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India's strategic repositioning in global supply chains: Impact of China + 1, nearshoring, and green trade policies on India's export competitiveness by 2030

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Abstract
Global supply chains are undergoing a profound restructuring driven by geopolitical tensions, technological decoupling, sustainability regulations, and the emerging "China + 1" diversification strategy adopted by multinational corporations. India has positioned itself as a key alternative manufacturing and services hub in this new global configuration, supported by initiatives such as Production-Linked Incentive (PLI) schemes, logistics reforms, FDI liberalisation, and accelerated infrastructure development. Concurrently, green trade policies—including the EU Carbon Border Adjustment Mechanism (CBAM), ESG reporting norms, and global climate commitments—are reshaping how countries compete in global value chains (GVCs). This paper examines how India is strategically repositioning itself within global supply chains and evaluates the likely impact of China + 1 strategies, nearshoring/friendshoring, and green trade norms on India's export competitiveness by 2030. Using secondary data from UNCTAD, WTO, OECD TiVA, DGFT, RBI, and international investment reports, the study analyses manufacturing shifts in sectors such as electronics, pharmaceuticals, automotive (EVs), semiconductors, textiles, and green technologies. It also integrates insights from contemporary literature on supply chain resilience, strategic autonomy, and sustainable trade. The analysis suggests that India has strong potential to absorb supply chain realignments due to its demographic advantages, policy reforms, and market scale; however, challenges remain in logistics efficiency, compliance with green standards, and capability gaps in high-tech manufacturing. The paper concludes with policy recommendations aimed at enhancing India's resilience and competitiveness in the global supply chain landscape towards 2030.

Keywords: Logistics reforms, foreign direct investments, global supply chains, sustainable trade, green trade policies

1. Introductions
Global supply chains are undergoing unprecedented restructuring due to a combination of geopolitical stress, rising production costs in China, pandemic-induced disruptions, and the accelerated adoption of sustainability mandates by major economies. Evaluations by WTO (2023) and UNCTAD (2023) [29] show that the traditional model of globally dispersed production is being replaced by resilient, diversified, and sustainability-aligned supply chains, supported by regionalisation and technological upgrades. Multinational corporations are increasingly adopting China + 1 diversification strategies to mitigate risks associated with over-dependence on China, particularly in electronics, pharmaceuticals, automotive components, and renewable energy equipment. At the same time, Western economies—especially the EU and U.S.—are promoting nearshoring, friendshoring, and green trade frameworks to ensure geopolitical security and environmental compliance in global sourcing. India has emerged as one of the most promising destinations in this reconfigured landscape due to its competitive labour force, large domestic market, improving ease of doing business, and targeted industrial policies such as the Production-Linked Incentive (PLI) schemes. Reports by McKinsey, Deloitte, and OECD indicate that India is rapidly integrating into global manufacturing value chains, especially in electronics (smartphones), pharmaceuticals, automotive (EV ecosystems), solar energy modules, and defence production. The Government of India's emphasis on infrastructure upgrades (Gati Shakti), logistics cost reduction, and improved trade facilitation further strengthens India's position.

However, the green transition presents both opportunities and constraints. The EU's Carbon Border Adjustment Mechanism (CBAM), ESG due diligence rules, and global climate commitments imply that India's export sectors must adopt cleaner production technologies, energy-efficient processes, and transparent sustainability reporting. This dynamic interplay between geopolitics, diversification strategies, and green policy frameworks is central to shaping India's export competitiveness over the next decade.

This paper explores these dynamics holistically, focusing on how India can strategically reposition itself in global supply chains by 2030.

2. Literature Review

Studies on global value chains highlight how production networks have become deeply interconnected, with firms sourcing components from multiple countries to optimise costs and efficiency. Gereffi (2020) and OECD (2022) note that GVCs are now influenced more by resilience, risk diversification, and environmental constraints than by pure cost arbitrage. UNCTAD's World Investment Reports emphasise that supply chain restructuring is accelerating due to geopolitical fragmentation and digitalisation, reshaping trade flows and investment patterns globally. These macro-level analyses set the context for understanding India's emerging role in the redistribution of global production.

A significant body of literature focuses on the China + 1 diversification strategy. Analysts observe that increasing labour costs in China, regulatory uncertainties, and U.S.-China tensions are motivating firms to diversify production. Research by the Peterson Institute, Deloitte, and Nomura identifies India, Vietnam, Mexico, and Indonesia as key alternative destinations. India's large domestic market and digital infrastructure make it uniquely attractive for industries such as smartphones, pharmaceuticals, automotive components, and renewable energy equipment. However, comparative studies note that India lags behind East Asian peers in logistics efficiency and factory-level productivity.

Studies on nearshoring and friendshoring—popularised by U.S. and EU economic policy discourse—indicate that geopolitical alignment influences sourcing decisions. According to IMF and McKinsey analyses, nearshoring reduces supply chain vulnerability but increases production costs, while friendshoring aligns economic activity with political partners. India's strategic alignment with Western economies through Quad, IPEF, and bilateral technology agreements enhances its attractiveness for supply chain relocation, especially in strategic sectors like semiconductors and critical minerals.

The literature on green trade policies highlights how sustainability norms will strongly shape future competitiveness. The EU's CBAM, ESG requirements, and global climate pacts create incentives for countries to decarbonise manufacturing. Research by WTO, UNCTAD, and OECD suggests that exporters failing to comply with carbon standards will face tariffs, market access restrictions, or reputational risks. India's manufacturing ecosystem—highly dependent on fossil fuels—must upgrade to cleaner technologies to remain competitive.

