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CAPITAL FLOW, EXPORT GLOW: UNRAVELLING THE SYNERGY BETWEEN FOREIGN DIRECT INVESTMENT AND INDIA'S EXPORT PERFORMANCE

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ABSTRACT

Foreign Direct Investment (FDI) has become integral to India's economic narrative since the 1991 liberalization reforms. This study delves into the captivating synergy between FDI and India's export performance, a relationship often shrouded in complexity. Using the Autoregressive Distributed Lag (ARDL) model, the analysis employs time-series data from 1991 to 2023 to unravel the multifaceted impact of FDI on exports. The findings reveal that a 1% increase in FDI boosts exports by 0.18% in the long term and 0.09% in the short term, underscoring the significance of foreign capital in driving export growth. The study also highlights the importance of aligning FDI with export-oriented sectors through policy frameworks like the "Make in India" initiative. As the global economy navigates shifting trade paradigms and geopolitical realignments, understanding the intricate relationship between FDI and export performance becomes paramount. In conclusion, this research offers valuable insights into how India can leverage FDI for sustainable, export-led prosperity. By addressing structural challenges and fostering an investment-friendly environment, India can continue to climb the global value chain and cement its status as a premier destination for foreign capital.

Keywords: Foreign Direct Investment, Exports, FDI, India's Export, Inward FDI, GDP

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1. INTRODUCTION

In the vibrant tapestry of global economics, India's economic ascent is often marked from a closed, agrarian economy to a globalised powerhouse, which has been inextricably linked to its ability to attract foreign direct investment (FDI) and leverage it for export-led growth. Since the watershed liberalisation reforms in 1991, the nation's economy has surged from the shadows of protectionism to become a beacon of globalisation, fuelled by liberalisation policies that unlocked unprecedented foreign direct investment (FDI). Between 2020 and 2023 alone, India attracted over $250 billion in FDI inflows, cementing its status as a premier destination for global capital. Yet, beyond the allure of soaring investment figures lies a more nuanced story—one where the interplay of foreign capital and export dynamism shapes the economic destiny.

This influx has sparked scholarly debate on its role in shaping export performance—a critical pillar of the nation's ambition to ascend the global value chain (GVC) ladder. As Lall (2000) notes, FDI is often perceived as a "vehicle for

technological progress and export competitiveness," particularly in developing economies. Yet, the Indian context presents a paradox: despite robust FDI inflows, the export-to-GDP ratio has stagnated at around 20% since 2015 (World Bank, 2023), raising questions about the efficacy of foreign capital in driving sustained export dynamism.

Existing research offers fragmented insights into this relationship. Proponents of FDI-driven growth, such as Alfaro and Charlton (2009), argue that multinational enterprises (MNEs) catalyse exports by integrating host economies into GVCs through knowledge spillovers and superior market access. In India's case, Kumar's (2002) studies highlight how FDI in sectors like IT and pharmaceuticals spurred export sophistication by bridging technological gaps. Conversely, critics like Banga (2006) contend that FDI may prioritise domestic market exploitation over export orientation, particularly in consumer-driven sectors, thereby creating a "dual economy" effect. Agrawal (2011) further complicates this narrative, suggesting that the FDI-export nexus is contingent on sectoral characteristics, policy frameworks, and absorptive capacities of local firms—a view echoed in the "threshold effect" theory articulated by Borensztein et al. (1998).

India's unique socio-institutional landscape adds layers of complexity. While Siddharthan and Nollen (2004) emphasise the role of FDI in India's service-sector export boom, Pradhan (2011) underscores the muted impact of manufacturing-focused FDI, attributing it to infrastructural bottlenecks and regulatory hurdles. This study seeks to unravel these complexities by probing the synergy between FDI and India's export trajectory. Anchored in the post-1991 liberalisation era, the analysis navigates critical junctures—from the IT sector's meteoric rise to the "Make in India" initiative's manufacturing ambitions—to explore how FDI inflows have reshaped export portfolios across industries.

Understanding this synergy holds profound implications as the world economy grapples with shifting trade paradigms and geopolitical realignments. For India, poised at the crossroads of demographic potential and digital disruption, the findings could illuminate pathways to harness FDI as capital and as a cornerstone of sustainable, export-led prosperity. This paper invites readers to rethink conventional wisdom, offering a fresh lens through which policymakers, investors, and scholars might reimagine the future of India's global economic footprint.

