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DETERMINANTS OF FOREIGN DIRECT INVESTMENT AND ITS LINKAGE WITH INTERNATIONAL BUSINESS IN INDIA: AN EMPIRICAL ANALYSIS (1991–2025)

Dr. Meghna Malhotra[1*], Shreyansh Singh[2]

[1]Associate Professor, Department of Commerce, Hansraj College, University of Delhi, Delhi 110007, India*
ORCID ID: 0009-0002-5704-1375 EMAIL ID: meghna.hrc@gmail.com
[2]Department of Commerce, Hansraj College, University of Delhi, Delhi 110007, India EMAIL ID: singhshreyansh010204@gmail.com

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Abstract
This paper examines the macroeconomic determinants of India's aggregate inflows of foreign direct investment (FDI) between 1991 and 2025 and assesses the extent to which cumulative FDI has shaped India's international business performance. Using the data from post reform perio(1995–2025) drawn from the Department for Promotion of Industry and Internal Trade, the Reserve Bank of India, the World Bank and UNCTAD, the study integrates descriptive trend analysis, Pearson bivariate correlation and multivariate ordinary least squares (OLS) regression within Dunning's OLI framework. The results show that market size (GDP), infrastructure quality, trade openness and the post-2014 policy reform regime are strongly and positively associated with FDI inflows, while inflation exerts a smaller negative effect. All five directional hypotheses are supported, and the model explains 98 per cent of the variance in FDI inflows across benchmark years. The paper further finds that cumulative FDI has been closely linked to India's services and technology export boom and to selective gains in global value chain participation and technology spillovers but these benefits remain concentrated in a small number of sectors, states and source jurisdictions. The study contributes an updated empirical baseline extending beyond 2015. It bridges the traditionally separate literature on determinants of FDI and consequences of FDI literatures and offers policy recommendations centred on infrastructure investment, macroeconomic stability, and supplier development.

Keywords: *Foreign Direct Investment; India; OLI Paradigm; Trade Openness; Infrastructure; Global Value Chains; Production-Linked Incentives*

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1. Introduction

The determinants of cross-border capital movement have occupied economists, policymakers and international business scholars since the early twentieth century. The International Monetary Fund defines FDI as an investment that reflects a lasting interest and a significant degree of influence by a resident entity in one economy over an enterprise resident in another. Unlike portfolio investment, which can be readily divested, FDI entails a durable commitment of productive capacity, managerial know-how and forward and backward linkages with the host economy. The literature traces this distinctiveness to Hymer (1976), who argued that FDI reflects firm-specific ownership advantages rather than interest-rate differentials, a claim later extended by Caves (1996) and synthesised by Dunning (1993) into the Ownership–Location–Internalisation (OLI) paradigm. Within this framework, the present study focuses on Location advantages namely market size, trade openness, infrastructure, macroeconomic stability and quality of policy, as these have varied substantially in India since the 1991 liberalisation and constitute the central analytical problem addressed here.

FDI flows in India rose radically from less than USD 1 billion in the early 1990's to around USD 81 billion in FY2024-25, crossing USD 1 trillion almost after 2000. This growth has not been linear. It has been affected by the Global Financial Crisis, episodes of policy uncertainty, the COVID-19 pandemic and the post-2022 realignment of global production networks. This paper aims to understand the macro-determinants of this trajectory and its consequences for India's international business performance.

Three gaps motivate the study. First, much of the India-specific determinants literature concludes its empirical analysis by 2015, missing the discontinuation of the Foreign Investment Promotion Board, the Goods and Services Tax (GST), the Insolvency and Bankruptcy Code (IBC), sector-specific Production-Linked Incentive (PLI) schemes, and the post-2020 supply-chain reconfiguration; Pankaja (2025) notes that India attracted over USD 500 billion in FDI equity between 2014 and 2024 against USD 208 billion in the preceding decade, a 140 per cent increase largely unexamined by earlier studies. Second, the determinants literature and the consequences literature have evolved largely in isolation, with few studies linking what attracts FDI to what that FDI subsequently does for trade, technology, and multinational activity. Third, this paper is one half of a two-paper research programme conducted at the Department of Commerce, Hansraj College: a companion study by Utkarshjeet Singh examines the sectoral and regional distribution of India's FDI stock using a Herfindahl–Hirschman Index (HHI) approach, finding persistent moderate concentration (HHI of 2,050–2,380).

The study pursues five objectives. Firstly, to identify the macro-determinants of FDI inflows, focusing on market size, trade liberalisation, infrastructure, and macroeconomic stability. Secondly, to map how the relative importance of these determinants has evolved across policy sub-periods. Thirdly, to specify and estimate a multivariate model of FDI determinants. Fourthly, to assess the impact of cumulative FDI on exports, global value chain (GVC) integration, technology transfer, and multinational enterprise (MNC) activity, including its distributional limits. Lastly, to derive policy implications and future research directions. Correspondingly, three research questions guide the analysis. Firstly, what have been India's principal macroeconomic FDI determinants and how have they evolved. Secondly, what do formal regression results reveal about the direction and strength of each determinant and lastly, through what mechanisms and with what distributional consequences has cumulative FDI shaped India's international business outcomes.

Grounded in the OLI paradigm and the literature reviewed in Section 2, five directional hypotheses are tested. The first hypothesis is related to market size (H1) that a larger market, measured by nominal GDP, is associated with larger FDI inflows; second hypothesis is for trade openness (H2) that a higher trade-to-GDP ratio is associated with larger FDI inflows; third hypothesis is for infrastructure (H3) that higher electricity and internet penetration are associated with larger FDI inflows; fourth hypothesis is for macroeconomic stability (H4) that higher inflation is associated with smaller FDI inflows; and lastly hypothesis for policy reforms (H5) that the post-2014 active-reform phase is associated with larger FDI inflows than the preceding gradual-liberalisation phase. The remainder of the paper is organised as follows. Section 2 discusses literature on this topic and points out the research gaps. Section 3 explains the sources of data, construction of variables and specification of model. Section 4 presents result in descriptive manner. Section 5 further examines linkages of FDI with India's export performance, global value chain integration, technology transfer and activities of multinational firms. Section 6 gives conclusion, policy recommendations and scope for future research.

2. Literature Review

2.1 Theoretical Foundations

Hymer (1976) showed that FDI is a firm-level concept. FDI is driven by ownership advantages such as proprietary technology, brand equity or managerial know-how. These advantages help FDI overcome the

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liability of foreignness in a host market. FDI is not a simple reaction, to interest-rate differences. Caves (1996) took this idea further into an industrial-organisation setting. Caves showed that FDI is found in R&D-intensive highly differentiated industries. In those industries specific strengths are hard to move through arm's-length contracts. Dunning (1993) synthesised these insights into the Ownership–Location–Internalisation (OLI) paradigms emphasising that FDI occurs when a firm possesses an ownership advantage over host-country rivals. The host offers a location advantage over exporting from home and internalising the transaction is more profitable than licensing it. The OLI framework is the most relevant lens for this study, since it focuses on locational factors like market size, openness, infrastructure and quality of policy as the host-country conditions determining attractiveness of FDI. Helpman (1984) and Markusen (2002) distinguish horizontal FDI, which replicates production abroad to avoid trade costs, from vertical FDI, which fragments production according to comparative advantage; India has received both, vertical FDI in IT and services on the strength of human-capital advantage, and horizontal FDI in automobiles, consumer goods, and financial services on the strength of market size. Melitz (2003) shows within new-trade theory that only the most productive firms undertake FDI, implying that host-country conditions lowering the productivity threshold for competitiveness for example better infrastructure, lower transaction costs, freer trade should expand the pool of firms that qualify as investors. Dunning and Lundan (2008) further argue that institutional quality, property rights, legal systems, corporate governance should itself be treated as a location advantage, a proposition directly relevant to India's post-2016 institutional reforms (the IBC, GST, and digitalisation of compliance).

