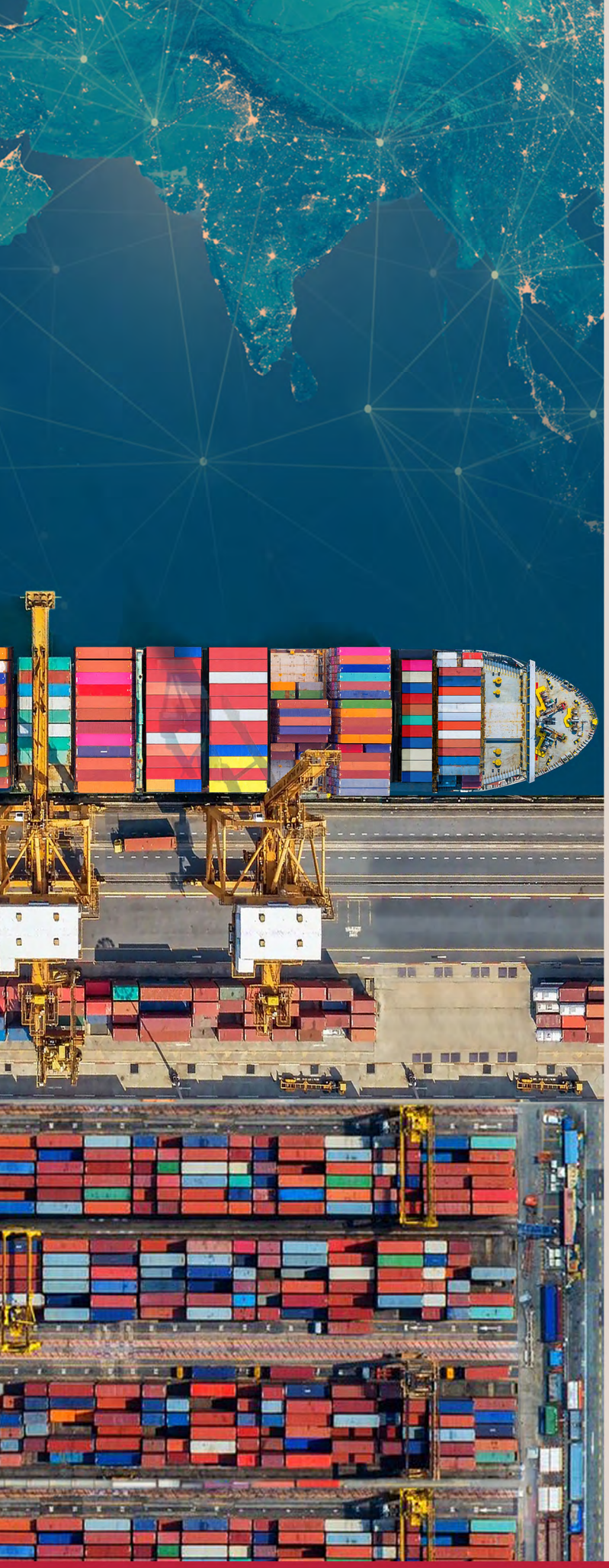

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Assessing India's Trade Performance

Pathways to Strategic and Deeper Integration with Global Value Chains

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Assessing India's Trade Performance
Pathways to Strategic and Deeper Integration with Global Value Chains

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Author Contributions

All authors contributed to the *Introduction* and *Conclusion and Policy Recommendations* sections, as well as reviewed and approved the final version of the paper.

Prerna Prabhakar authored *Historical Trends in India's Trade and Investment Policies* (Section 2) and *Assessment of India's Protection Measures* (Section 5).

Isamu Wakamatsu, Koichiro Kimura, and Prerna Prabhakar co-authored *Challenges and Opportunities for the Indian Economy* (Section 3).

Isamu Wakamatsu drafted *What Japanese Companies Face: Challenges in Investing in India* (Box 1), while Koichiro Kimura drafted *China's Experience: How External Liberalisation Fostered the Rise of its Global Players* (Box 2).

Fukunari Kimura and Prerna Prabhakar co-authored *India's Participation in East Asia's Machinery Production Networks* (Section 4).

Ikumo Isono and Satoru Kumagai co-authored *Geopolitical Reorganisation Under the US "Reciprocal Tariffs" and India's Resilience Strategy: A Geographical Simulation Analysis* (Section 6).

Abbreviations

ACC	Advanced Chemistry Cell
ADD	Anti-dumping Duty
ASEAN	Association of Southeast Asian Nations
BIS	Bureau of Indian Standards
BTA	Bilateral Trade Agreement
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
E&E	Electrical and Electronic
EFTA	European Free Trade Association
EPA	Economic Partnership Agreement
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GST	Goods and Services Tax
GVC	Global Value Chain
HS	Harmonised System
IDE-GSM	Institute of Developing Economies-Geographical Simulation Model
IDE-JETRO	Institute of Developing Economies-Japan External Trade Organization
IMF	International Monetary Fund
IS	Indian Standard
IT	Information Technology
ITC	International Trade Centre
JCCII	Japan Chamber of Commerce and Industry in India
JETRO	Japan External Trade Organization
LED	Light-emitting Diode
MFN	Most Favored Nation
MSME	Micro, Small and Medium Enterprises
NTB	Non-tariff Barrier
NTM	Non-tariff Measure
PLI	Production Linked Incentive
PV	Photovoltaic
QCO	Quality Control Order
R&D	Research and Development
RCA	Revealed Comparative Advantage
RCEP	Regional Comprehensive Economic Partnership
TFP	Total Factor Productivity
UNCTAD	United Nations Conference on Trade and Development
USMCA	United States–Mexico–Canada Agreement
WITS	World Integrated Trade Solution
WTO	World Trade Organization

Executive Summary

Global economic developments have triggered significant policy shifts across major economies, and for India, this presents both opportunities and challenges. The opportunities lie in addressing India's fundamental structural weaknesses to integrate into global value chains (GVCs) and become a key destination for foreign investments.

