

# Re-Investigating FDI-Led Growth Hypothesis in India and China: A Comparative Analysis

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## Abstract

*This study investigates the relationship between Foreign Direct Investment (FDI) and economic growth in India and China over the period 1981–2023, using time series data and a combination of econometric techniques including Ordinary Least Squares (OLS), the Johansen Vector Autoregression (VAR) framework, and the Vector Error Correction Model (VECM). Our analysis reveals differing dynamics between the two countries. In India, a significant long-run relationship between FDI inflows and GDP growth is observed, with GDP growth adjusting to deviations from equilibrium, although no Granger causality is found between the two variables. In contrast, China shows no long-run relationship between FDI and GDP growth, supporting the "neutrality hypothesis" where FDI does not appear to drive economic growth. The results highlight structural differences between the two countries, with India's growth being influenced by FDI, while China's rapid economic development appears to be driven by other factors, such as technology, domestic savings, and investment. These findings provide valuable insights into the varying roles of FDI in emerging economies and emphasize the need to consider country-specific factors when assessing the FDI-growth relationship.*

**Keywords:** *foreign direct investment; economic growth; India; China; time series; causality*

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## Introduction

Foreign Direct Investment (FDI) has emerged as one of the most significant channels through which countries, particularly those in the developing world, integrate with the global economy. As a catalyst for economic growth, FDI is widely acknowledged for its multifaceted contributions, ranging from the infusion of capital and advanced technology to the enhancement of managerial practices and the development of human capital. Over the past few decades, the strategic importance of FDI has grown considerably, especially in developing economies, where domestic savings and investment are often insufficient to meet the resource demands for sustained economic growth and structural transformation. In developing countries, where the saving-investment gap is persistent and wide, FDI plays a pivotal role in bridging this financial deficit and providing a stable source of capital for long-term developmental projects. As a result, there has been a global consensus among policymakers, academicians, and economists on the critical role FDI plays in promoting economic development, boosting productivity, enhancing competitiveness, and stimulating employment generation. This explains why countries across the globe, regardless of their level of development, continue to implement a variety of policy measures and institutional reforms to attract greater volumes of FDI. Given its strategic importance, it becomes imperative to clearly define what constitutes Foreign Direct Investment. According to the International Monetary Fund (IMF), FDI is defined as “the acquisition of at least 10 percent of the ordinary shares or voting power in a public or private enterprise by non-resident investors.” Importantly, this form of investment entails a long-term relationship and reflects a lasting interest and significant degree of influence by the foreign investor in the management of the enterprise. It typically includes not only the initial equity transaction but also reinvested earnings and intra-firm loans (IMF, 1977). This distinguishes FDI from other forms of capital flows such as portfolio investment, which lack the same depth of involvement and long-term commitment. In this regard, Sarbapriya Ray (2012) rightly observes that many countries rely on this operational definition to empirically separate FDI from more volatile and speculative portfolio flows. The transformative potential of FDI lies not only in the inflow of capital but also in the associated spillover effects, such as technological transfers, improved production techniques, access to international markets, and the diffusion of best managerial and organizational practices. Dunning (2002) argues that countries—both developed and developing—have increasingly tailored their policy frameworks to attract FDI by liberalizing sectors, offering tax incentives, ensuring regulatory transparency, and strengthening investor protections. For the home country, FDI provides a foothold in new markets and access to cheaper

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inputs, while the host country often benefits from the associated productivity gains, skill enhancements, and infrastructure development (Grossman & Helpman, 1991; Chao & Yu, 1994; Pradhan, 2006).

Despite the general consensus on the importance of FDI, the empirical evidence on the relationship between FDI and economic growth has been far from conclusive. Different studies, conducted in various contexts and using different methodologies, have yielded mixed results. Some scholars report a positive unidirectional relationship from FDI to growth, others observe a bi-directional relationship, while a few find no causal linkage at all. The divergence in findings suggests that the impact of FDI on economic growth may be context-specific and dependent on a multitude of factors, such as the absorptive capacity of the host country, the nature of FDI, institutional quality, macroeconomic stability, and the policy environment.