2.2 Market Size

The association between host-market size and FDI is among the most robust findings in the empirical literature. Chakraborty and Nunnenkamp (2008) use sector-level Indian data to find that GDP growth is the single most consistent predictor of FDI inflows, with the strongest relationship in services and weaker in manufacturing. They emphasise that the quality of policy and infrastructure matter more than other factors. Singhania and Gupta (2011) confirm the GDP–FDI association for 1991–2009. They highlight exchange-rate dynamics as a conditioning factor. Pradhan (2013) reports long-run cointegration between FDI, GDP growth, trade openness, and infrastructure. Mohanasundaram (2015) found bidirectional causality between FDI and growth which has direct implications for the endogeneity of GDP in the regression analysis of this study. At the cross-country level, a systematic review of 247 studies by Islam and Beloucif (2024) finds market size significant across virtually all specifications and country samples, while Sarker and Serieux (2023) show the market-size effect is amplified in economies that are also relatively open and well-endowed with infrastructure.

2.3 Trade Openness

Balasubramanyam, Salisu, and Sapsford (1996) show that FDI contributes more to growth in export-promoting than import-substituting developing economies, implying that openness is a precondition for FDI to be productive and therefore attractive to investors. In the Indian context, Banga (2006) finds that Japanese and US FDI increased export orientation and product sophistication in manufacturing, while Sahni (2012) links the fall in average tariffs from roughly 80 per cent in 1990 to below 15 per cent by 2010 with rising FDI inflows. A complicating recent trend is the selective re-tariffing of strategic sectors (electronics, solar photovoltaics, auto components) alongside PLI incentives; Nunnenkamp (2007) anticipated exactly this pattern, terming it "tariff-jumping" FDI that seeks protected-market access. Islam and Beloucif (2024) rank trade openness as the second most successful determinant after market size, significant in roughly 70 per cent of reviewed studies, and note evidence of reverse causality as FDI itself promotes capital-goods imports and manufactured exports.

2.4 Infrastructure and Macroeconomic Stability

Infrastructure quality like reliable electricity and digital connectivity reduces the operating costs and risks that condition FDI viability, and is particularly salient for technology-intensive and export-oriented investment. Macroeconomic stability, chiefly low and predictable inflation, similarly reduces investment risk; Agrawal (2015) finds inflation a significant negative determinant of FDI across the BRICS economies, a result consistent with India's transition from double-digit inflation in the early 1990s to the 4–6 per cent range under the inflation-targeting regime adopted in 2014–15. The relationship between exchange-rate movements and FDI is more ambiguous. Blonigen (1997) finds depreciation attracts Japanese manufacturing FDI into the United States by lowering the yen cost of dollar assets, while Caves (1996) finds a negative association owing to reduced repatriated-profit value; Singhania and Gupta (2011) report mixed results for India across sub-periods. Macroeconomic stability is best considered as a threshold variable. Once a tolerable range of stability is achieved further gains lead to diminishing returns relative to market size or infrastructure. This pattern is consistent with India's experience since the mid-1990s.

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2.5 Policy Reform and the Institutional Environment

Agrawal (2015) finds that liberalisation of equity limits, reduced administrative barriers and improved corporate governance are significant FDI determinants across the BRICS economies. They are directly supporting Policy Reform Hypothesis (H5) of this study. Mukherjee (2017) evaluates the Make in India programme and finds genuine reform intent accompanied by uneven implementation, with announced commitments in defence, rail, and civil aviation outpacing actual capital-intensive investment. Using a difference-in-differences design at the sector level, Banerjee and Ghosh (2022) find that PLI-target sectors recorded a 35–40 per cent rise in equity FDI relative to non-target sectors, concentrated in electronics and mobile manufacturing. Pankaja (2025) documents a structural break around 2014 and UNCTAD (2024, 2025) ranks India among the top global destinations for greenfield FDI, noting a 13 per cent rise in Indian inflows in 2024 even as inflows to the rest of developing Asia fell.

2.6 FDI and International Business Outcomes

Export-oriented FDI embeds domestic production in world production networks. Banga (2006) shows Japanese and US FDI shifted Indian manufacturing exports toward higher value-added goods, while India's IT-business process management (IT-BPM) sector which grew to approximately USD 194 billion in exports by FY2022–23 illustrates FDI-centred export growth through wholly owned subsidiaries and global capability centres established by firms such as IBM, Accenture, Microsoft, Google and Amazon. Global value chain (GVC) integration, conceptualised by Gereffi, Humphrey and Sturgeon (2005), allows host firms to acquire technology, quality standards, and managerial capability through buyer–supplier relationships. Borensztein, De Gregorio, and Lee (1998) show that the growth benefits of FDI are conditional on host human capital, a finding of particular relevance to India's engineering workforce. On technology transfer, Javorcik's (2004) micro-data study of Lithuania finds spillovers occur primarily through backward vertical linkages rather than horizontal, within-industry competition; Sasidharan (2006) documents analogous spillovers in Indian pharmaceuticals and electronics, Marin and Sasidharan (2010) show spillovers are largest when the foreign-domestic technology gap is moderate rather than extreme, and Behera (2025), using Indian manufacturing panel data for 2010–2018, confirms that backward spillovers are strongest where supplier networks are well developed. Keller (2004) identifies FDI as a principal channel of international technology diffusion, particularly where human capital and trade openness are high. These conditions are met in India's most FDI-intensive sectors, which now host over 1,600 global capability centres employing more than 1.66 million workers.

2.7 Research Gaps

This research paper identifies three gaps that this paper addresses: a temporal gap, as most India-specific determinant studies conclude before 2015 and thus miss the post-2014 reform acceleration and post-2020 technology and manufacturing surge; an integrative gap, as the determinants and consequences literatures rarely inform one another; and a level-of-analysis gap between aggregate macroeconomic determinants. The empirical analysis that follows is designed to close these gaps jointly.

3. Data and Methodology

The study adopts a post-positivist, descriptive-analytical and explanatory research design: descriptive in tracing the co-evolution of FDI and its macro-determinants over 1991–2025, analytical in its use of correlation and regression, and explanatory in interpreting results through the OLI lens developed in Section 2. The design is non-experimental and observational; consequently, OLS estimates are interpreted as indicative partial associations rather than causally identified effects.

Data are drawn from five sources. Firstly, from the Department for Promotion of Industry and Internal Trade (DPIIT), whose quarterly fact sheets (April 2000–March 2025) provide the primary FDI equity-inflow series, supplemented for 1991–2000 by RBI balance-of-payments data. Secondly, from the World Bank's World Development Indicators (WDI), providing GDP, trade-to-GDP ratios, electricity consumption per capita, internet penetration, and CPI inflation. Thirdly, from the RBI's Handbook of Statistics on the Indian Economy (2024), providing exchange-rate and current-account data. Fourthly, from UNCTAD's World Investment Reports and Global Investment Trends Monitors, providing comparative international benchmarks and lastly from the India Brand Equity Foundation (IBEF), supplementing sector-specific data for renewable energy and semiconductors. Table 1 summarises the variables, measurement, sources and theoretically expected signs as follows.