The current period holds an immense opportunity to shift the policy focus toward manufacturing. Historically, India's growth story has not been effective in adequately promoting its manufacturing sector. This is reflected in India's limited participation in global manufacturing GVCs.

To address the challenges facing Indian manufacturing, it must focus on its fundamental constraints: access to land, labour productivity, technology adoption, domestic competition, and an over-reliance on import protection measures. Correcting these structural issues is essential for enhancing competitiveness, raising productivity, and positioning India as a key player in global production networks.

In this context, the paper discusses the key challenges facing the Indian manufacturing sector, with particular emphasis on its import protection policies.

The paper makes five key contributions:

- It summarises the major challenges facing Indian manufacturing, including competitiveness constraints, specifically tariff and non-tariff measures (NTMs).
- It presents empirical evidence of India's recent successes in trade integration for the machinery production chains, demonstrating models that other industries can replicate to deepen their integration into GVCs.
- It assesses six-digit Harmonised System (HS) tariff lines for 2023 to identify goods that need to be liberalised, given their importance in the import basket and their critical role in domestic production.
- Using a simulation model, the paper assesses the impact of recent United States (US) tariffs on India and other key economies. It estimates the potential Gross Domestic Product (GDP) gains for India under a scenario of Most Favored Nation (MFN) tariff reduction.
- Finally, the paper recommends a short- to medium-term policy roadmap to make Indian manufacturing more competitive and better integrated into GVCs.

Competitiveness Challenges Facing India

India's share in the global economy has remained almost stagnant over the past decade, as reflected in its limited participation in GVCs. Several factors appear to be driving this trend.

- A comparative assessment of India and four key Asian economies—Indonesia, Malaysia, Thailand, and Vietnam—highlights India's structural competitiveness gaps. In a competitiveness index based on six key pillars, India ranked lowest, while Malaysia topped the index, followed by Vietnam and Thailand. India performed poorly on parameters such as labour productivity, land access, firm concentration, import tariffs, participation in Free Trade Agreements (FTAs), and regulatory hurdles.
- While high tariffs have constrained India's competitiveness, non-tariff barriers (NTBs) have further aggravated the problem. Quality Control Orders (QCOs) have risen sharply over the years, particularly targeting intermediate goods critical to production supply chains. Moreover, QCOs appear to be increasingly used for price-related or strategic reasons, issues already addressed by anti-dumping measures, which have proliferated over the years. The recent withdrawal of several QCOs is a much-needed relief for Indian firms, but many existing QCOs still require careful reassessment to achieve more efficient, growth-enhancing outcomes.
- The trade barriers are sometimes inadvertently reinforced by industrial policies. Take, for example, the Production Linked Incentive (PLI) scheme, which has been introduced across 14 sectors since 2021 to support domestic manufacturing and exports by incentivising production volumes. While a few sectors have demonstrated improved export performance, many others continue to struggle. A key reason may be that the incentives are tied primarily to sales rather than to investments in technology adoption, process upgrading, and research and development (R&D), areas that are crucial for long-term competitiveness. Changes in this direction can yield positive outcomes.

Positive Signs of GVC Integration

- An empirical assessment of machinery production networks across key Asian economies shows that East Asian countries exhibit much smaller gaps between predicted and actual export and import values, reflecting strong integration into regional value chains.

- By contrast, India's gap ratios for machinery exports and imports, 20% and 70%, respectively, indicate that the country is yet to capitalise on significant opportunities for deeper participation in these production networks.
- Between 2017 and 2023, India's machinery exports increased 1.9 times, but gap ratios rose only modestly. Exports to the US grew 3.5 times, and final-product exports increased 6.3 times, partly driven by smartphone assembly, though gaps remain far below 100%.
- On the import side, progress is more pronounced. India's total machinery imports rose 1.6 times, with notable increases from East Asian economies. China remains the largest source, but Japan, Korea, Taiwan, and the Association of Southeast Asian Nations (ASEAN) all show gap ratios above 100%, indicating India's growing integration into East Asian machinery networks from the import side.

A mix of openness and GVC integration, foreign entry, import access to key components, and seamless supply-chain participation drove investment and export growth in this sector. Replicating this model across manufacturing requires lower import barriers, stronger connectivity, and a supportive policy environment to enable task-based global production and deeper industry-level integration.

Assessment of India's Protectionist Policies

A granular analysis of 3,927 HS-6-digit products for 2023 reveals the following:

- 92.5% of product lines (worth USD 410 billion in imports) carry non-zero MFN tariffs.
- 7.9% of product lines (worth USD 40 billion in imports) are subject to Anti-Dumping Duties (ADD).
- 8.6% of product lines (worth USD 50.7 billion in imports) fall under QCOs.
- The 10–15%[1] MFN tariff band dominates, covering nearly half of tariff lines and USD 241.8 billion in imports, primarily capital and intermediate goods. This structure raises input costs and undermines supply-chain efficiency.
- Products facing tariffs and NTMs, ADDs and QCOs, account for USD 9.3 billion in imports, concentrated in plastics, chemicals, steel, and aluminium, which are core industrial inputs.

These findings highlight the need to liberalise critical inputs to support manufacturing competitiveness and deeper GVC integration.

Expected Gains From Most Favored Nation Tariff Reduction

The US "reciprocal tariff" policy announced on April 2, 2025, marked a shift from a multilateral, rules-based trading system to one driven by geopolitics.

