reported in Table1 indicate that GDP, Export and Import, Gross Capital Formation, Trade Openness were not stationary at

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level but after differencing them once, they were found to be stationary at first difference. Therefore, all the series in this exhibit order I (1) that is the first difference.

Table 2

Unit Root Test

India	ADF Unit Root Test		Phillips-Perron (PP)Test		Conclusion
Variables	**Level**	**First Difference**	**Level**	**First Difference**	**Stationary**
lnGDP	-3.0234	-7.5678	-3.0337	-7.5762	I (1)
	(*0.1363*)	(*0.0000*) ***	*(0.1337)*	(*0.0000*) ***	
lnExports	-1.8022	-5.8715	-2.1892	-5.9134	I (1)
	(*0.6888*)	*(0.0000) ******	*(0.4850)*	(*0.0000*) ***	
lnImports	-1.8921	-5.8651	-2.0213	-5.9022	I (1)
	(*0.6437*)	*(0.0000) ******	*(0.5756)*	(*0.0000*) ***	
lnGross Capital Formation	-2.1026	-6.7232	-2.1584	-6.7301	I (1)
	(*0.5317*)	*(0.0000) ******	*(0.5015)*	(*0.0000*) ***	
lnTrade Openness	-1.3493	-5.3560	-1.6953	-5.3541	I (1)
	(*0.8635*)	*(0.0000) ******	*(0.7387)*	(*0.0000*) ***	
China					
lnGDP	-2.2285	-3.0684	-2.4321	-4.3657	I (1)
	(0.4637)	***(0.0254) ******	***(0.3593)***	***(0.0057) ******	
lnExports	-1.4938	-5.0823	-1.8623	-4.9713	I (1)
	(0.8187)	(***0.0007) ******	***(0.6589)***	***(0.0010) ******	
lnImports	-2.5042	-7.0959	-2.5922	-6.7689	I (1)
	(***0.3250)***	(***0.0000) ******	***(0.2855)***	(***0.0000) ******	
lnGross Capital Formation	-1.5260	-6.1432	-1.5304	-6.1019	I (1)
	(0.8072)	(***0.0000) ******	***(0.8056)***	(***0.0000) ******	
lnTrade Openness	-1.3406		-1.3649	-6.5356	I (1)
	(0.8659)	-6.3789	***(0.8592)***	(***0.0000) ******	
		(***0.0000) ******			

Source: Eviews-9 Results

Note: in parenthesis *** denote rejection of the null of non-stationary at 1% levels of significance.

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Both tests of Unit root test yield same conclusion. The next step is to test for cointegration using Johansen's cointegration approach.

Table 3

Johansen Co-integration Test Statistics

		Trace Test	Maximum Eigenvalue Test
Country	**Maximum Rank**	**lnEXP lnGDP lnIMP lnGCF lnTO**	**lnEXP lnGDP lnIMP lnGCF lnTO**
India	**None ***	**74.03357 (0.0221) ****	**36.21364 (0.0258) ****
	At most 1	37.81993 (0.3099)	18.88705 (0.4233)
	At most 2	18.93288 (0.4978)	11.16400 (0.6309)
	At most 3	7.768883 (0.4904)	7.748018 (0.4049)
	At most 4	0.020865 (0.8851))	0.020865 (0.8851)
China	**None ***	**93.18680 (0.0002) *****	**48.09948 (0.0006)*****
	At most 1	45.08732 (0.0889) *	27.16647 (0.0565) *
	At most 2	17.92086 (0.5719)	9.791208 (0.7640)
	At most 3	8.129648 (0.4517)	5.315185 (0.7016)
	At most 4	2.814463 (0.0934) *	2.814463 (0.0934) *

Trace test & Max-eigenvalue test indicates 1 cointegrating eqn (s) at the 0.05 level

* ** and *** denotes rejection of the hypothesis at the 10%,5% and 1% level

Table 3 presents Johansen cointegration tests. The λtrace and λmax statistics are calculated as per Johansen (1995). There are two hypotheses under each test. As long as each λ-statistic is below its critical value (CV), we fail to reject the corresponding null hypothesis of no cointegration. If the first hypothesis of no cointegrating relation cannot be rejected, the second null hypothesis automatically becomes redundant. The result under both the λtrace and λmax tests exhibits the presence of co-integration between variables at 5% and 1% level of significance.