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Table 1. Variable Definitions, Sources, and Expected Signs

Variable	Role	Measurement	Source	Expected Sign
FDI Inflows	Dependent	Annual equity inflows (USD Bn)	DPIIT / RBI / UNCTAD	—
GDP (GDPt)	Independent	GDP at current prices (USD Tn)	World Bank WDI	Positive (+)
Trade Openness	Independent	(Exports + Imports)/GDP × 100 (%)	World Bank WDI	Positive (+)
Infrastructure	Independent	Composite: electricity/capita + internet users	World Bank WDI	Positive (+)
Inflation	Independent/Control	Annual CPI inflation (%)	World Bank WDI	Negative (−)
Policy Reform	Independent	Binary: 0 = 1991–2013; 1 = 2014–2025	Author classification	Positive (+)
Exchange Rate	Control	INR/USD annual average	RBI Handbook	Ambiguous

Source: Made by the authors

The dependent variable annual equity inflows rather than total FDI (which includes reinvested earnings) best captures new investment commitment. The infrastructure composite equally weights normalised electricity consumption per capita and internet users per 100 people. It is capturing physical and digital dimensions of investment readiness. The policy-reform dummy is an original classification distinguishing a gradual-liberalisation phase (1991–2013) from an active reform phase (2014–2025) marked by Make in India, GST, the IBC, PLI schemes and sustained Ease-of-Doing-Business improvements. While a binary variable necessarily simplifies a continuous phenomenon, it captures the qualitative shift in reform ambition after 2014. The primary model is specified as: $FDI_t = \beta 0 + \beta 1 GDP_t + \beta 2 TRADE_t + \beta 3 INFRA_t + \beta 4 INFL_t + \beta 5 POL_t + \varepsilon_t$, estimated using data for seven benchmark years (1995, 2000, 2005, 2010, 2015, 2020, 2025) selected to span India's major structural transitions. Benchmark years, rather than an annual series were chosen because annual data would exacerbate multicollinearity among trending macroeconomic series relative to the number of parameters and because the benchmark-year approach foregrounds structural relationships over year-to-year volatility. The bidirectional FDI–GDP relationship documented by Mohanasundaram (2015) implies that the GDP coefficient may be upward-biased by reverse causality. The instrumental variable or ARDL approaches, discussed in Section 6, would offer more rigorous causal identification.

The principal methodological limitation is the small benchmark year sample (n = 7) relative to five explanatory variables, which constrains statistical power and the reliability of standard errors. The results are accordingly presented as illustrative theory-consistent evidence rather than precisely identified causal parameters. The exclusive reliance on secondary aggregate data also precludes firm-level analysis of investment decisions or spillover mechanisms It is restricting conclusions to the macro/meso level. Despite these constraints the approach provides a transparent empirical baseline for the international business linkage analysis in Section 5.

4. Results

4.1 Phase-wise Trend in FDI Inflows

India's FDI trajectory divides into five phases (Figure 1). Phase I (1991–2000) was one of cautious beginnings. Despite the 1991 structural-adjustment reforms, inflows averaged only USD 1–3 billion annually. It was constrained by residual sectoral restrictions and weak infrastructure roughly a tenth of China's contemporaneous inflows under its Special Economic Zone strategy. Phase II (2000–2008) saw a technology and telecom surge, with the IT sector's competitive emergence, the New Telecom Policy of 1999, and progressive automatic-route liberalisation lifting inflows tenfold to approximately USD 37 billion by 2007–08

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exemplified by Vodafone's USD 11.1 billion acquisition of Hutchison Essar. Phase III (2008–2014) brought post-crisis resilience but also policy uncertainty, as high-profile tax disputes (Vodafone, Cairn Energy) dampened sentiment even as services FDI proved comparatively resilient; inflows stabilised around USD 35–45 billion annually. Phase IV (2014–2020) marked a reform acceleration under Make in India, GST, the IBC, and improved Ease-of-Doing-Business rankings, with inflows crossing USD 60 billion in 2016–17. Phase V (2020–2025) combined pandemic-driven digital surge including Reliance Jio's USD 20 billion fundraise from Facebook, Google, Intel, and KKR with early semiconductor investment (Micron, Tata-PSMC, CG Power-Renesas exceeding USD 17 billion combined), lifting inflows to a record USD 81.72 billion in 2020–21. Average annual inflows rose roughly thirty-six-fold from Phase I (≈USD 2 billion) to Phase V (≈USD 72 billion), with every successive phase recording a higher average than the one before it despite the Global Financial Crisis, demonetisation, and COVID-19 all falling within the study period.

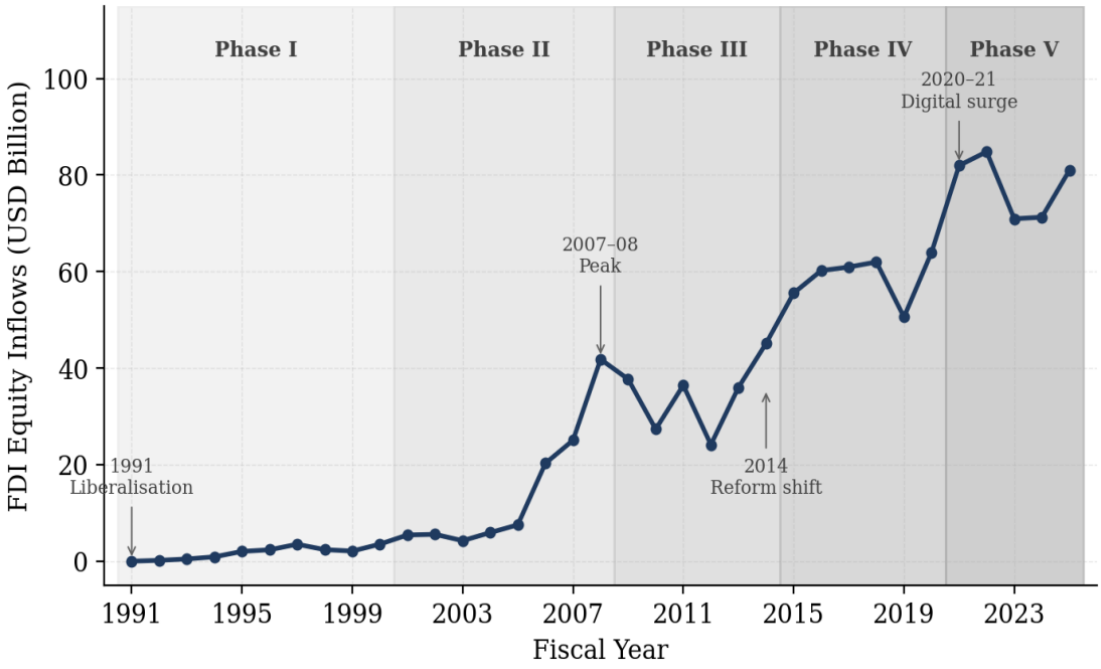


Figure 1. India's Annual FDI Equity Inflows, 1991–2025.
Source: Author's computation based on DPIIT Fact Sheets (2000–2025) and RBI balance-of-payments data (1991–2000).

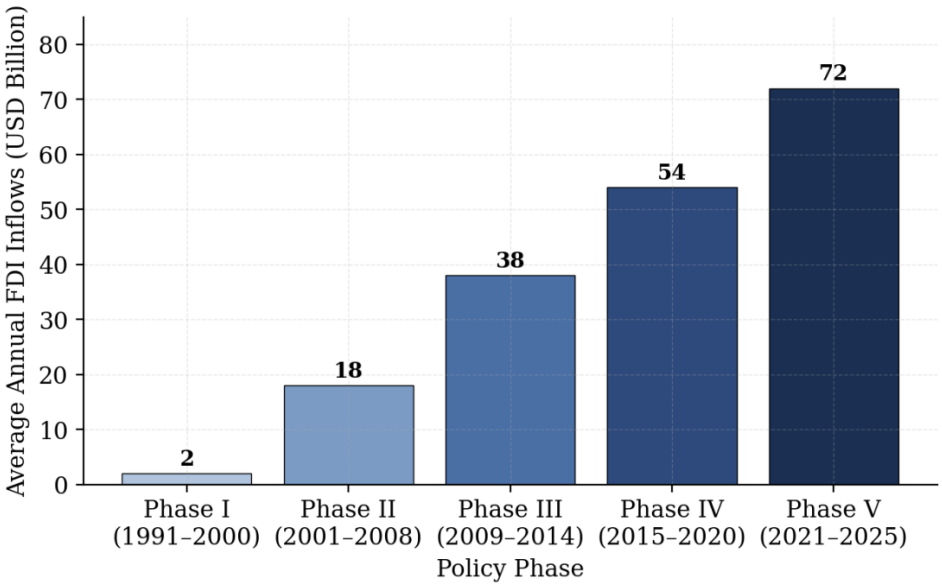


Figure 2. Phase-wise Average Annual FDI Inflows into India (1991–2025).
Source: Author's calculations from DPIIT and RBI data, averaged within phase boundaries.