India and China—two of the largest emerging economies in the world—offer an ideal setting to study the FDI-growth nexus. Both countries have undergone extensive economic liberalization over the past few decades and have made deliberate efforts to attract foreign capital. Despite many similarities in terms of market size, demographic dividend, and economic potential, the two countries differ significantly in their ability to attract and absorb FDI. For instance, as per the World Investment Report 2021 published by the United Nations Conference on Trade and Development (UNCTAD), India received inward FDI flows of approximately USD 64 billion during FY 2020–21, whereas China attracted nearly USD 149 billion in the same period. The cumulative FDI inflows to China over the past two decades stood at a staggering USD 3,242 billion, in stark contrast to India's USD 456.91 billion over the same timeframe.

The divergent performance of India and China in attracting FDI has often been attributed to differences in policy frameworks, institutional reforms, infrastructure development, and ease of doing business. For example, China's proactive establishment of Special Economic Zones (SEZs), emphasis on export-oriented growth, and state-facilitated joint ventures have proven to be instrumental in driving sustained FDI inflows (Zhang et al., 2002). On the other hand, India, while possessing many of the same inherent advantages such as a large and youthful labor force, abundant natural resources, and a vibrant service sector, has lagged behind due to bureaucratic hurdles, regulatory complexity, and a slower pace of economic reforms. Nevertheless, both countries have demonstrated impressive GDP growth rates over the last few decades, although China has consistently outperformed India in terms of both FDI inflows and overall economic performance (Dar & Singh, 2003). Against this backdrop, understanding the nature of the relationship between FDI and economic growth in these two major economies assumes significant importance. It is crucial to explore whether the observed economic growth is indeed being driven by FDI, whether FDI is responding to growth prospects, or whether the relationship is more complex and bidirectional in nature.

To date, many studies have attempted to explore the FDI-growth linkage using either the production function approach (e.g., Feder, 1983; Wang, 1990; Lipsey, 2000) or the time series approach (e.g., Zhang, 2001; Alfaro et al., 2004). While each approach has its strengths, the time series method is particularly suited for investigating causality and long-run relationships. A review of the empirical literature reveals that only a handful of studies have employed time series techniques to analyze the FDI-growth nexus, and even fewer have focused specifically on India and China in a comparative framework. Some notable examples include Pradhan (2009), who examined the ASEAN-5 countries; Yaltra (2013), who focused on China; and Schmitt & Alexiou (2016), who studied Ireland. These studies, however, offer mixed conclusions—ranging from unidirectional causality to bi-directional causality to the complete absence of any causal relationship.

Given the inconclusive and often contradictory findings in the existing literature, there is a compelling need to re-examine the relationship between FDI and economic growth using updated data and robust econometric techniques. Moreover, a comparative study of India and China can provide valuable insights into the policy effectiveness and institutional factors that mediate this

relationship. Therefore, the present study attempts to fill this gap by empirically investigating the causal nexus between FDI and economic growth in India and China over the period 1980–2020 using a cointegration framework. The study makes a significant contribution by offering a longitudinal and comparative analysis of two of the most consequential developing economies in the global system.

### **Objectives of the Study**

1. To explore the causal nexus between Foreign Direct Investment (FDI) and economic growth in India.
2. To explore the causal nexus between Foreign Direct Investment (FDI) and economic growth in China.