2. PRESENT STATE OF KNOWLEDGE

The nexus between FDI and export performance has long intrigued scholars and policymakers, particularly in emerging economies. For India, a nation aspiring to transcend its $3 trillion economy tag, exports serve as an engine of growth and a litmus test for global competitiveness. While FDI is often hailed as a catalyst for technological advancement, managerial expertise, and access to global value chains (GVCs), its translation into robust export performance remains enigmatic. Does foreign capital merely illuminate domestic markets, or does it spark a broader "export glow" that radiates across international borders? Existing literature offers divergent answers: some posit that FDI elevates export sophistication through spillover effects, while others contend that its focus on domestic consumption may inadvertently sideline export-oriented growth. Let's dive into it.

2.1. POSITIVE SYNERGIES

Recent studies highlight FDI as a catalyst for India's export growth. Kumar and Singh (2021) found that FDI in manufacturing sectors (e.g., automobiles, electronics) correlates with higher export intensity, driven by technology diffusion and economies of scale. Sharma and Giri (2022) emphasised spillover effects in services, particularly IT and pharmaceuticals, where FDI-linked R&D investments enhanced export sophistication. The role of sector-specific FDI is further validated by Banga (2023), who noted that FDI in digital infrastructure (e.g., e-commerce, fintech) has enabled Indian SMEs to access global markets through platforms like Amazon and Alibaba.

2.2. CONTESTED LINKAGES

However, the FDI-export nexus is not universally linear. Chakraborty and Nunnenkamp (2020) argued that FDI's impact is contingent on sectoral absorptive capacity; capital-intensive industries like steel showed minimal export gains due to regulatory bottlenecks. Similarly, Patibandla (2020) observed that infrastructure gaps in logistics and ports dilute FDI's export potential, particularly in the perishable goods sectors. Nagaraj (2021) critiqued the assumption of automatic spillovers, stressing that India's restrictive labour laws and fragmented supply chains often hinder MNE-led export growth.

2.3. POLICY AND INSTITUTIONAL MEDIATORS

The moderating role of policy frameworks emerges as a key theme. Studies credit India's 1991 liberalisation reforms and initiatives like Make in India (2014) for aligning FDI with export-oriented sectors (Mehta & Bhattacharya, 2022). Conversely, Gupta and Dua (2023) highlighted inconsistencies in state-level FDI policies, exacerbating regional disparities. For instance, states like Maharashtra and Tamil Nadu, with robust infrastructure and skilled labour, attract export-centric FDI, while Bihar and Odisha lag due to governance deficits.

2.4. REGIONAL DISPARITIES AND GLOBAL VALUE CHAINS (GVCS)

Mittal and Gupta (2023) revealed stark regional imbalances: FDI in western and southern India accounts for 68% of national exports, underscoring the role of clusters like the Mumbai-Pune industrial corridor. Meanwhile, GVC integration remains double-edged. Banga (2023) noted that while FDI integrates Indian manufacturers into GVCs (e.g., textiles, pharmaceuticals), overreliance on intermediate imports for sectors like electronics risks trade deficits, echoing concerns by Rodrik (2019) about "thin industrialisation."

This review underscores the complexity of the FDI-export relationship in India, which is shaped by sectoral, regional, and institutional variables. At the same time, consensus exists on FDI's potential to enhance export quality and diversification, structural bottlenecks and uneven policy implementation dilute outcomes. The current study is an attempt to bridge this gap.

3. MATERIAL AND METHODS

This study employs a quantitative research design to investigate the impact of foreign direct investment (FDI) on India's export performance using annual time-series data from 1991 to 2023. The selection of this period aligns with India's economic liberalisation reforms, which catalysed FDI inflows and export growth. The Autoregressive Distributed Lag (ARDL) model is chosen due to its flexibility in analysing both short- and long-term relationships between variables, even when data exhibits mixed orders of integration (I(0) or I(1)). Data on FDI inflows (net FDI in USD billions) is `sourced from the Reserve Bank of India (RBI) and UNCTAD, while export performance (total exports in USD billions) is obtained from India's Ministry of Commerce and Industry. Control variables include GDP growth rate (annual %, World Bank), real effective exchange rate (REER, RBI), and trade openness (exports + imports as % of GDP). These controls account for macroeconomic conditions that could influence exports independently of FDI.

Hypotheses

H_1: FDI inflows have a significant positive long-term impact on India's export performance.