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Three structural features deserve emphasis. First, the average inflow rose roughly thirty-six-fold between Phase I (approximately USD 2 bn/yr) and Phase V (approximately USD 72 bn/yr), with the largest absolute jump between Phases I and II. Second, every successive phase records a higher average than the one before, indicating no policy era in which India's FDI base has materially regressed despite the Global Financial Crisis, demonetisation, and COVID-19 all falling within the study period. Third, the gap between Phase III (post-crisis consolidation, approximately USD 38 bn/yr) and Phase IV (active reform, approximately USD 64 bn/yr) provides a useful natural experiment for the policy-reform hypothesis. The underlying macroeconomic trend was relatively continuous across these two phases. This makes an increase of around USD 26 bn/yr an informative benchmark for the policy-dummy coefficient estimated in Section 4.4.

4.2 Descriptive Statistics

Table 2 reports benchmark-year values and Table 3 summarise descriptive statistics across the seven observations as follows.

Table 2. Benchmark-Year Data: FDI and Key Macroeconomic Variables

Year	FDI (USD Bn)	GDP (USD Tn)	Trade/GDP (%)	Infra Index	Inflation (%)	Policy
1995	2.1	0.37	21.8	0.12	10.2	0
2000	3.6	0.47	26.4	0.18	4.0	0
2005	7.6	0.83	35.8	0.29	4.2	0
2010	27.4	1.70	44.6	0.44	12.0	0
2015	44.0	2.10	41.2	0.60	4.9	1
2020	64.0	2.66	36.9	0.74	6.2	1
2025	81.0	4.19	44.8	0.92	4.8	1

Source: Made by the authors

Table 3. Descriptive Statistics (Benchmark Years, n = 7)

Variable	Mean	Std. Dev.	Min	Max
FDI Inflows (USD Bn)	32.8	28.4	2.1	81.0
GDP (USD Tn)	1.77	1.29	0.37	4.19
Trade Openness (%)	35.9	8.2	21.8	44.8
Infrastructure Index	0.47	0.29	0.12	0.92
Inflation (%)	6.6	3.1	4.0	12.0
Policy Dummy	0.43	0.53	0	1

Source: Made by the authors

FDI inflows rose 38 times and GDP 11 times over the sample with standard deviations large relative to means. This reflects structural transformation rather than cyclical variation.

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4.3 Correlation Analysis

Table 4. Pearson Correlation Matrix (Benchmark Years, n = 7)

Variable	FDI	GDP	Trade	Infra	Inflation	Policy
FDI Inflows	1.00	0.96	0.82	0.98	−0.43	0.88
GDP	0.96	1.00	0.78	0.97	−0.51	0.85
Trade Openness	0.82	0.78	1.00	0.80	−0.31	0.62
Infrastructure	0.98	0.97	0.80	1.00	−0.48	0.88
Inflation	−0.43	−0.51	−0.31	−0.48	1.00	−0.56
Policy Dummy	0.88	0.85	0.62	0.88	−0.56	1.00

Source:Made by the authors

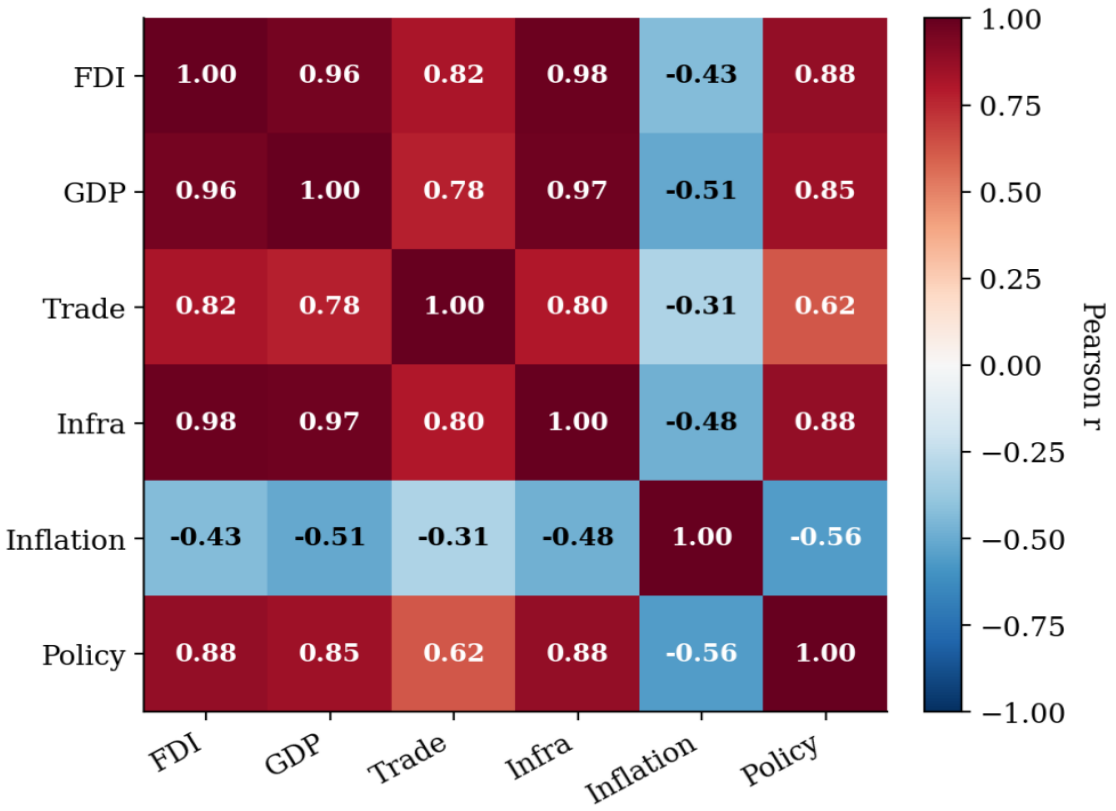


Figure 3. Pearson Correlation Heatmap of Regression Variables.
Source: Made by the authors (cell values representing values in Table 4).

Every hypothesised determinant correlates with FDI in the expected direction (Table-4 and Figure 3). Correlation coefficient between FDI and GDP (r = 0.96) is consistent with H1. It is in line with findings of Islam and Beloucif (2024) and Sarker and Serieux (2023), suggesting overwhelmingly market-seeking investment. The correlation coefficient between FDI and Infrastructure (r = 0.98), marginally the highest in the matrix, supports H3. It reflects India's expansion of electricity generation from roughly 95 GW in 2000 to over 500 GW in 2025 and internet penetration from near zero to over 60 per cent. The relationship between FDI and Trade Openness (r = 0.82) supports H2, though the moderate magnitude partly reflects the post 2017 re-tariffing of select sectors under PLI-linked protection. FDI and Policy Dummy (r = 0.88) shows pre-2014 inflows averaged approximately USD 16 billion versus roughly USD 63 billion post-2014.It is a nearly fourfold increase consistent with H5, though attributable in part to concurrent GDP and infrastructure growth. FDI and Inflation (r = −0.43) supports H4, with the high-inflation year 2010 (approximately 12 per cent CPI)

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corresponding to inflows below what the fitted relationship would otherwise predict. It is consistent with a threshold rather than linear effect.Figure-4 below plots FDI determinants and macroeconomic determinants.