- Institute of Developing Economies-Geographical Simulation Model (IDE-GSM) showed that with 26% tariff, India experienced a positive impact (+0.4%), also possibly due to its low dependence on US exports. In comparison, China, with 54% import tariff, faced severe losses in terms of its GDP.
- Subsequent bilateral negotiations substantially altered the situation. China faced a 20% tariff until November 2026, while India faced a combined 50% tariff, removing the earlier advantage. Updated simulations show that India's GDP fell slightly (-0.07%), highlighting the loss of relative competitiveness.
- Despite the GDP fall, India is relatively resilient compared to many ASEAN economies because of its low relative export dependence on the US. The findings highlight the need for India to focus on strengthening its competitiveness.
- A liberalisation scenario, reducing MFN tariffs and lowering NTBs provides a strong positive GDP effect (+1.5%), particularly in key sectors.

Policy Recommendations

India must reconsider its blanket protectionist approach, especially on intermediate goods, as it raises input costs and weakens industrial competitiveness.

- In the short term, India should avoid hiking tariffs, correct inverted duty structures, and suspend QCOs on non-safety-critical inputs.
- Medium-term priorities should include lowering tariffs on key inputs, examining cases of overlapping duties, reassessing QCOs, and negotiating and concluding deeper FTAs.
- Over the long term, India should address deeper structural constraints such as land constraints, regulatory quality, R&D investment, and firm concentration to strengthen manufacturing competitiveness.

[1] Within an MFN tariff range, the lower-end tariff is included, but the upper-end tariff is not included. For instance, 10–15% will have 10% tariff rates, but not 15% tariff rates, and 15% will be included in the range of 15–20%.

1. Introduction

The global economy is undergoing rapid shifts. According to the International Monetary Fund (IMF), global growth is projected to slow down from 3.3% in 2024 to 3.2% in 2025 and further to 3.1% in 2026. Growth in advanced economies is expected to grow at around 1.5%, while emerging market and developing economies are projected to grow just above 4% (IMF, 2025). These growth rates are slower than those in the period before US tariff policies, reflecting ongoing geopolitical tensions.

For India, the IMF growth forecast has been revised upward to 6.6%, signifying its resilience amid a challenging external environment. Recent Goods and Services Tax (GST) reforms are also expected to contribute to GDP growth through increased consumption levels.

However, global competitiveness outcomes will require improvements in the business climate, including regulatory quality (approvals and clearances), land availability, etc. India's trade and tariff policies are an important determinant of the business ecosystem. India is one of the most protected economies among its Asian peers, with an average MFN tariff rate of about 17.6%. The import tariffs have seen a surge since 2018, and alongside this, there has been a sharp rise in the issuance of QCOs, affecting both domestic producers and importers, along with the continued use of ADDs as instruments to curb low-priced imports.

While QCOs aim to ensure the quality of domestic production and imports, they also risk increasing production costs, particularly when these are imposed on key intermediate goods, thereby undermining India's ability to integrate into GVCs. The recent QCO withdrawal is expected to help the industry overcome compliance burdens and import uncertainties.

Indian manufacturing has the potential to become the backbone of the country's economic growth, with exports serving as a critical driver for achieving scale and competitiveness. However, any export-led growth strategy will remain incomplete without liberalising imports of essential inputs that enable firms to integrate more effectively into GVCs.

In this context, it becomes imperative to re-examine India's existing trade policies and propose strategic pathways for deeper global integration. This paper is an effort in that direction, aimed at providing evidence-based insights and actionable recommendations to make India's trade and industrial policies more aligned and conducive to manufacturing competitiveness. This paper includes the following sections.

Section 2 discusses historical trends in India's trade and investment policies. Section 3 examines the existing challenges and opportunities faced by the Indian economy regarding global integration. Section 4 presents empirical evidence on how India's integration into GVCs has improved over the years. Section 5 presents an assessment of India's protectionist policy measures, including tariffs, NTBs, and quality regulations. Section 6 discusses the impact of US tariffs on India and presents a tariff liberalisation scenario, in which the GDP benefits of import tariffs are assessed. Finally, Section 7 outlines key policy recommendations for reshaping India's global trade policy framework to foster openness, investment, and manufacturing growth.

2. Historical Trends in India's Trade and Investment Policies

The current global landscape is characterised by a push towards industrial policies to support domestic manufacturing. This is paralleled with protectionist policies, with tariffs and non-tariff barriers as important tools. However, many key Asian success stories, such as South Korea, Japan, China, and, more recently, Vietnam, have experienced growth by integrating into GVCs, driven by low import tariffs.

However, India's journey has been different, and this can be attributed largely to its post-independence economic history. After independence in 1947, India adopted a socialist economic model aimed at self-reliance. The government-imposed restrictions on international trade and resorted to industrial licensing, a trend that continued through the 1960s and 1970s.

Although there were some early signs of liberalisation in the mid-1980s, the reforms were relatively limited and fragmented. A major shift occurred in the early 1990s, when a severe balance-of-payments crisis led the Indian government to undertake structural economic reforms. This led to India's transition toward a more liberalised and globally integrated economy, including reductions in tariffs and the dismantling of licensing controls.

Since the 1991 economic reforms, India's average tariff rates declined sharply, from around 56% in 1991 to around 17.6% in 2024 (World Trade Organization [WTO], International Trade Centre [ITC] & United Nations Conference on Trade and Development [UNCTAD], 2024). This period exhibited India's integration into the global economy, reflected in rising trade and Foreign Direct Investment (FDI). However, in recent years, this liberalisation trend has reversed, and there is an increasing thrust on industrial policies such as the PLI schemes.

A closer examination of India's trade and investment trajectory since independence reveals that it can be divided into two broad phases.

Phase I (1991–2008):

This phase was characterised by increasing openness and saw a substantial reduction in import tariffs, the undoing of licensing regimes, and consistent efforts to attract FDI. India's participation in the multilateral trading system also expanded with its accession to the WTO as an original member in 1995.