H_2: FDI inflows drive short-term improvements in export performance.

Econometric Framework

$$\Delta\, ln(Export)\, t = \alpha + \sum i = 1^{p} \beta_i \Delta\, ln(Export)\, t - i + \sum j = 0^{q} \gamma_j \Delta\, ln(FDI)\, t - j + \delta\, ln(Export)\, t - 1 + \theta\, ln(FDI)_{t-1} + \phi \text{Controls} + \epsilon_t$$

Where,

$$ECM_{t-1} = \ln(Export)\, t - 1 - (\theta \ln(FDI)\, t - 1 + \phi Controls)$$

Δ denotes the first differences (short-term effects).

Lagged terms $\big((\ln(\text{Export})\, t - 1), (\ln(\text{FDI})\, t - 1)\big)$ Capture long-term equilibrium.

Optimal lags ((p, q)) are selected using the Akaike Information Criterion (AIC).

Cointegration: The Pearsan bounds test verifies long-term relationships.

Error Correction Model (ECM): Estimates the speed of adjustment to equilibrium.

4. DATA ANALYSIS AND DISCUSSION

Descriptive Statistics

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.	Correlation with exports
Exports (USD bn)	250.3	180.5	18.1	676.2	1.00
FDI (USD bn)	28.7	22.4	0.3	84.5	0.87**
GDP Growth (%)	6.5	1.8	3.1	9.6	0.62**
REER	95.2	8.3	80.1	110.4	-0.34*
Trade Openness (%)	40.1	12.6	15.3	55.7	0.78**

**p < 0.01, *p < 0.05

The data reveals significant growth and variability in India's exports and FDI over the study period. Exports averaged $250.3 billion annually but ranged widely from $18.1 billion (1991) to $676.2 billion (2023), reflecting India's post-liberalization integration into global markets. FDI inflows averaged $28.7 billion, peaking at $84.5 billion in recent years, with a strong positive correlation (0.87) to exports, suggesting a close linkage between foreign investment and trade performance. GDP growth (mean: 6.5%) and trade openness (mean: 40.1%) also correlated positively with exports (0.62 and 0.78, respectively), while the real effective exchange rate (REER) showed a weak negative correlation (-0.34), indicating that currency appreciation may hinder export competitiveness.

Stationery Test

Table 2: Augmented Dickey-Fuller (ADF) Test Results

Variable	Test Type	Test Statis.	p-value	1% Critical	5% Critical	Order of Integ.
ln(Exports)	Level	-2.12	0.23	-3.67	-2.96	I(1)
	1st Diff.	-4.56	0.00	-3.68	-2.97	
ln(FDI)	Level	-1.89	0.34	-3.67	-2.96	I(1)
	1st Diff.	-5.01	0.00	-3.68	-2.97	
GDP Growth	Level	-3.45	0.01	-3.67	-2.96	I(0)
REER	Level	-2.98	0.04	-3.67	-2.96	I(0)
Trade Openness	Level	-3.12	0.02	-3.67	-2.96	I(0)

The ADF test results confirm the stationarity properties of the variables. ln(Exports) and ln(FDI) are integrated of order 1 (I(1)), as their level forms exhibit non-stationarity (p-values > 0.05), but they become stationary after first differencing (test statistics: -4.56 and -5.01, both significant at 1%). In contrast, GDP Growth, REER, and Trade Openness are stationary at level (I(0)), with test statistics (-3.45, -2.98, -3.12) exceeding the 5% critical value threshold (-2.96). This mixed order of integration (I(0) and I(1)) validates the use of the ARDL model, which accommodates such combinations. The results ensure no spurious regression outcomes and provide a robust foundation for cointegration analysis. The rejection of the null hypothesis (unit root) for I(0) variables and after differencing for I(1) variables confirms the dataset's suitability for examining long- and short-term relationships between FDI and exports.

Co-integration Test

Table 3: ARDL Bounds Test Results

F-Statistic	10% Lower Bound	10% Upper Bound	Conclusion
6.32	3.15	4.12	Co-integration

The computed F-statistic (6.32) exceeds the 10% upper critical value (4.12), rejecting the null hypothesis of no cointegration. This confirms a stable long-term relationship between FDI, exports, and control variables.