After confirming the presence of co-integrating vectors based on Johansen co-integration test results, the short run and long run interaction of the underlying variables is examined by fitting them in Vector Error Correction Model (VECM) based on Johansen co-integration methodology. To examine the long-run dynamics (speed of adjustment towards equilibrium long run relationship) and short-run causality relationship, the VECM model has been estimated.

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Before that we have to analyse the lags to estimate VECM.So based on Lag length test and AIC criteria for India includes lag one and for China lag four has taken. The results of VECM show that a long run equilibrium relationship exists between the Variables. The estimated co-integrating coefficient for the GDP based on the first normalized eigenvector, derived from the results presented is as follows:

INDIA ***= LNGDP = -33.6659+ 0.350215 LNEXPORTS - 3.304538 LNIMPORTS+ 2.347670LNGCF+1.344280 LNTRADE OPENNESS***

CHINA ***= LNGDP = -16.89736 -1.277625 LNEXPORTS + 0.103349 LNIMPORTS+0.496812LNGCF+ 0.582041LNTRADEOPENESS***

The variables are transformed into logarithmic values, and these values indicate measurements of long-term elasticity.

For India, the coefficient for Export is positive, but not statistically significant which implies that increase in the export enhances 35% economic growth of India.For 1% increase in imports leads GDP is reduced by-3.30% and it is statistically significant. Whereas 1 % increase in gross capital formation India's economic growth will increase by 2.347% with significant. Similarly, 1% rise in trade openness leads to 1.34 % increase in economic growth.

For China the Export coefficient is negative, which shows increase in exports leads to decrease in economic growth for China. For 1% increase in imports leads 10% increase in GDP. Similarly, 1% rise in gross capital formation leads to 49% increase in the economic growth. Whereas 1% increase in trade openness will leads increasing economic growth at rate of 58%.

However, it doesn't seem that Export in India and Import in China has a statistically significant positive impact. As a result, further econometric research is required before reaching inferences about the link between exports and other factors and GDP.

Short run Effects

Table 4 represents the estimation short run result from the VECM for India. The appearance of the cointegrating relationship from the Johansen approach verified the existence of long-run relationships among the variables of interest in the study. However, the cointegrating result from the Johansen result formed the basis for estimating the VECM to ascertain the speed of adjustment from the long-run equilibrium to the short run.

Under the short-run situation, the VECM estimation output from the cointegrating equation for India shows that the previous year's deviation from long-run equilibrium is corrected in the current period at an adjustment speed of about 0.01%. For growth of an economy, a percentage change in exports is associated with about 7% increase in GDP. For the Imports coefficient, a percentage change in imports is associated with about 14% increase in GDP. For Gross capital formation, a percentage increase in GCF is associated with about 6% increase in GDP. Moreover, a percentage increase in Trade openness is associated with about 13% increase in GDP. In totally, all the variables have positive influences on GDP in the short run but not statistically significant enough to cause a robust adjust to the equilibrium.

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Table 4
Short Run Analysis

Short-run	India	China
ΔLnEXP	0.038898	-0.276308*
	[0.57852]	[-2.61547]
ΔLnIMP	-0.070069	0.108529**
	[-0.97044]	[1.22353]
ΔLnGCF	-0.001004	0.069920
	[-0.01458]	[0.74875]
ΔLnTO	0.140632**	0.118325**
	[1.13056]	[1.15876]
C	0.050019*	0.161512*
	[5.19268]	[4.64134]
Speed of Adjustment	-0.017177***	-0.374675*
	[-1.19639]	[-4.15471]
R-squared	0.089333	0.696224
Serial Correlation LM Test	0.7149	0.3538
Heteroscedasticity (ARCH)	0.9233	0.7568

According to the VECM estimation result from the cointegrating equation for China, the short-run case indicates that the current period's correction speed for the previous year's deviation from long-run equilibrium is about 6%. A percentage change in exports is closely linked with a rise in GDP of roughly 42%, indicating economic expansion. As per the import's coefficient, a percentage change in imports implies an increase in GDP of around 10%. A percentage increase in gross capital formation causes a rise in GDP of

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around 17%. Furthermore, a percentage increase in trade openness leads to a nearly 20% rise in GDP. Overall, all the factors have a favourable short-term impact on GDP but are not statistically significant enough to make a substantial adjustment to the equilibrium.