Phase II (2008–present):

This phase was characterised by the global financial crisis, which saw a slowdown of the global economy and demand. India signed several FTAs during the early part of this phase. However, in recent years, there has been a strategic shift towards industrial policy and self-reliance. This has manifested in higher import tariffs and rampant use of NTMs such as QCOs. The focus has been on schemes like PLI to strengthen domestic manufacturing capabilities. After a period of limited FTA engagement, India has recently signed some key FTAs, like with the UK, EU, EFTA, Australia, and the UAE, to name a few, which is a positive step in terms of global integration.

The following sub-sections provide a detailed overview of key trade and investment indicators, including average tariffs, FDI inflows, and trade openness, with specific emphasis on recent shifts and their policy implications.

2.1 Tariffs: From Liberalisation to Reversal

India's import tariffs saw a significant decline after the 1991 economic reforms. Import tariffs fell continuously till 2017, and reached around 14%, a steep fall from over 50% in the early 1990s (Figure 1). However, since 2018, there has been a clear reversal in this trend. Average tariffs began rising again and stand at around 17.6% as of 2024 (WTO, ITC & UNCTAD, 2024). This rise reflects a broader policy shift toward domestic production and import substitution.

While India's MFN tariffs have followed an increasing trend since 2018, the country has simultaneously pursued an active FTA strategy, signing several key agreements with major trading partners, including Mauritius, Australia, and the United Arab Emirates (UAE), the recent ones with United Kingdom (UK), the European Union (EU), and the European Free Trade Association (EFTA). As a result, rising MFN tariffs are increasingly being offset through bilateral and plurilateral trade negotiations, making FTAs a central instrument of India's trade policy. However, as tariff barriers decline within FTA frameworks, NTMs have emerged as the more binding constraint on trade. To enhance competitiveness and market access, the scope of India's FTAs must broaden to include deeper and more comprehensive negotiations on NTMs.

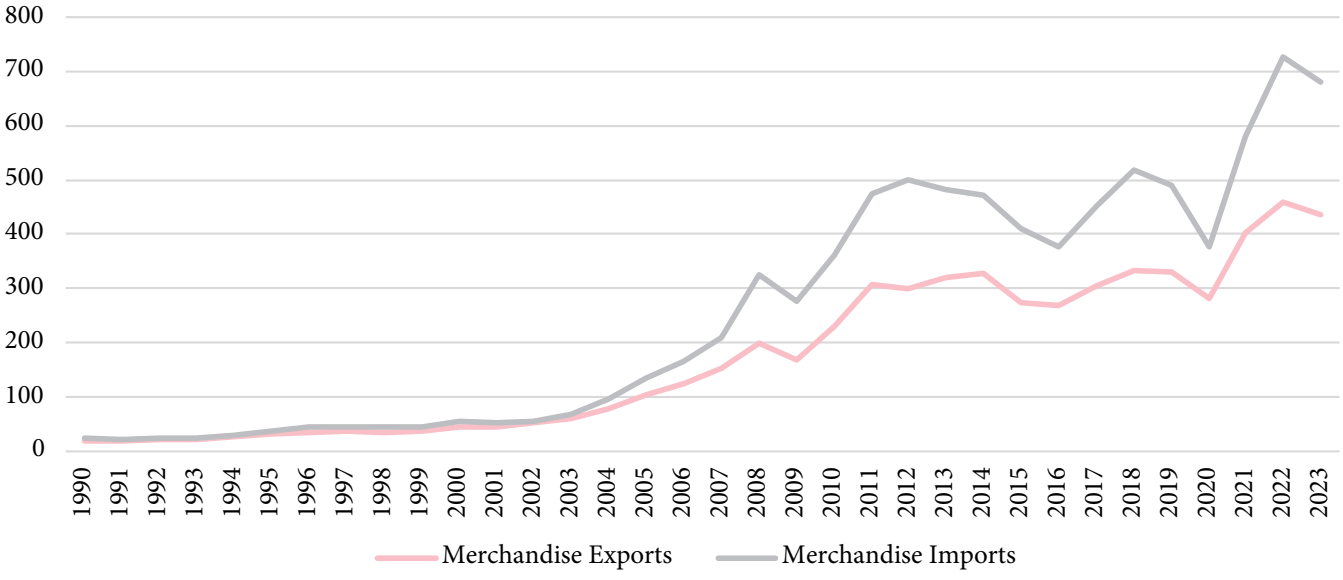
Figure 1: Simple Average Most Favoured Nation Tariff (Per cent)

Source: World Integrated Trade Solution; World Bank.

2.2 Trade: Volume Growth Amidst Deficit Pressures

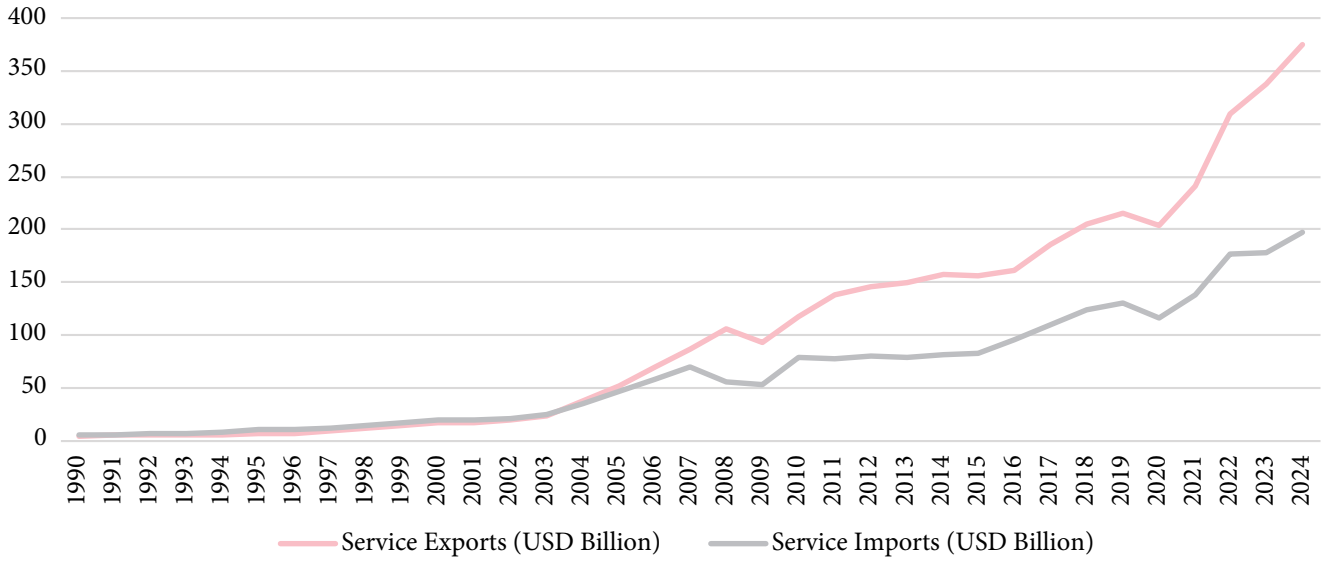
India's exports and imports have significantly expanded since 1991, reflecting its growing integration with the global economy. Despite some disruption during global crises (such as the 2008 financial crisis and the 2020 COVID-19 pandemic), both exports and imports have shown an upward trend (Figure 2). While the merchandise trade deficit has widened in recent years, this has been offset by a surplus in services trade (Figure 3).