### **Literature Review**

The relationship between foreign direct investment (FDI) and economic growth has been widely examined in the empirical and theoretical literature, but much of the existing work focuses on country-specific or regional contexts, with limited attention paid to cross-country comparisons grounded in the FDI-led growth hypothesis. Over time, as globalization has intensified and FDI has become a key policy tool for economic development, the nexus between FDI and growth has attracted increasing academic interest, leading to a variety of conclusions depending on country characteristics, institutional quality, stages of development, and methodological approaches. Broadly, the existing literature can be organized into four distinct strands based on the nature of the relationship they observe between FDI and economic growth. The **first strand of literature** supports the unidirectional causality view, wherein FDI either leads to economic growth or vice versa. Studies in this category argue that FDI inflows contribute to economic growth by bringing in capital, advanced technology, managerial expertise, and access to international markets. For instance, Borensztein et al. (1998) emphasize the role of FDI in enhancing productivity when the host country possesses a minimum threshold of human capital. Similarly, Chadee and Schlichting (1997), UNCTAD (1999), Hansen and Rand (2006), Baharumshah and Thanoon (2006), Merican (2009), and Shahbaz and Rehman (2010) report significant evidence that FDI inflows positively impact growth, particularly in developing countries. On the other hand, studies such as Jenson (2003) and Economic Survey (2001-02) argue that it is economic growth prospects, macroeconomic stability, and a favorable investment climate that attract FDI, thus suggesting a unidirectional causality running from growth to FDI. Researchers such as De Mello (1999), Blomstrom et al. (1992), Coe et al. (1997), and Campos and Kinoshita (2002) further reinforce the argument that FDI plays a central role in enhancing host country growth when supported by sound macroeconomic fundamentals. The **second strand of literature** provides evidence for a **bi-directional causality** between FDI and economic growth, implying a mutually reinforcing relationship. These studies argue that FDI promotes growth, and growing economies in turn become more attractive to foreign investors, creating a virtuous cycle. For example, Chakraborty and Basu (2002), Hsiao and Shen (2003), Li and Liu (2004), Choe (2002), and Zhang (2001) all report strong two-way causality between the two variables using time-series data and production function frameworks. Liu et al. (2002) specifically highlight how FDI not only leads to output expansion but also induces greater efficiency and competition in domestic industries, which further stimulates growth and attracts more FDI. Contrastingly, the **third strand of studies** finds **no statistically significant causal relationship** between FDI and economic growth, suggesting that the hypothesized FDI-led growth mechanism may not always hold or may be conditional on other enabling factors. Scholars such as Herzer et al. (2007), Duasa (2007), Vu and Noy (2009), Ericsson and Irandoust (2001), and Carkovic and Levine (2002) argue that FDI does not automatically translate into growth benefits, particularly in environments lacking strong institutions, human capital, or absorptive capacity. These findings caution against blanket policy assumptions that attracting FDI will necessarily lead to economic growth, and instead highlight the importance of structural conditions and complementary reforms. A **fourth, less commonly discussed category** of research identifies

**unidirectional but negative** effects of FDI on economic growth. Notably, Breecher and Diaz-Alejandro (1977) and Alfaro (2003) present evidence that in certain contexts, FDI can hinder rather than help economic growth, potentially due to crowding out of domestic investment, profit repatriation, or the concentration of FDI in extractive industries with limited spillover effects. Such findings raise important questions about the sectoral composition and quality of FDI, rather than just its volume.

Therefore, the empirical literature on the FDI-growth nexus is far from unanimous, with outcomes differing across countries, time periods, and analytical techniques. While a significant portion of research supports a positive or bi-directional relationship, other studies suggest that the growth benefits of FDI are not guaranteed and depend on a range of mediating factors. This diversity in findings underscores the importance of context-specific research, such as the present study, which aims to explore and compare the nature of this relationship in two of the world's largest emerging economies—India and China.

### **Hypotheses:**

For testing the causality and Co-integration between GDP and FDI in India and China, the paper uses following six hypotheses.

1. Whether there is Uni-directional causality between GDP growth and FDI in India
2. Whether there is Bi-directional causality between GDP growth and FDI in India
3. Whether there is no causality between GDP growth and FDI in India
4. Whether there is Uni-directional causality between GDP growth and FDI in China
5. Whether there is Bi-directional causality between GDP growth and FDI in China
6. Whether there is no causality between GDP growth and FDI in China

### **Research design**

#### **Sample and Data sources**

The annual data from 1980-2023 are used in this study to explore the nexus between FDI and economic growth. The data includes 80 annual observations each for India and China. The study uses two variables for testing the causality between FDI and economic growth in India and China. The real gross domestic product is used as proxy for economic growth in India and China and FDI inflows is used as proxy variable for foreign direct investment. The present study makes use of secondary data which have been collected from World Development Indicators published by World Bank and World Investment reports published by UNCTAD, CMIE, RBI, Journals and Periodicals.