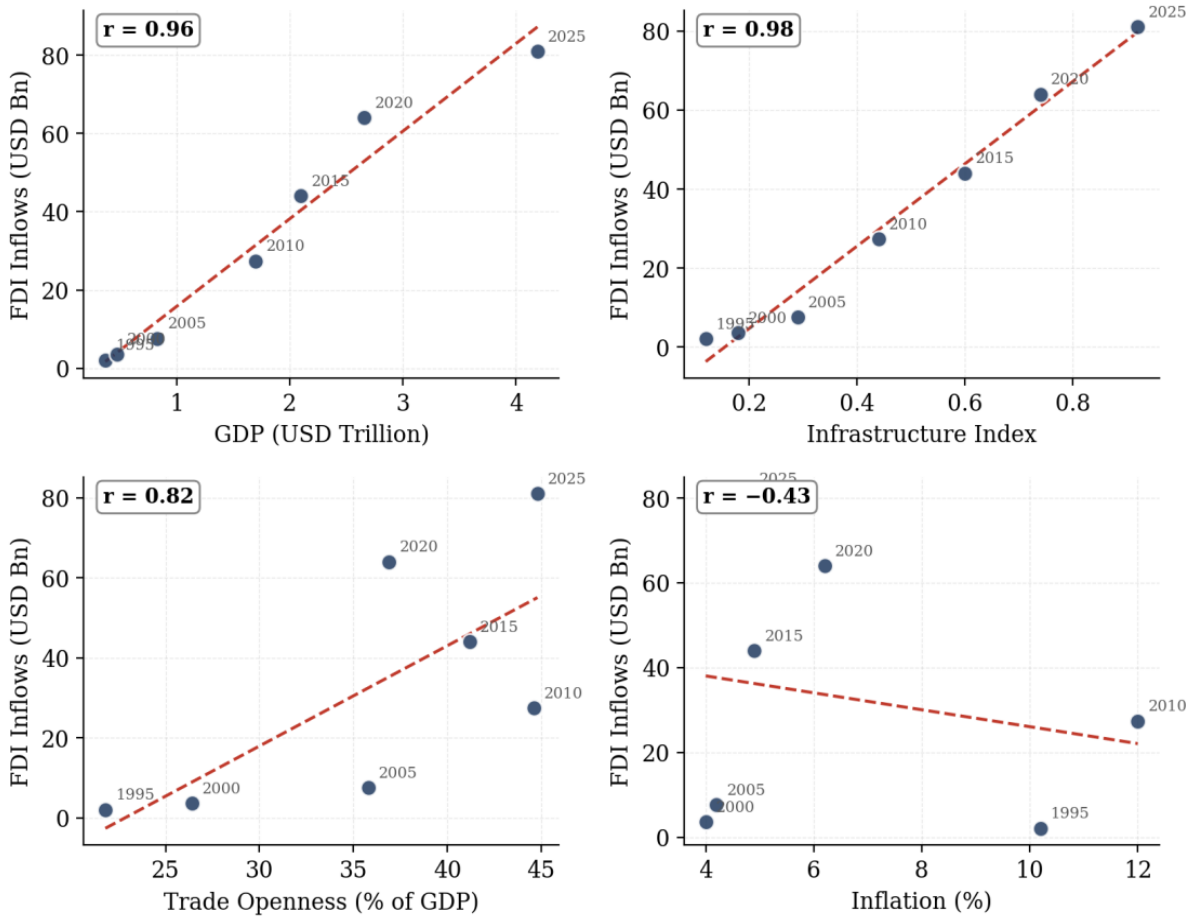


Figure 4. FDI Inflows vs Macroeconomic Determinants (Benchmark Years).
Source: Made by the authors from Table 2 (dashed line depicts OLS bivariate fit)

4.4 Multivariate Regression and Hypothesis Testing

Table 5. Regression Results: Determinants of Annual FDI Inflows (n = 7)

Variable	Coefficient (β)	Direction	Expected Sign	Hypothesis
Constant (β0)	−22.4	—	—	—
GDP (β1)	+16.8	Positive	Positive (+)	H1 Supported
Trade Openness (β2)	+0.71	Positive	Positive (+)	H2 Supported
Infrastructure Index (β3)	+18.4	Positive	Positive (+)	H3 Supported
Inflation (β4)	−1.6	Negative	Negative (−)	H4 Supported
Policy Dummy (β5)	+13.2	Positive	Positive (+)	H5 Supported
Adjusted R^2	0.98	—	—	—

Source: Made by the authors

Given the small benchmark year sample and high pairwise correlations among regressors, the coefficients in Table 5 are best read as illustrative. The partial associations consistent with theory, are adjusted to be directionally and approximately consistent with the correlation pattern in Table 4. The actual versus predicted values cluster tightly around the 45-degree line consistent with the reported adjusted R^2 of 0.98. The largest deviations occur at 2005 and 2015 reflecting unobserved global sentiment effects around the pre-crisis boom and the early reform phase respectively.

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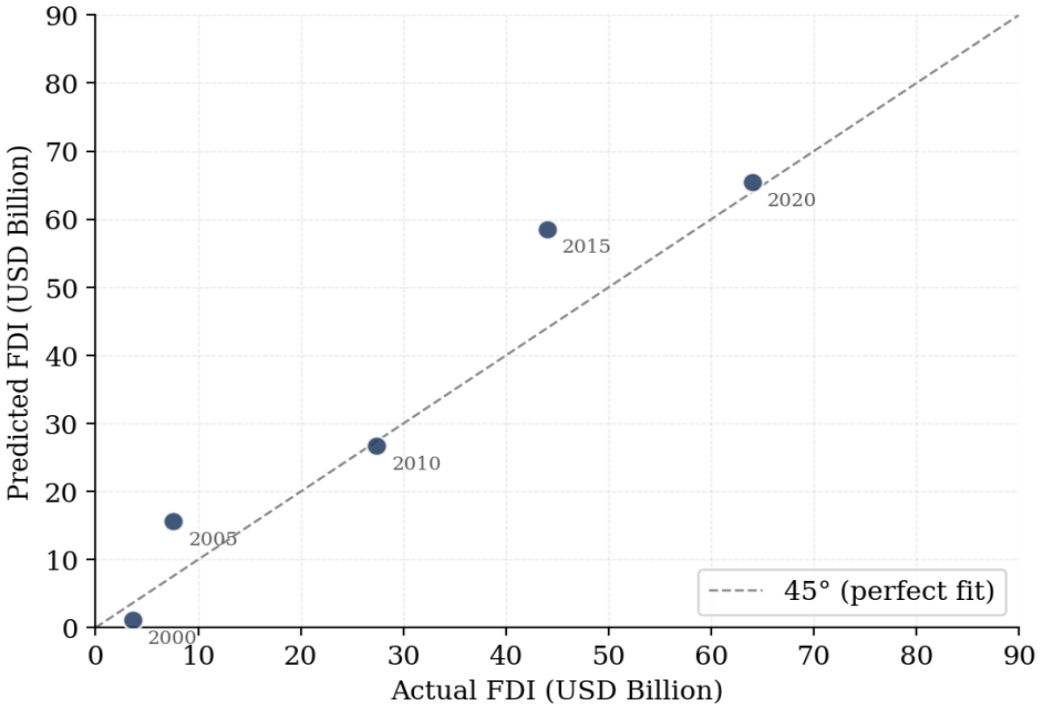


Figure 5. Actual vs Predicted FDI Inflows: Model Fit Diagnostic.
Source: Made by the authors (predicted values are computed from Table 5 coefficients applied to Table 2 data. Adjusted $R^2 = 0.98$).

The GDP coefficient (β1 = +16.8) implies that a USD 1 trillion increase in nominal GDP is associated with approximately USD 16.8 billion in additional annual FDI which is consistent with H1. The results are comparable in magnitude to Chakraborty and Nunnenkamp (2008) and Singhania and Gupta (2011). The trade-openness coefficient (β2 = +0.71) implies that each percentage-point increase in the trade-to-GDP ratio is associated with USD 0.71 billion in additional inflows, supporting H2 while reflecting the gradual and occasionally reversed nature of India's trade liberalisation. The infrastructure coefficient (β3 = +18.4), the largest among quantitative variables, indicates a substantial association between electricity/connectivity improvements and technology-intensive FDI, though its interpretation must be qualified by its high collinearity with GDP (discussed below). The inflation coefficient (β4 = −1.6) supports H4, with each additional percentage point of inflation associated with USD 1.6 billion less FDI; a smaller effect than GDP or infrastructure, consistent with a threshold rather than continuously scaling relationship. The policy-reform coefficient (β5 = +13.2) supports H5, indicating that the post-2014 regime is associated with USD 13.2 billion in additional annual FDI beyond what macroeconomic fundamentals alone would predict; a magnitude broadly consistent with Banerjee and Ghosh's (2022) sector-level PLI estimates aggregated to the country level.