Figure 2: Merchandise Exports and Imports (USD Billion)



Source: World Development Indicators, World Bank.

Figure 3: Services Exports and Imports (USD Billion)

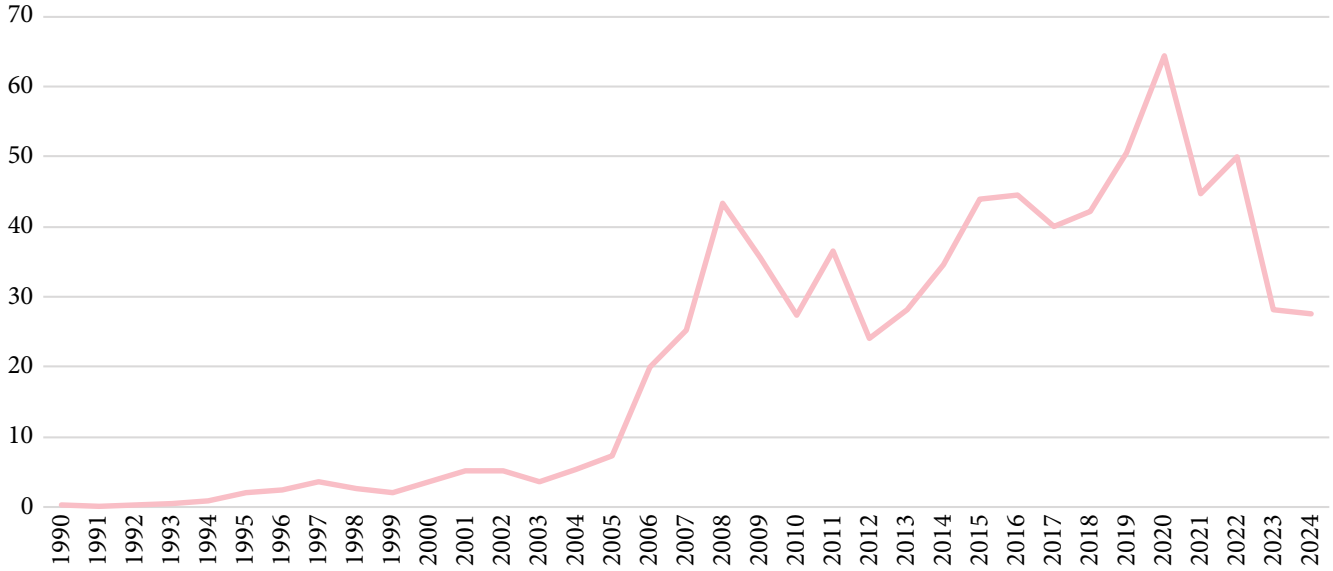


Source: World Development Indicators, World Bank.

2.3 Foreign Direct Investment: A Sign of Policy Certainty

FDI flows into India have seen a drastic shift in recent years. After the 1991 economic reforms, India emerged as a key destination for foreign investment. However, FDI inflows have slowed over the last few years, shrinking by about 38.3% between 2021 and 2024 (Figure 4). This decline coincides with the adoption of protectionist measures, including rising tariffs and the growing use of NTMs like QCOs.

Figure 4: Net Foreign Direct Investment Inflows (USD Billion)



Source: World Development Indicators, World Bank.

The analysis suggests that protectionist strategies may be weakening India's attractiveness as an investment destination, particularly compared to its Southeast Asian competitors. As noted by the World Bank (2024), India's goal of becoming a major exporter of high-value goods (e.g., electronics, machinery) is challenged if tariffs make local production uncompetitive.

3. Challenges and Opportunities for the Indian Economy

While India holds a promising position in the global economy, it has not fully leveraged emerging trade and investment opportunities due to persistent policy and structural bottlenecks at both the global and domestic levels.

3.1 Stagnant Export Share Despite Global Momentum

India's share in global exports has stagnated over the past decade, in contrast to smaller economies like Vietnam, which have significantly increased their presence in GVCs. A time-series analysis reveals that India's global export share has remained below 2%, while countries like Vietnam have expanded their global market share, particularly in electronics, textiles, and machinery (Table 1). This underperformance is also reflected in declining FDI inflows, as noted in the previous section.

Table 1: Share in Global Merchandise Exports (Per cent)

Country	2001	2011	2023
China	4.6	11.1	15.5
India	0.8	1.8	2
Indonesia	1	1.2	1.2
Japan	7	4.9	3.3
South Korea	2.6	3.3	2.9
Malaysia	1.6	1.4	1.5
Thailand	1.2	1.4	1.4
Vietnam	0.3	0.6	1.7

Source: World Integrated Trade Solutions; World Bank.