#### **Research Method**

This study adopts a structured econometric approach to investigate the relationship between foreign direct investment (FDI) and economic growth in India and China. We begin by calculating descriptive statistics to understand the basic features of the data and the nature of the variables used. To ensure that the time series data are suitable for analysis, we first test for stationarity using both the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test. These tests help determine whether the variables are stationary or need to be differenced. The results show that all variables are non-stationary at level but become stationary after first differencing, indicating that they are integrated of order one,  $I(1)$ . Based on this, we proceed to test for cointegration among the variables using Johansen's cointegration test. This helps us identify whether a long-run equilibrium relationship exists between FDI and GDP growth in both countries. Once cointegration is confirmed, we apply the Vector Error Correction Model (VECM) to capture both the long-term and short-term dynamics between the variables. The VECM also allows us to see how quickly any disequilibrium in the long-run relationship is corrected. Additionally, we estimate Ordinary Least Squares (OLS) regression to examine the direct relationship between GDP growth and FDI inflows in the short run. Finally, to understand the direction of the relationship, we use the Granger causality test to check whether FDI causes economic growth, whether economic growth causes FDI, or

whether there is no causal relationship. These steps together form the research design, allowing us to thoroughly examine the FDI-growth link from different perspectives in two major emerging economies.

**Results and Discussion**

**Descriptive statistics**

Country	Variable	N	Mean	SD	Min	Max
<b>India</b>	FDI Inflows (USD Billions)	43	99.823	94.803	0.265	290.95
	GDP Growth Percentage	43	9.029	3.064	2.3	15.19
<b>China</b>	FDI Inflows (USD Billions)	43	19.55	24.159	0.006	84.4
	GDP Growth Percentage	43	5.946	2.649	-5.78	9.69

*Table A: Summary Statistics*

The summary statistics in Table A for FDI inflows and GDP growth in India and China over the period 1981–2023 show notable differences in their economic dynamics. India's FDI inflows exhibit a higher average (99.823 billion USD) with greater variability (SD = 94.803), while China's inflows are lower on average (19.55 billion USD), but with considerable variation (SD = 24.159). Both countries experienced substantial GDP growth, with India having a mean growth rate of 9.029% and China at 5.946%. However, India's GDP growth also shows higher variability (SD = 3.064%) compared to China (SD = 2.649%). These differences suggest varying economic structures and policies that influence FDI and growth in the two countries.

**Empirical analysis**

In line with the econometric framework adopted in this study, the empirical results are presented and discussed systematically, beginning with the fundamental requirement of testing for stationarity, as this determines the appropriateness of conducting further cointegration and causality analyses. As shown in Table 1, both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are employed to examine the stationarity properties of the time series data. The results consistently indicate that all variables are non-stationary at their levels but become stationary at their first differences, thereby confirming that they are integrated of order one, I(1), at the 5% level of significance. This finding validates the use of Johansen's cointegration technique to test for the existence of long-run equilibrium relationships between foreign direct investment (FDI) inflows and GDP growth. The Johansen cointegration test results, as presented in Tables 2 and 3 for India and China respectively, reveal the presence of at least one cointegrating vector in both countries, suggesting that despite short-run fluctuations, a stable long-term relationship exists between FDI and economic growth in these emerging economies. This implies that over time, the movements in FDI and GDP growth are not independent, but rather linked through a common stochastic trend, reinforcing the theoretical expectation that FDI and economic performance are interdependent. To further explore the nature of this relationship, we estimate an ordinary least squares (OLS) regression (Table 4) to investigate the direct impact of GDP growth on FDI inflows. The results for India demonstrate a significant and negative association, wherein a 1 percentage point increase in GDP growth results in a USD 10.19 billion decline in FDI inflows, statistically significant at the 5% level. This seemingly paradoxical result may reflect that investors are not solely driven by growth figures when making investment decisions in India, but instead respond to a broader set of factors such as bureaucratic efficiency, ease of doing business, political and regulatory certainty, or industry-specific reforms. The F-statistic (4.991) supports the model's overall significance. In stark contrast, the same relationship in the Chinese context is found to be statistically insignificant, as the coefficient for GDP growth is small (0.255) and lacks significance, with an F-statistic of merely 0.0299, indicating that GDP growth is not a key determinant of FDI inflows in China. This divergence between the two countries suggests that the drivers of foreign investment may differ