Residual Diagnostic

Furthermore, the results of diagnostic tests, such as the residual serial correlation test, reveal that the model does not contain any serial correlation, and the residual normality test illustrates that all of the model's variables, with the exception of GDP, are normally distributed. The graph of the AR inverse root of the VECM is shown in Figure **(Appendix**). All of the polynomial roots fit within the unit circle, according to the graph for both India and China. This conclusion shows that the VECM model is stationary or stable**.**

In table 6, causality result is depicted. The essence of this test is to investigate and test for causality relationship among the variables. This test is important in the sense that it informs us about the direction of the causality among these variables. There are basically three possibilities of this test. There could be a unidirectional, bi-directional or neutrality relationship.

Table 6

Pairwise Granger Causality Tests

Null Hypothesis	India	China	Decision
LNEXPORTS does not Granger Cause LNGDP	5.040 (0.029)**	9.601(0.003)*	Rejected
LNGDP does not Granger Cause LNEXPORTS	2.621 (0.1121)	2.429(0.1258)	Accepted
LNIMPORTS does not Granger Cause LNGDP	2.492(0.1211)	7.658(0.0081)*	Accepted-India
LNGDP does not Granger Cause LNIMPORTS	2.226 (0.1424)	5.554(0.0227)**	Rejected-China
LNGCF does not Granger Cause LNGDP	1.385(0.2450)	8.426(0.0056)*	Accepted-India
LNGDP does not Granger Cause LNGCF	2.594 (0.1139)	3.777(0.0579)**	Rejected-China
LNTRADEOPENNESS does not Granger Cause LNGDP	5.214 (0.0270)**	18.420(0.0009)*	Rejected
LNGDP does not Granger Cause LNTRADEOPENNESS	0.487(0.4885)	0.022(0.8810)	Accepted

SOURCES: EVIEWS 9

NOTE: In parenthesis indicates p values.

*, ** and *** indicate significance at the 1%, 5% and 10% level respectively.

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Results of Pairwise Granger Causality Test are presented in table 6. The results imply that in both countries, LNEXPORTS Granger does cause GDP while GDP doesn't Granger cause exports. Hence results show that causality is unidirectional. While for lnimports, lnGCF in India the null hypothesis has been accepted because imports does not cause the GDP, and GDP does not cause the imports so it is failed to reject the null hypothesis. For China LNIMPORTS and LNGCF their exists bidirectional relationships. On the other hand, for LNTRADEOPENNESS does not Granger Cause LNGDP, both India and China null hypothesis has been rejected. it is failed to reject the null hypothesis for LNGDP does not Granger Cause LNTRADEOPENNESS.

Conclusion and Policy Recommendations

In the 1950s, China and India experienced similar levels of economic growth. However, China's growth route accelerated significantly, surpassing India by the early 1980s and establishing a GDP twice as large. The key factor behind this divergence lies in their economic strategies. Mainly because China strategically embraced Foreign Direct Investment (FDI) from foreign companies seeking to establish manufacturing facilities geared towards exports. In contrast, India pursued an import-substitution policy, relying on domestic enterprises and local resource mobilization. While India focused on service exports, China initiated an economic revolution by prioritizing export-oriented manufacturing industries, leveraging its abundant low-wage labour force. And also dynamic to China's success were its creation of Special Economic Zones (SEZs) and Export Promoting Zones (EPZs), which significantly contributed to attracting FDI and promoting exports. These zones facilitated the inflow of foreign investment and fostered an environment conducive to Chinese exports. However, India's SEZs and EPZs faced challenges, primarily due to their small scale, limited incentives, and other constraints. Consequently, China's zones effectively attracted FDI and boosted exports, while India's counterparts struggled to replicate the same success.

The study aims in the assessment of trade of both the nations by bringing out the comparison of particularly focusing on foreign trade. Although China has demonstrated its potential to grow faster consistently for several years. The key objective of this study is to provide a framework that allows us to make comparison of India and China over the past 50 years. Therefore study includes the comparison of various econometric parameters such as GDP, Export, Import volumes,GCF and Trade Openness and also to explore the Trade Led growth or growth-led trade hypothesis in the context of India and China economies during 1971–2021.Moreover, the study used econometric techniques such as Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests for unit root, Johansen Cointegration test, Granger Causality test procedure and Vector Error Correction Model to examine the relationship between variables like LNGDP, LNEXP, LNIMP, LNGCF and LNTO for India and China.