3.2 Competitiveness Parameters

When compared to its Asian peers, such as Vietnam, Malaysia, Indonesia, and Thailand, which have become attractive "China Plus One" destinations, India's competitiveness gaps are stark.

Prabhakar et al. (2025) developed a Manufacturing Competitiveness Index, benchmarking India against these four economies. The index identifies India's structural weaknesses across key pillars, resulting in persistent competitiveness gaps (Table 2).

Table 2: India's Performance Across Key Pillars of Manufacturing Competitiveness

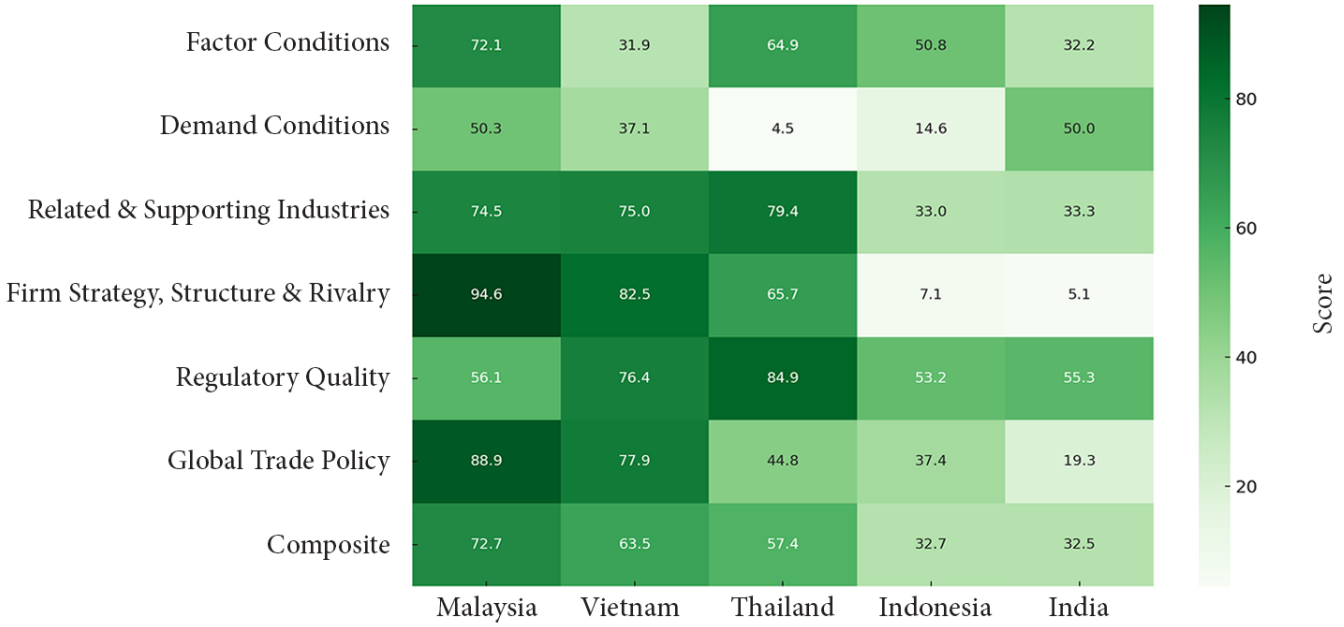
Pillar	India's Performance
Factor Conditions	Low productivity despite abundant labour; weak R&D and technology.
Demand Conditions	Strong domestic demand, but external demand remains underleveraged.
Related and Supporting Industries	Supply-chain linkages weakened by high tariffs on intermediate goods.
Firm Strategy and Rivalry	High firm concentration in key industries; poor competitiveness.
Regulatory Quality	Tax administration; customs clearances.
Global Trade Policy	High MFN tariffs; exclusion from key trade agreements.

Source: Prabhakar et al. (2025).

Note: MFN = most favored nation; R&D = research and development.

Overall, India performs poorly on most pillars of the index, except for the Demand Conditions pillar (which is due to its large domestic market). Consequently, it has the lowest competitiveness index score, while Malaysia tops the index, followed by Vietnam, Thailand, and Indonesia (Figure 5).

Figure 5: Competitiveness Index Rankings



Source: Prabhakar et al. (2025).

All these factors contribute to India's reduced attractiveness for global investment and help explain why its share in global exports remains low despite its potential. Without addressing these structural constraints, India risks being left behind in the evolving landscape of global manufacturing and trade.

If India aims to become a globally competitive manufacturing hub, it must rectify critical structural deficiencies. These include the following:

- Rationalising import tariffs to ensure access to competitive inputs.
- Investing sufficiently in R&D and technology adoption.
- Proactively engaging in trade agreements to access global markets.
- Improving regulatory quality to create a transparent, investor-friendly environment.

With respect to investor confidence, Box 1 highlights the views of Japanese companies on their India operations.

Box 1: What Japanese Companies Face: Challenges in Investing in India

Japanese companies are showing growing interest in expanding their business in India, which has the largest population in the world and continues to enjoy strong economic growth. At the same time, global supply chains, centred in China and ASEAN, are being re-evaluated due to disruptions caused by COVID-19 and geopolitical tensions like the US–China rivalry. In this changing environment, India is gaining attention as a promising base for export-oriented manufacturing, owing to its large labour force and skilled talent.

According to the Japan External Trade Organization (JETRO) 2024 survey on overseas business activities, conducted among 3,162 Japanese companies (headquarters) between November and December, India ranked fifth among the countries and regions where companies plan to expand their operations in the future, following the US, China, the EU, and Vietnam (JETRO, 2025a). In the 2021 survey, India was ranked 11th, showing a steady rise in interest over the past few years (Table 3).