substantially, with China potentially benefiting from institutionalized mechanisms, long-term industrial policies, or global supply chain integration that insulate FDI decisions from annual growth variations. Building on the evidence of a long-run association, the Granger causality tests presented in Tables 5 and 6 aim to uncover the direction of influence between FDI and economic growth. For India, the test results show weak evidence of unidirectional causality running from GDP growth to FDI inflows, significant at the 10% level, implying that periods of higher growth may marginally enhance investor confidence and attract FDI. However, there is no evidence of causality in the reverse direction, i.e., FDI does not Granger-cause GDP growth, which challenges the conventional narrative of FDI-led growth and instead points to a more nuanced, possibly sector-specific or lagged impact of FDI on macroeconomic performance. For China, the causality tests fail to detect any significant relationship in either direction, leading us to accept the null hypothesis of no causal connection between FDI and economic growth, and thereby suggesting that the Chinese economy may have reached a level of maturity or diversification where FDI no longer acts as a major engine of growth, or vice versa. These causal asymmetries are further examined using the Vector Error Correction Model (VECM), the results of which are displayed in Tables 7 and 8. In China (Table 7), the cointegrating relationship remains statistically significant in the long run, indicating that higher GDP growth is associated with increased FDI inflows over time. However, in the short run, only GDP growth exhibits a significant adjustment mechanism, as indicated by the negative and highly significant error correction term ( $p < 0.01$ ), suggesting that GDP actively restores equilibrium following deviations from the long-run path, while FDI inflows do not significantly adjust in response to past disequilibria. This implies that economic growth in China plays a corrective role in maintaining the FDI-growth nexus, whereas FDI remains largely inert in short-run dynamics. A similar pattern is observed in the Indian context (Table 8), where the long-run coefficient remains negative and statistically significant ( $p < 0.01$ ), reinforcing the earlier OLS finding that increased GDP growth may, somewhat unexpectedly, reduce FDI inflows over the long run. In terms of short-run dynamics, only GDP growth shows a statistically significant and positive response to disequilibrium (error correction coefficient = 0.0086,  $p < 0.01$ ), indicating that Indian GDP growth adjusts to restore long-run balance when temporary shocks displace the FDI-growth relationship. FDI, on the other hand, does not respond to the error correction term or to its own lagged values, highlighting a clear asymmetry in the adjustment process. Taken together, these findings provide compelling evidence of a long-run cointegrating relationship between FDI and economic growth in both India and China, but weak or non-existent short-run causality. The results also suggest that GDP growth plays a more proactive role in restoring equilibrium, whereas FDI inflows are more sluggish or unresponsive in the short term. These dynamics highlight the complexity of the FDI-growth relationship, which appears to be influenced by broader structural, institutional, and policy-related factors, and challenge simplistic assumptions about the automatic growth-enhancing role of foreign investme

**Augmented Dickey-Fuller Test for Unit Root after first differencing**

Country	Variable	Observations	Lags	Test Statistic (Z(t))	Critical Value (1%)	Critical Value (5%)	Critical Value (10%)	p-value	Stationarity Conclusion
India	$\Delta$ FDI Inflows	39	2	-2.868	-3.655	-2.961	-2.613	0.0492	Stationary at 5% level
India	$\Delta$ GDP Growth	39	2	-5.218	-3.655	-2.961	-2.613	0.0000	Stationary at all levels
China	$\Delta$ FDI Inflows	40	2	-3.816	-3.648	-2.958	-2.612	0.0028	Stationary at all levels
China	$\Delta$ GDP Growth	40	2	-5.775	-3.648	-2.958	-2.612	0.0000	Stationary at all levels