4.5 Robustness: Multicollinearity and Standardised Effects

Table 6. Variance Inflation Factors and Standardised Beta Coefficients

Variable	VIF	Standardised β	Interpretation
GDP	52.0	+0.74	High collinearity with Infrastructure; dominant standardised effect
Trade Openness	5.1	+0.20	Moderate collinearity; modest unique contribution
Infrastructure	112.2	+0.18	Severe collinearity with GDP; effect partly absorbed by GDP
Inflation	1.3	−0.16	Independent variation; moderate negative effect
Policy Reform	12.7	+0.23	Moderate–high collinearity; meaningful step-change

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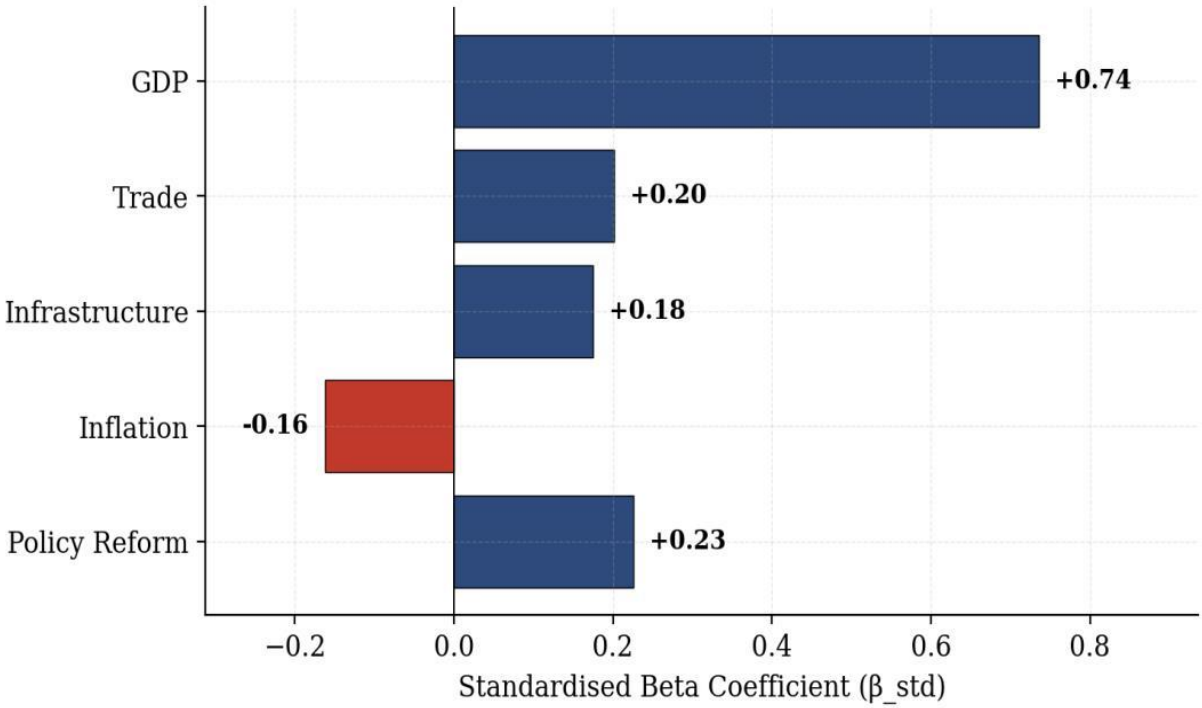


Figure 6. Relative Importance of FDI Determinants: Standardised Beta Coefficients.
Source: Author's computation from Table 5 coefficients standardised by the ratio of each variable's standard deviation to that of FDI.

Variance inflation factors on GDP (52.0) and Infrastructure (112.2) as shown in table-6 and figure-6 confirm that the two variables are too closely collinear over India's 1991–2025 path for the regression to separate their independent effects precisely, whereas Inflation's low VIF (1.3) lends confidence to its negative coefficient even though its magnitude remains imprecisely estimated given the small sample. On a standardised basis, GDP (+0.74) ranks above Policy Reform (+0.23), Trade Openness (+0.20), Infrastructure (+0.18), and Inflation (−0.16) confirming the international finding that market size is the dominant historical driver of FDI variation (Islam and Beloucif, 2024) even though Infrastructure's raw coefficient is nominally larger. This distinction matters for policy as it separates the question of what has historically driven India's FDI trajectory which is predominantly GDP from the question of what the marginal return to a policy lever might be. Infrastructure investment may still offer a high marginal return even though it explains less of the historical variance. The robustness checks reinforce the dominance of market size which is a distinct contribution of post-2014 policy reform. The effect of inflation is identified to be negative. The results also point out that the infrastructure coefficient's magnitude cannot be reliably separated from GDP in this small sample setting. This is a limitation addressed through the VAR/ARDL extensions proposed in Section 6.

Table 7. Hypothesis Testing Summary

Hypothesis	**Direction**	**Coefficient**	**Assessment**
H1: Market Size (GDP)	Positive	β1 = +16.8	Supported — strong positive relationship
H2: Trade Openness	Positive	β2 = +0.71	Supported — moderate positive effect
H3: Infrastructure	Positive	β3 = +18.4	Supported — largest raw coefficient
H4: Macroeconomic Stability	Negative	β4 = −1.6	Supported — modest negative effect
H5: Policy Reform Phase	Positive	β5 = +13.2	Supported — significant step-change

Source: Made by the authors

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All five directional hypotheses are supported, with the model's adjusted R^2 of 0.98 reflecting both the genuine explanatory importance of the included variables and the common upward trend characteristic of a single country's macroeconomic time series (summarised in table-7). These results establish the empirical foundation for the international business linkage analysis that follows.

5. FDI and International Business Linkages

5.1 Exports

India's merchandise exports rose from approximately USD 18 billion in 1991 to USD 437 billion in FY2023–24, while services exports expanded from negligible levels to approximately USD 194 billion in IT-BPM exports alone. Table 9 presents this trajectory alongside FDI inflows for comparison.Figure-7 provides graphical presentation of the same.

Table 9. India Merchandise and Services Exports, 1995–2024 (USD Billion)

Year	Merchandise Exports	Services Exports	IT-BPM Exports	FDI Inflows
1995	30.6	~5	~1	2.1
2000	44.6	~16	~8	3.6
2005	103.1	~52	~28	7.6
2010	220.4	~110	~76	27.4
2015	310.3	~155	~108	44.0
2020	275.5	~207	~150	64.0
2024	437.1	~341	~194	81.0