For India, the study finds evidence of Export-Led growth (ELE). The cointegration test confirm the existence of long run equilibrium relationship among variables. The pairwise Granger Causality and The Multivariate Granger Causality test gives evidence that there exists unidirectional causality running exports to GDP. So, Export-driven growth hypothesis is valid and also growth-driven imports are confirmed in India. Furthermore, unidirectional causality running from exports to imports indicating that only exports stimulate imports for India and imports do not direct their exports. Therefore, the results confirmed trade-led growth in case of India. For China, we can say that the unidirectional causal relationship between export to GDP is explored in the case of China, implying the validity of the Export-Led Growth hypothesis in this country.

India has made significant strides in trade-led growth, but there is area for further optimization. While the country has diversified its export base and attracted foreign investment, challenges like infrastructure deficits, regulatory hurdles, and skill gaps need attention. China's trade-led growth has propelled it to become the world's manufacturing hub and a key player in international trade. However, rising labour

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costs, trade tensions, and environmental challenges call for strategic adjustments. Both India and China have made substantial progress in unifying trade-led growth to boost their economies. Though, each country faces unique challenges and opportunities. Continued focus on infrastructure, innovation, diversification, and sustainable practices will be essential for sustaining and enhancing trade-led growth in these two dynamic economies. In summary, trade-led growth is a strategy that leverages international trade as a driver of economic development. By producing goods and services for the global market, countries can use the benefits of specialization, technology transfer, and economies of scale, ultimately leading to increased economic prosperity. However, successful implementation requires careful planning, infrastructure development, and the consideration of both domestic and international factors.

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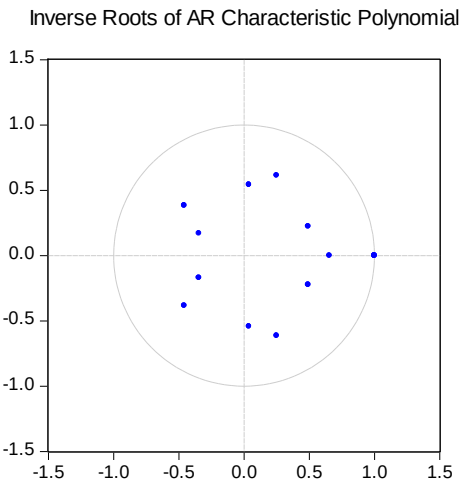
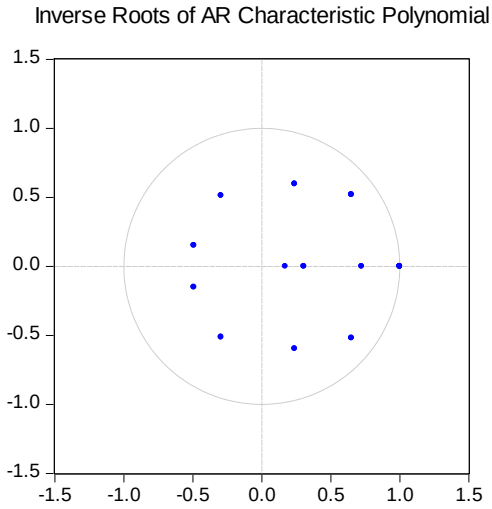
Appendix