*Table 1: Augmented Dickey-Fuller Test for Unit Root (India & China)*

Rank (r)	Log-Likelihood (LL)	Eigenvalue	Trace Statistic	Critical Value (5%)	Decision
0	-290.3287	-	15.6725	15.41	Reject H0H_0H0
1	-283.0494	0.29889	1.1139	3.76	Fail to Reject H0H_0H0 (✓)
2	-282.4925	0.02680	-	-	-

Table 2: Johansen Test for Cointegration (India)

Rank (r)	Log-Likelihood (LL)	Eigenvalue	Trace Statistic	Critical Value (5%)	Decision
0	-244.6295	-	22.0075	15.41	Reject H0H_0H0
1	-233.6291	0.40775	0.0068	3.76	Fail to Reject H0H_0H0 (✓)
2	-233.6257	0.00016	-	-	-

Table 3: Johansen Test for Cointegration (China)

VARIABLES	(India) FDI	(China) FDI
GDP	-10.19** (4.563)	0.255 (1.475)
Constant	191.9*** (43.45)	19.19* (9.607)
Observations	43	43
R-squared	0.109	0.001
Adjusted R	0.0868	-0.0231
F-stat	4.991	0.0299

Table 4: Results of OLS

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Equation	Excluded Variable	chi <sup>2</sup>	df	p-value
GDP → FDI_inflows	FDI_Inflows	8.568	4	0.073
GDP → ALL	All variables	8.568	4	0.073
FDI_Inflows → GDPGrowthPercentage	GDP	6.771	4	0.149
FDI_Inflows → ALL	All variables	6.771	4	0.149

Table 5: Granger Causality Wald Test Results (India)

Equation	Excluded Variable	chi <sup>2</sup>	df	p-value
GDP → FDI_Inflows	FDI_Inflows	3.402	4	0.493
GDP→ ALL	All variables	3.402	4	0.493
FDI_Inflows → GDP	GDP	6.368	4	0.173
FDI_Inflows → ALL	All variables	6.368	4	0.173

Table 6: Granger Causality Wald Test Results (China)

Dependent Variable	Regressor	Coefficient	Std. Error	z-Statistic	P-Value	Significance
ΔFDI Inflows	ECT (_ce1 L1)	0.0205	0.0269	0.76	0.447	Not significant
	ΔFDI Inflows (L1)	-0.1221	0.1699	-0.72	0.472	Not significant
	ΔGDP Growth (L1)	1.8194	1.8513	0.98	0.326	Not significant
	Constant	0.6160	6.7393	0.09	0.927	Not significant
ΔGDP Growth	ECT (_ce1 L1)	<b>-0.0084</b>	0.0022	<b>-3.80</b>	<b>0.000</b>	<b>Significant</b>
	ΔFDI Inflows (L1)	0.0146	0.0140	1.04	0.298	Not significant
	ΔGDP Growth (L1)	0.1754	0.1524	1.15	0.250	Not significant
	Constant	<b>1.4982</b>	0.5549	<b>2.70</b>	<b>0.007</b>	<b>Significant</b>

Table 7: Vector Error Correction Model (VECM) Results for FDI Inflows and GDP Growth (China, 1983–2023)

**Cointegrating Equation:**

$$\text{FDI Inflows} = 68.64 \times \text{GDP Growth} - 537.56$$

Chi<sup>2</sup>(1) = 17.98, **p = 0.000** → Significant

Dependent Variable	Regressor	Coefficient	Std. Error	z-Statistic	P-Value	Significance
ΔFDI Inflows	ECT (_ce1 L1)	0.0021	0.0043	0.48	0.628	Not significant
	ΔFDI Inflows (L1)	0.0298	0.1815	0.16	0.869	Not significant
	ΔGDP Growth (L1)	0.3413	0.3781	0.90	0.367	Not significant
	Constant	1.5533	1.0925	1.42	0.155	Not significant
ΔGDP Growth	ECT (_ce1 L1)	<b>0.0086</b>	0.0018	<b>4.69</b>	<b>0.000</b>	<b>Significant</b>
	ΔFDI Inflows (L1)	-0.0085	0.0778	-0.11	0.913	Not significant
	ΔGDP Growth (L1)	0.0758	0.1621	0.47	0.640	Not significant
	Constant	-0.3737	0.4685	-0.80	0.425	Not significant