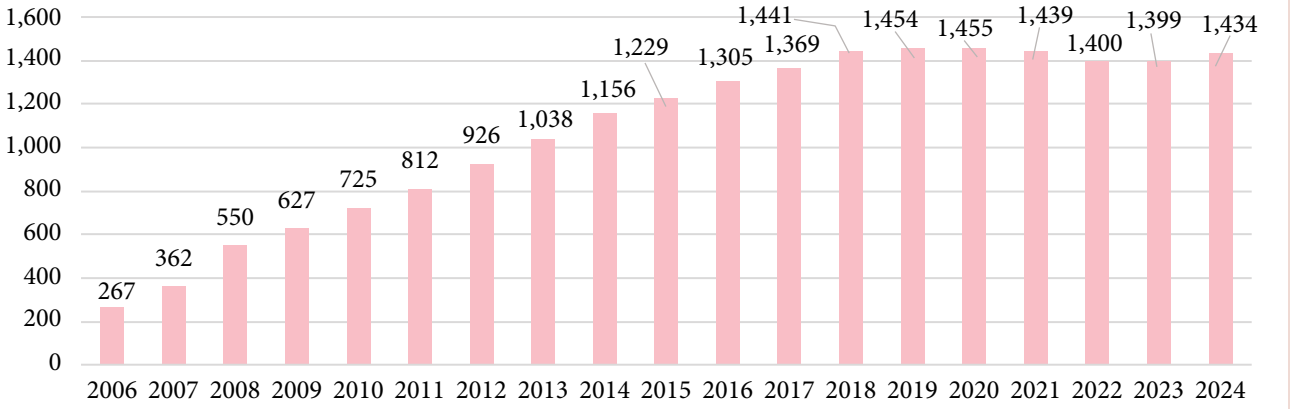
Table 3: Countries/Regions for Overseas Expansion (Top 10)

Rank	2021	2022	2023	2024
1	US	US	US	US
2	Vietnam	Vietnam	Vietnam	China
3	China	China	China	EU
4	Thailand	EU	EU	Vietnam
5	Europe	Thailand	Thailand	India
6	Taiwan	Indonesia	India	Taiwan
7	Singapore	India	Indonesia	Thailand
8	Indonesia	Taiwan	Taiwan	Indonesia
9	Malaysia	Singapore	Singapore	Singapore
10	Hong Kong	Malaysia	Malaysia	Other Asia and Oceania
11	India	Philippines	Philippines	Malaysia

Source: FY 2024 Japan External Trade Organization Survey on the International Operations of Japanese Firms.

Despite growing interest, the actual number of Japanese companies entering the Indian market has remained relatively low. According to a survey by the Embassy of Japan in India and JETRO, there were 1,434 Japanese companies operating in India as of October 2024, a figure that has stayed almost unchanged since 2018. In contrast, the early 2010s saw a steady increase (Figure 6).

Figure 6: Trend in the Number of Japanese Companies in India



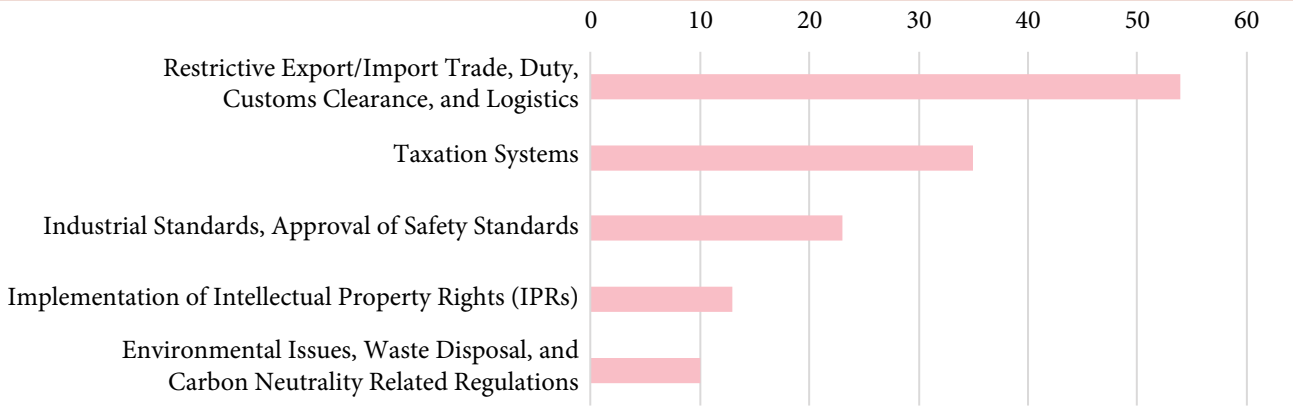
Source: Embassy of Japan in India and Japan External Trade Organization "List of Japanese Companies Operating in India" (June 2025 Edition, 2025).

One key reason for this stagnation is the presence of serious challenges in India's business environment. In this section, the issues based on findings from two surveys conducted among Japanese companies are discussed.

Firstly, a survey conducted by the Japan Business Council for Trade and Investment Facilitation (Secretariat: Japan Machinery Centre for Trade and Investment), which includes 130 Japanese industry organisations, from November 2024 to February 2025 found that India had the third-highest number of reported trade and investment issues among countries, 168 cases (Japan Business Council for Trade and Investment Facilitation, 2025). This was only behind China (296 cases) and the US (171 cases).

The most commonly reported issue was related to "Restrictive Export/Import Trade, Duty, Customs Clearance, and Logistics" (54 cases). Specific concerns included high tariffs, sudden tariff increases, inconsistent and arbitrary tariff classifications, and complicated or unclear procedures in processing certificates of origin. The second most cited issue was "Taxation systems" (35 cases), with companies pointing to unclear tax audits and lengthy tax-related legal disputes. The third was "Industrial Standards, Approval of Safety Standards" (23 cases), where many organisations highlighted problems with India's mandatory Bureau of Indian Standards (BIS) certification (QCO), describing the procedures as unclear, burdensome, and slow (Figure 7).