Fig: AR ROOT GRAPH

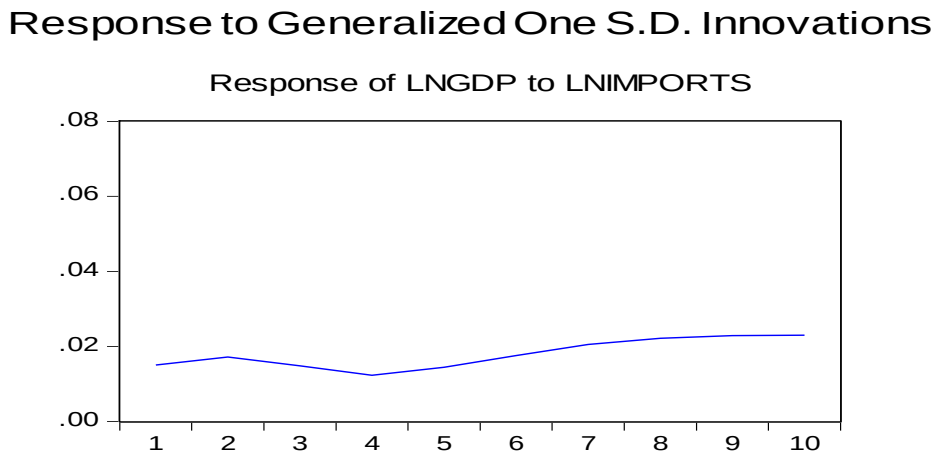
India

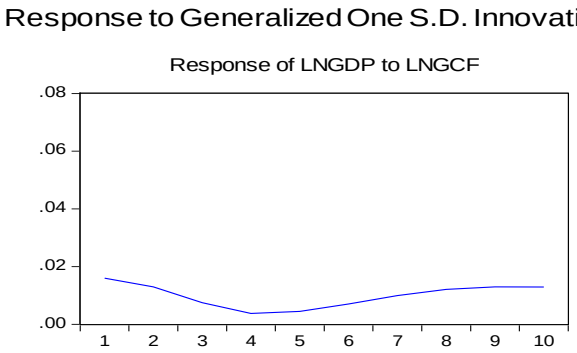


China



Impulse Response Function





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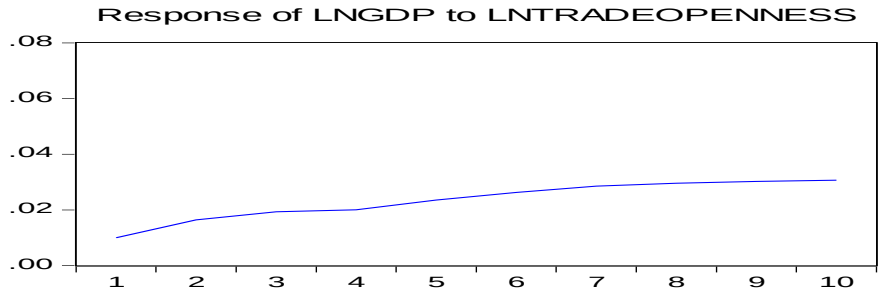
Response to Generalized One S.D. Innovations



Variance decomposition

Variance Decomposition of LNGDP:

Period	S.E.	LNGDP	LNEXPORTS	LNIMPORTS	LNGCF	LNTRADEOPENNESS
1	0.027577	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.046646	97.40571	0.183868	0.040680	2.313077	0.056665
3	0.063612	94.44567	0.679139	0.036316	4.682863	0.156013
4	0.079757	92.35338	1.159163	0.079807	6.231055	0.176596
5	0.094951	90.91952	1.520800	0.112032	7.260749	0.186899
6	0.109035	89.84001	1.806164	0.136050	8.022144	0.195634
7	0.122094	89.01524	2.033748	0.156423	8.592798	0.201791
8	0.134262	88.38513	2.212559	0.173324	9.023267	0.205717
9	0.145652	87.89637	2.353062	0.187077	9.355068	0.208419
10	0.156361	87.50971	2.464862	0.198358	9.616657	0.210412

Variance Decomposition of LNEXPORTS

Period	S.E.	LNGDP	LNEXPORTS	LNIMPORTS	LNGCF	LNTRADEOPENNESS
1	0.122055	16.34316	83.65684	0.000000	0.000000	0.000000
2	0.200395	16.52004	82.22279	0.349736	0.163461	0.743973
3	0.259531	17.82724	80.33966	0.349142	0.347488	1.136473
4	0.304272	18.13951	79.52166	0.256940	0.504805	1.577086
5	0.339051	17.62816	79.57430	0.215030	0.619144	1.963368
6	0.368308	16.86790	80.02546	0.198124	0.666043	2.242478
7	0.394721	16.11030	80.60529	0.188835	0.667227	2.428353
8	0.419487	15.43046	81.18483	0.181642	0.648373	2.554695
9	0.443050	14.84533	81.71002	0.175260	0.623715	2.645674
10	0.465569	14.34932	82.16605	0.169740	0.599254	2.715641

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