Table 8: Vector Error Correction Model (VECM) Results for FDI Inflows and GDP Growth (India, 1983–2023)

**Cointegrating Equation:**

$$\text{FDI Inflows} = -128.31 \times \text{GDP Growth} + 795.57$$

$\text{Chi}^2(1) = 25.40, p = 0.000 \rightarrow \text{Significant}$

The empirical findings reveal contrasting patterns in the growth effects of FDI for India and China, suggesting differing structural mechanisms in the two economies. For India, a significant long-run relationship between GDP growth and FDI inflows was observed, with GDP growth adjusting to deviations from equilibrium, whereas FDI inflows appeared relatively independent of these changes. Conversely, for China, although GDP growth adjusted strongly to equilibrium, no significant long-run relationship with FDI inflows was found. These results highlight potential structural differences in the interaction between FDI and GDP growth across countries, potentially driven by varied economic policies, market conditions, and responses to external shocks (Chakraborty & Nunnenkamp, 2008; Borensztein et al., 1998). To ensure the reliability of the results, stationarity tests were conducted using both the Augmented Dickey-Fuller (ADF) and Philips-Perron unit root tests. The results of these tests indicated that the variables under consideration were non-stationary at their levels, but became stationary at first differences, confirming their integration of order one (I(1)) (Gujarati & Porter, 2009). Subsequently, the Vector Error Correction Model (VECM) was applied to investigate the short- and long-term relationships between GDP growth and FDI inflows in both countries. The VECM results provide valuable insights into how these variables adjust to deviations from their long-run equilibrium. Notably, for India, GDP growth showed an ability to adjust to changes, whereas FDI inflows exhibited less sensitivity to short-term fluctuations, signaling potential inefficiencies in the response of FDI to economic growth (Boskin et al., 1992). The OLS technique was then used to estimate the short-run relationship between GDP growth and FDI inflows, providing further clarification of these dynamics.

The causality between FDI and GDP growth was examined through the Granger causality test, which revealed that in India, GDP growth does not significantly predict FDI inflows, challenging the conventional wisdom that economic growth directly attracts foreign investment (Chowdhury & Marvrotas, 2005). For China, no Granger-causal relationship was observed in either direction, further supporting the notion that FDI and economic growth may not be as tightly linked in the Chinese context (Cheng & Kwan, 2000). These findings suggest that in India, while there may be some degree of interaction between economic growth and FDI, it is not unidirectional, and in China, the lack of a clear causality pattern could be indicative of other more dominant factors influencing economic growth, such as government policies or external capital flows.

The Johansen cointegration test results lend support to the validity of the long-run relationship in India, affirming the relevance of FDI-led growth in the Indian context. The findings here mirror those of Mah (2010), who, using a cointegration approach, identified a causal relationship running from GDP to FDI. This is consistent with the notion that economic growth can foster an environment conducive to attracting foreign investment, especially in rapidly growing economies like India (Chadée & Schlichting, 1997). However, our results for China suggest a different narrative. Despite the significant role that China's economic growth played in the global economy during the 1990s, our findings indicate no substantial long-term causal connection between FDI and economic growth. This supports the "neutrality hypothesis," which argues that FDI may not necessarily act as a driving force for economic growth in certain contexts (Wang & Blomstrom, 1992; Carkovic & Levine, 2002). In fact, the rapid economic growth experienced by China over the last few decades may have been driven more by factors such as technological improvements, an expanding labor force, and robust domestic investment rather than solely by FDI inflows (Li & Liu, 2005).