Studies on India's industrial policy—including PLI schemes, Make in India, and National Logistics Policy—suggest that India is actively positioning itself as a global manufacturing hub. Reports by NITI Aayog, RBI, and CII emphasise the transformative potential of PLI schemes in electronics, pharmaceuticals, solar modules, and EVs. Empirical evidence shows that PLI has already driven significant FDI from major firms such as Apple, Samsung, and Foxconn.

Overall, the literature suggests that India has strategic opportunities in GVC realignment but must strengthen infrastructure, ensure sustainability compliance, and upgrade technological capabilities to fully capture them.

3. Research Gaps

- Lack of integrated studies assessing China + 1, friendshoring, and green trade policies together as determinants of India's future competitiveness.
- Limited empirical data on sector-wise shifts in global supply chains toward India in electronics, pharma, EV, textiles, and solar manufacturing.
- Insufficient analysis of how CBAM and ESG rules will affect India's export sectors by 2030.
- Scarce comparative studies evaluating India's competitiveness against Vietnam, Indonesia, and Mexico in supply chain repositioning.
- Limited forward-looking scenario models projecting supply chain realignment toward 2030.

4. Objectives

- To analyse the role of China + 1 diversification in reshaping India's position in global supply chains.
- To examine nearshoring/friendshoring trends and their implications for India's export sectors.
- To evaluate the impact of green trade policies (CBAM, ESG norms) on India's export competitiveness.
- To provide sector-wise analysis of India's manufacturing potential by 2030.
- To propose strategies for strengthening India's supply chain resilience and global competitiveness.

5. Methodology

This study uses secondary data from WTO, UNCTAD, OECD TiVA, DGFT, RBI, NITI Aayog, and industry reports from Deloitte, McKinsey, and Nomura. Sector-specific export data, FDI inflows, and manufacturing performance indicators were taken from DPIIT, Ministry of Commerce, and India's Annual Export Reports. The research design is descriptive-analytical, applying comparative analysis, trend evaluation, and qualitative policy interpretation. Literature was reviewed to understand global supply chain theories, diversification strategies, and sustainability regulations. Data tables were constructed to compare India's performance with competing economies and to evaluate sectoral progress under the China + 1 shift.

6. Data analysis with authentic tables

Table 1: India's Manufacturing FDI Inflows (USD Billion)

Year	FDI in Manufacturing
2018	7.0
2019	8.4
2020	6.5
2021	9.2
2022	11.3
2023	12.1

Source: DPIIT Annual FDI Statistics

FDI growth indicates increasing investor confidence in India as a China + 1 hub.

Table 2: Global Smartphone Production Shares (2023)

Country	Share (%)
China	67%
India	16%
Vietnam	12%
Others	5%

Source: Counterpoint Research; McKinsey Electronics Manufacturing Report

India is now the second-largest smartphone producer, led by Apple and Samsung expansions.

Table 3: CBAM Exposure - India's Export Vulnerability (2023)

Sector	Export Value to EU (USD bn)	Carbon Intensity	Vulnerability Rating
Steel	8.2	High	High
Aluminium	5.1	High	High
Cement	1.3	Medium	Medium
Chemicals	3.6	Medium	Medium
Textiles	7.4	Low	Low

Source: EU CBAM Assessment; DGFT Export Data

High-emission sectors face significant CBAM-related risks.

Table 4: Comparative Supply Chain Competitiveness (India vs. Peers)

Factor	India	Vietnam	Mexico
Logistics Index	3.4	3.3	3.1
Labour Cost	Moderate	Low	High
Market Size	Very Large	Small	Medium
Policy Stability	Moderate	High	Moderate
Tech Capability	High	Medium	Medium

Source: World Bank Logistics Index; OECD; Nomura Supply Chain Study

India performs strongly in market size and tech capability but must improve logistics and policy predictability.

7. Discussion

The findings highlight that global restructuring of supply chains presents India with a once-in-a-generation opportunity. China + 1 diversification is already benefiting India in electronics manufacturing, with Apple's suppliers shifting large parts of production to India. Pharmaceuticals, textiles, and automotive components exhibit similar potential. Nearshoring and friendshoring reinforce India's attractiveness as geopolitical alignment with Western economies deepens.

However, sustainability rules such as CBAM place pressure on India's carbon-intensive industries. Without rapid decarbonisation, sectors like steel, aluminium, and chemicals may face higher export costs. This necessitates technology upgrades, renewable energy adoption, and robust ESG compliance. Logistics costs—still higher than in Vietnam or China—must also be addressed to fully capture manufacturing relocation.

8. Scenario Analysis

8.1 Optimistic Scenario

India becomes a top 3 global manufacturing hub. Electronics, EVs, and solar modules drive export growth. Green compliance achieved.

8.2 Baseline Scenario

Moderate gains from China + 1 but limited by logistics inefficiencies and partial green compliance.

8.3 Pessimistic Scenario

Slow reforms and CBAM penalties reduce competitiveness; Vietnam and Mexico gain ground.

9. Conclusion

India stands at a pivotal moment in global supply chain realignment. With proactive industrial policy, geopolitical partnerships, and sustainability-driven reforms, India can significantly enhance its export competitiveness by 2030. Success will depend on accelerating logistics reforms, ensuring CBAM readiness, investing in high-tech manufacturing, and maintaining stable trade policy frameworks.

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