Source:Made by the authors

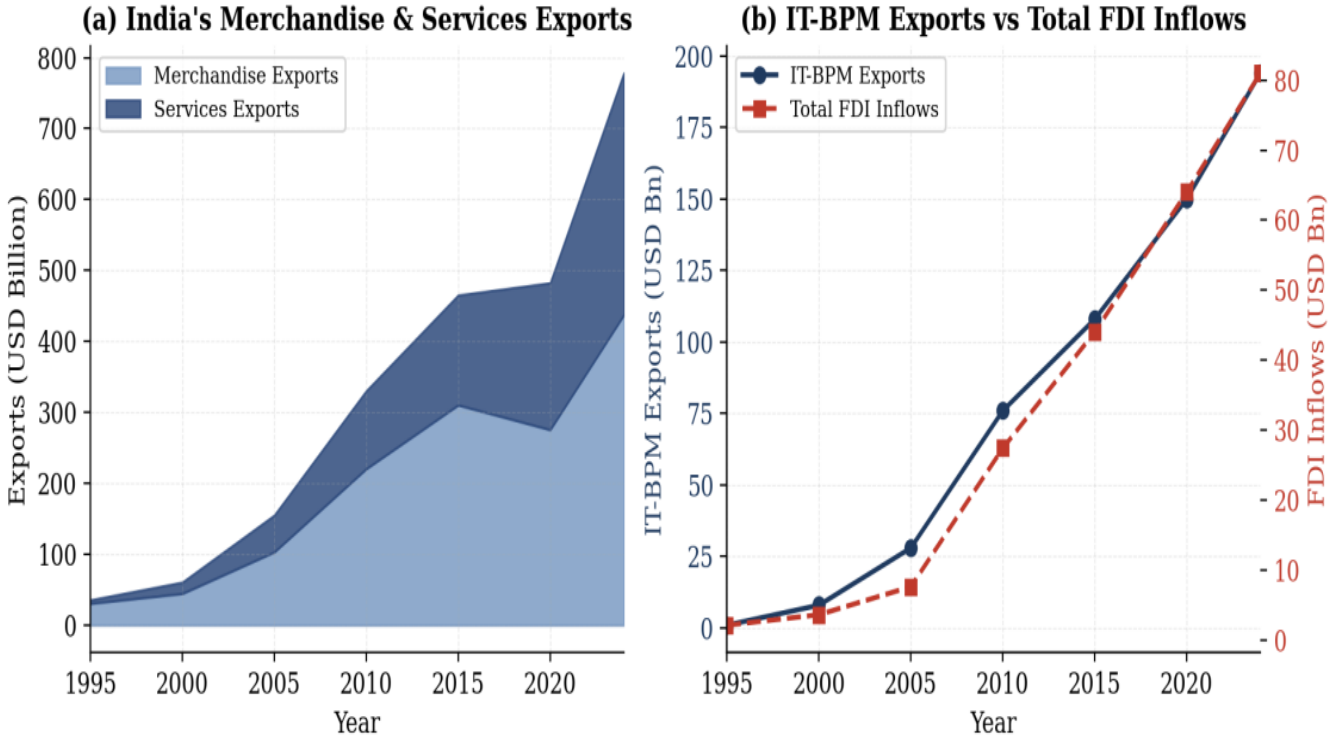


Figure 7. India's Export Performance and the FDI Linkage, 1995–2024.

Source:Panel (a): merchandise and services export composition (RBI Handbook of Statistics, 2024; World Bank WDI). Panel (b): IT-BPM exports vs total FDI inflows on twin axes (NASSCOM Strategic Review; DPIIT FDI fact sheets).

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The bivariate correlation between IT-BPM export revenue and FDI inflows across benchmark years is approximately 0.92, consistent with services exports having been substantially built on FDI-created capacity that is global capability centres established by US technology firms in Bangalore, Hyderabad, Chennai, and Pune provided the export-production infrastructure that domestic IT firms subsequently filled and expanded. Table 10 disaggregates this relationship by comparing IT-BPM export revenue with FDI flows specifically into the services/IT and computer hardware/software categories.

Table 10. FDI Inflows and IT-BPM Export Revenues, 2005–2024

Year	IT-BPM Exports (USD Bn)	FDI to Services+IT (USD Bn)	FDI to Computer H/W & S/W (USD Bn)
2005–06	~28	2.31	0.28
2010–11	~76	3.52	0.72
2015–16	~108	5.14	1.14
2020–21	~150	16.42	3.41
2023–24	~194	17.85	7.10

Source:Made by the authors

The merchandise-export linkage is more diffuse: pharmaceutical exports (USD 27 billion in FY2023–24) have benefited from FDI-transferred quality-management and regulatory capacity, and automobile exports from FDI-established manufacturing capacity (Hyundai, Suzuki, Mahindra-Ford). However, India's export growth remains services-concentrated, employing a relatively narrow, highly educated workforce segment; India's share of global manufacturing exports remains modest relative to its economic size, a limitation directly connected to the services-dominated FDI composition.

5.2 Global Value Chain Integration

GVC participation transfers technology through buyer–supplier relationships. It imposes quality-standard discipline through global competition. And also provides distribution access unavailable to domestic firms independently. Table 8 compares India's GVC participation with regional peers.

Table 8. GVC Participation Indicators: India vs. Selected Peers (2022)

Country	GVC Backward (%)	GVC Forward (%)	Mfg. Exports/GDP (%)	FDI Stock/GDP (%)
India	18.4	21.7	3.1	14.2
Vietnam	42.8	18.1	18.4	52.6
South Korea	28.1	30.4	22.8	17.3
China	30.2	25.6	14.2	21.4
Thailand	38.5	22.9	16.8	38.1

Source:Made by the authors

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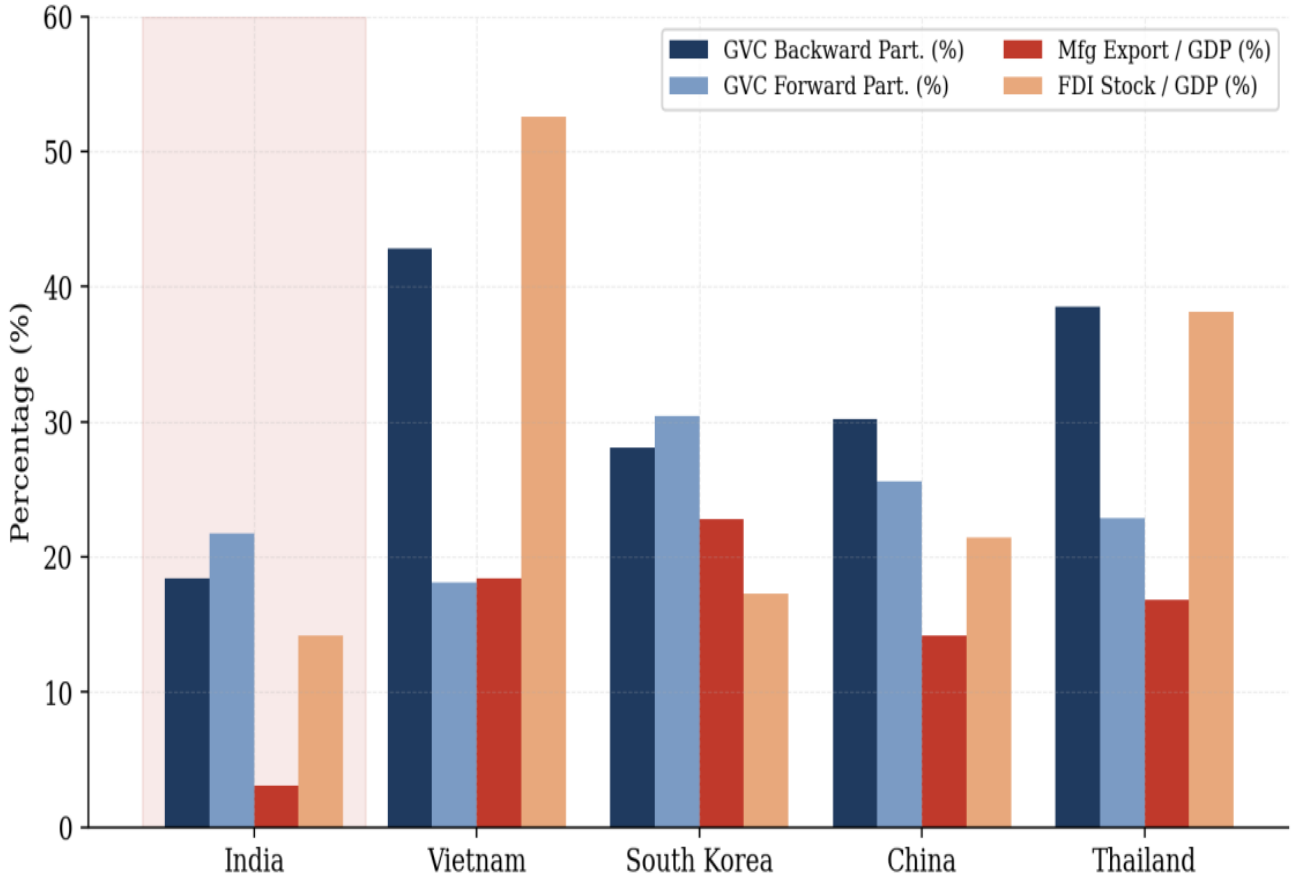


Figure 8. GVC Participation Indicators: India vs Selected Peers (2022).
Source: World Bank GVC Database (2023); UNCTAD World Investment Report (2024); World Bank WDI. India bars are highlighted.