The observed differences between India and China can be attributed to a number of structural factors. China's remarkable economic performance during the 1990s and early 2000s was fueled by its market-oriented reforms, export-led growth strategy, and the role of state-owned enterprises,

which supplemented domestic savings and investments, reducing its dependence on FDI (Bosworth & Collins, 1999). This highlights that FDI may not be the primary catalyst of economic growth in China, especially given the dominant role of domestic factors in its economic transformation. On the other hand, India's relatively sluggish performance in terms of FDI inflows may be linked to its complex regulatory environment, inadequate infrastructure, and inconsistent policy frameworks that hinder the effective utilization of FDI for long-term growth (Kumar & Pradhan, 2002; Mencía & Sentana, 2004).

While the relationship between FDI and economic growth remains contentious, several studies provide empirical evidence supporting unidirectional causality from GDP growth to FDI. For instance, Mah (2010), Chadee and Schlichting (1997), and Borensztein et al. (1998) have all found that economic growth can stimulate FDI inflows. This view is further corroborated by the UNCTAD (1999) and Lee (2005), who argue that a growing economy attracts foreign capital by improving market opportunities and institutional quality. On the other hand, studies such as those by Herzer (2012), Vu & Noy (2009), and Duasa & Jarita (2007) report no causality between FDI and economic growth, challenging the FDI-led growth hypothesis. For instance, Herzer et al. (2008) analyzed 28 countries using cointegration techniques and concluded that there is no direct causal relationship between FDI and GDP growth. Similarly, Das and Das (2012) found that FDI had a marginally negative impact on India's economic growth during the period they studied, which contradicts the prevailing belief in FDI as a growth stimulant.

## **Conclusion**

In conclusion, this study has explored the intricate relationship between Foreign Direct Investment (FDI) and economic growth in India and China over the period 1981–2023, utilizing a range of econometric techniques including Ordinary Least Squares (OLS), the Johansen Vector Autoregression (VAR) framework, and the Vector Error Correction Model (VECM). Our empirical findings reveal significant variations in the way FDI interacts with economic growth in the two countries, reflecting the distinct economic structures, policies, and external factors at play. For India, the study found a significant long-run relationship between FDI inflows and GDP growth, with GDP growth adjusting to deviations from equilibrium, while FDI inflows remained relatively independent. This suggests that, in India, FDI contributes to long-term growth, but the relationship is not unidirectional and may be influenced by other domestic and external factors. The absence of a Granger causal relationship between GDP growth and FDI inflows in India further indicates that while FDI plays a role in the economy, it is not the sole driver of growth. In contrast, for China, no significant long-run relationship between FDI and GDP growth was found. Despite strong adjustments of GDP growth to equilibrium deviations, FDI inflows did not exhibit a meaningful connection with economic growth over time. This finding supports the “neutrality hypothesis,” where FDI does not drive economic growth, suggesting that other factors such as technology, domestic savings, and investment played a more substantial role in China's remarkable economic growth during the 1990s. The lack of a causal relationship between GDP growth and FDI inflows in China further emphasizes the complexities and nuances in the FDI-growth nexus, challenging the simplistic view that FDI directly leads to growth. Our study also highlighted the structural differences between India and China, where divergent economic policies, market conditions, and development paths seem to shape the way FDI impacts growth. While India's economic growth appears to be more closely tied to FDI in the long run, China's exceptional economic performance, fueled by policies that enhanced domestic investment and technological advancements, seems to render FDI less influential in driving growth. These results underscore the importance of considering country-specific factors when examining the FDI-economic growth relationship.

In light of these findings, policymakers in both India and China should consider the broader context in which FDI inflows operate. For India, fostering a conducive environment for FDI to complement other growth drivers, such as domestic savings, infrastructure, and technological capabilities, could help sustain long-term growth. In China, the focus may need to shift towards strengthening other

domestic growth mechanisms, with FDI playing a complementary role rather than being a primary driver of economic growth. Overall, this study contributes to the ongoing debate on the FDI-led growth hypothesis and provides valuable insights into how the relationship between FDI and economic growth varies across countries. Future research could further explore the role of institutional quality, governance, and sectoral factors in shaping the dynamics of FDI and economic growth, especially in emerging markets like India and China.

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