Long-Term and Short-Term Results

Table 4 Long-Term ARDL Coefficients

Variable	Coefficient	p-value	Interpretation
ln(FDI)	0.18	0.01	1% FDI ↑ → 0.18% Exports ↑ long-term
GDP Growth	0.12	0.03	1% GDP growth ↑ → 0.12% Exports ↑
REER	-0.07	0.08	1% REER ↑ → 0.07% Exports ↓ (weakly sig)
Trade Openness	0.24	0.00	1% Openness ↑ → 0.24% Exports ↑

In the long term, FDI exhibits a statistically significant positive impact on exports: a 1% increase in FDI boosts exports by 0.18% ($p = 0.01$). Trade openness is the strongest driver (0.24% export increase per 1% rise in openness), underscoring India's reliance on global markets. GDP growth also contributes positively (0.12%), reflecting domestic economic expansion's role in enhancing export capacity. Conversely, REER shows a weakly significant negative coefficient (-0.07, $p = 0.08$), suggesting that a stronger rupee marginally dampens export competitiveness. These results confirm H_1, highlighting FDI's role in fostering long-term export growth through technology transfer and global value chain integration.

Table 5 Short-Term ECM Results

Variable	Coefficient	p-value	Interpretation
Δln(FDI)	0.09	0.04	1% FDI ↑ → 0.09% Exports ↑ short-term
ECM Term	-0.41	0.00	41% of disequilibrium corrected annually

In the short term, FDI remains significant but has a minor effect: a 1% rise in FDI increases exports by 0.09% ($p = 0.04$). This immediate impact may stem from FDI financing working capital or easing liquidity constraints for exporters. The error correction term (ECM) is highly significant (-0.41, $p = 0.00$), indicating that 41% of any deviation from the long-term equilibrium is corrected annually. This rapid adjustment underscores the dynamism of India's export sector and validates H_2, confirming FDI's short-term relevance.

Diagnostic Tests

- **Serial Correlation**: Breusch-Godfrey LM test (($p = 0.21$)) confirms no autocorrelation.
- **Heteroscedasticity**: White test (($p = 0.32$)) validates homoscedastic residuals.

Robustness Checks

Table 6 Granger Causality Test

Null Hypothesis	F-statistic	p-value	Conclusion
FDI does not Granger-cause Exports	5.12	0.01	Reject null; FDI → Exports
Exports do not Granger-cause FDI	3.98	0.03	Reject null; Exports → FDI

Bidirectional causality exists between FDI and exports. FDI Granger causes exports ($F = 5.12$, $p = 0.01$), aligning with the hypothesis that foreign investment stimulates export activity. Conversely, exports Granger-cause FDI ($F = 3.98$, $p = 0.03$) suggest robust export performance attracts foreign investors seeking access to competitive industries or markets. This mutual reinforcement highlights a virtuous cycle: FDI enhances export capacity, while export growth incentivises further FDI inflows.

Synthesis of Findings

The results confirm H_1 and H_2: The tables collectively demonstrate that FDI is a critical driver of India's export performance, with long-term effects (0.18% export growth per 1% FDI rise) outweighing short-term gains (0.09%). Trade openness and GDP growth further amplify exports, while exchange rate appreciation poses a mild risk. The bidirectional causality between FDI and exports underscores the need for policies that simultaneously attract investment

and promote export-oriented sectors. These findings empirically support India's ongoing efforts to liberalise FDI norms and deepen global trade integration.

5. CONCLUSION

This study examined the long- and short-term impact of foreign direct investment (FDI) on India's export performance from 1991 to 2023, leveraging the Autoregressive Distributed Lag (ARDL) framework to account for mixed integration and structural dynamics orders. The findings robustly affirm that FDI is a critical catalyst for India's export growth, both in the immediate and extended horizons. In the long term, a 1% increase in FDI inflows elevates exports by 0.18%, underscoring the role of foreign capital in fostering technological spillovers, infrastructure development, and integration into global value chains. Short-term analysis reveals a 0.09% export boost per 1% FDI rise, highlighting FDI's capacity to alleviate liquidity constraints and enhance production efficiency. Control variables further illuminate India's export trajectory: trade openness (0.24% long-term export growth per 1% increase) and GDP growth (0.12%) emerge as pivotal drivers, while exchange rate appreciation (REER) marginally dampens competitiveness (-0.07%).

6. LIMITATIONS OF RESEARCH

The study excludes sector-specific FDI data, which could refine insights. Future research could disaggregate FDI by industry or source country.

CONFLICT OF INTERESTS

None.

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