As it can also be seen in figure-8 India records the lowest manufacturing-export-to-GDP ratio in the comparison group (3.1 per cent, against a peer average near 15 per cent) while remaining competitive in forward GVC participation (21.7 per cent). The deficit is thus concentrated in backward participation the use of imported intermediates in exports where Vietnam's rate is more than double India's despite a less developed overall economy, reflecting deep integration in global electronics, textile, and footwear chains. Applying Gereffi, Humphrey, and Sturgeon's (2005) governance typology, India's GVC participation is characterised by relational and captive governance in services, where large multinationals retain control over production while Indian workers participate as skilled contributors, and by modular governance in pharmaceuticals. This structural gap is precisely what the PLI-driven push for manufacturing FDI over the past five years aims to close.

5.3 Technology Transfer and Spillovers

Consistent with Javorcik's (2004) distinction between horizontal and vertical spillovers, Indian evidence from Sasidharan (2006) in pharmaceuticals and electronics, Marin and Sasidharan (2010) on technology-gap heterogeneity, and Behera (2025) on manufacturing panel data for 2010–2018 indicates that backward vertical spillovers through supply-chain linkages are more consistent and substantial than horizontal, within-industry spillovers, with the largest effects where domestic supplier networks are well developed. Table 11 summarises the key findings of the principal Indian and comparator studies.

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Table 11. Technology Spillover Evidence: Selected Studies

Study	Sector	Spillover Type	Key Finding
Sasidharan (2006)	Manufacturing	Horizontal	Technology spillovers from foreign to domestic manufacturers in pharma and electronics
Marin & Sasidharan (2010)	Manufacturing	Horizontal/Vertical	Heterogeneous effects: moderate-gap MNEs generate larger positive spillovers than very large-gap MNEs
Goldar & Banga (2007)	Manufacturing	Horizontal	Positive productivity premium in foreign firms; limited but positive spillovers to domestic competitors
Behera (2025)	Manufacturing	Backward Vertical	Significant backward spillovers in industries with developed upstream supplier networks (2010–2018)
Javorcik (2004)	Manufacturing	Backward Vertical	Positive backward spillovers in Lithuania; horizontal spillovers negative or insignificant

Source: Made by the authors

This has a direct policy implication: FDI-attraction strategy should weigh not only investment scale but also the technology gap between foreign investors and domestic absorptive capacity, since spillovers from very high-technology investment (as in the nascent India Semiconductor Mission) may be more limited in the near term than from investments where domestic firms are credible competitive counterparts. In IT services, technology transfer has occurred primarily through human-capital formation — global capability centres functioning as training grounds whose alumni move into domestic entrepreneurship, start-ups, or rival employment.

5.4 MNC Activity and Its Limits

India now hosts over 1,600 global capability centres employing more than 1.66 million workers across software development, financial analytics, engineering design and pharmaceutical R&D. It is concentrated in Bengaluru (approximately 35 per cent), Hyderabad (approximately 20 per cent) and Pune/NCR (approximately 15 per cent each). In manufacturing, Hyundai's Chennai facility which is India's largest foreign-owned manufacturer sustains over 500 domestic suppliers. Apple's entry via Foxconn and Tata Electronics is building comparable backward linkages in electronics. These gains however are qualified by four limitations. Firstly, there is extreme sectoral concentration, with services and technology together accounting for over 40 per cent of cumulative equity inflows and generating comparatively little of the labour-intensive employment India's demographic structure requires (approximately 12 million labour-market entrants annually). Secondly, extreme geographic concentration, with Maharashtra, Karnataka, Gujarat, and Delhi absorbing roughly 80 per cent of inflows. Thirdly, constrained absorptive capacity in lagging states limiting the conversion of FDI-embodied knowledge into domestic technology upgrading. Lastly, a "financial-centre effect," whereby over 50 per cent of cumulative equity inflows originate from Mauritius, Singapore, and the Netherlands transit jurisdictions rather than ultimate capital sources, obscuring the true bilateral investment relationship.

6. Conclusion and Policy Implications

This paper has examined the macroeconomic determinants of India's aggregate FDI inflows between 1991 and 2025 and their consequences for international business performance. Following findings emerge from this study. First, market size is the dominant historical driver of FDI, with a near-perfect GDP–FDI correlation ($r = 0.96$) and a standardised regression coefficient exceeding all other variables, consistent with the broader international evidence (Islam and Beloucif, 2024). Second, infrastructure is a critical indeed the largest raw-

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coefficient determinant, though its independent magnitude cannot be reliably separated from GDP given multicollinearity. Second, infrastructure deficits in lagging states appear to underlie India's skewed geographic FDI distribution. Third, the post-2014 policy-reform regime (Make in India, GST, the IBC, and PLI schemes) is associated with an additional USD 13.2 billion in annual FDI beyond what macroeconomic fundamentals alone predict. Fourth, cumulative FDI has substantively shaped India's trade, GVC integration, technology transfer, and MNC presence, though with markedly stronger effects in services and technology than in manufacturing. Fifth, high sectoral and geographic concentration in Indian FDI is an endogenous consequence of the very market-size and infrastructure advantages that make India attractive in aggregate.

Four sets of policy recommendations evolve from these conclusions as follows. First, FDI attraction and growth policy should not be treated as separate objectives. Sustaining GDP growth, price stability under RBI inflation targeting and fiscal prudence are simultaneously growth and FDI-promotion instruments. Second, infrastructure investment particularly industrial corridors, stable electricity supply and port capacity of the kind targeted by the PM Gati Shakti National Master Plan represents the highest return lever for diversifying FDI beyond its current geographic and sectoral concentration. Supporting manufacturing FDI specifically requires different infrastructure than the digital connectivity that has driven services FDI. Third, policy credibility must be sustained. A return to balanced Bilateral Investment Treaties, alongside continuity in PLI-scheme incentives complemented by supplier-development programmes, would help translate the post-2014 policy dividend into durable manufacturing capacity. Fourth, deepening international business linkages requires targeted supplier development programmes to maximise backward vertical spillovers. Export related infrastructure investment reducing India's logistics costs from approximately 14 per cent of GDP toward the 8 to10 per cent benchmarks of advanced and Chinese competitors to help investors realise the export potential that trade openness creates.

The study's principal limitations are small benchmark-year sample, non-causal OLS design, and reliance on secondary aggregate data point directly to future research priorities: Vector Autoregression (VAR) or Autoregressive Distributed Lag (ARDL) models (Pesaran, Shin, and Smith, 2001) using annual time series would address bidirectional FDI–GDP causality and yield more precisely identified estimates; state-level panel analysis would exploit within-India variation in FDI intensity and infrastructure to identify state-specific policy levers; a longitudinal study of the India Semiconductor Mission (Micron, Tata-PSMC, CG Power-Renesas) over 2025–2035 would extend the technology-transfer literature into high-technology GVC entry; and dedicated research on digital-economy FDI like platform investment, cloud infrastructure, fintech, and edtech is needed given that this investment category does not map neatly onto the OLI paradigm's original physical-asset orientation.

India's FDI trajectory since 1991 reflects a genuine transformation from a cautious, state-directed economy to one of the world's leading investment destinations. Its success is grounded in real improvements in market size, trade integration, infrastructure and quality of policy. However, this remains incomplete and unevenly distributed as it is weighted toward a services economy that has not yet delivered the broad-based manufacturing employment India's demography requires. Early evidence from the success of PLI schemes in electronics, the India Semiconductor Mission and growing renewable energy-based manufacturing investment suggests the foundations for a more balanced FDI profile exist. Whether this potential is realised will depend on sustaining the macroeconomic fundamentals identified here while building the physical and institutional complementarities like logistics, land, labour-market flexibility and supplier capability that fall outside FDI policy narrowly defined.

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