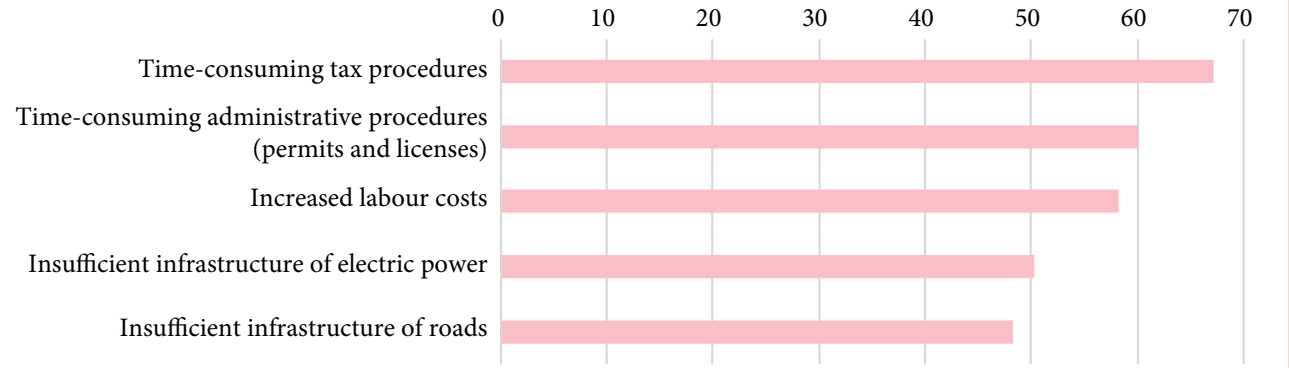
Figure 7: Issues by Category for India



Source: Issues and Requests for Improvements on Trade and Investment Barriers in 2025; meeting of the Japan Business Council for Trade and Investment Facilitation, 2025.

Next, in a survey conducted by JETRO targeting Japanese companies operating in India (conducted August–September 2025; 385 companies responded), the highest percentage of companies (67.1%) selected "Time-consuming tax procedures" as a risk (challenge) in the investment environment (JETRO, 2025b). Since the survey did not include options specifically related to customs procedures or tariffs, it is likely that these issues are also included in this response. The second most common risk was "complexity of administrative procedures (such as permits and approvals)," cited by 60.1% of companies. This category is considered to include the process for obtaining mandatory BIS certification under QCO requirements. The share of companies selecting this option increased by 8 percentage points from the previous year's survey (52.1%). Its ranking as an investment-related risk also rose from fourth place last year to second place, indicating that the issue has become more serious (Figure 8).

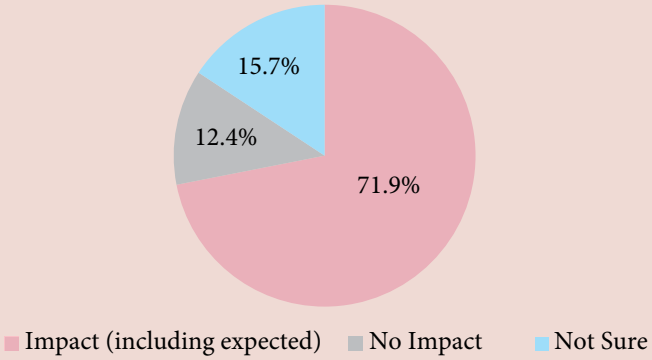
Figure 8: Top Five Risks in Investment Environment (Per cent)



Source: 2025 Japan External Trade Organization Survey on Business Conditions of Japanese Companies Operating Overseas (Asia and Oceania).

In addition, this survey included a special question on the mandatory BIS certification system, asking about its impact on business operations. Among manufacturers (198 companies), 71.9% reported being affected (Figure 9). Of these, 25.8% described the impact as "extremely severe," and 43.8% as "severe," meaning that roughly 70% of affected companies consider the impact to be serious.

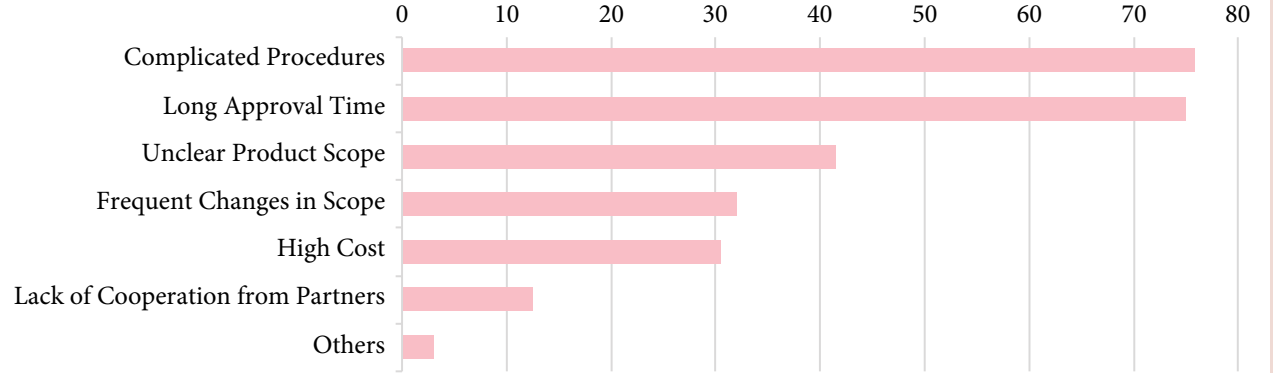
Figure 9: Is the Bureau of Indian Standards Mandatory Certification System Affecting Your Company's Business? (Per cent)



Source: 2025 Japan External Trade Organization Survey on Business Conditions of Japanese Companies Operating Overseas (Asia and Oceania).

Specific challenges cited under this system include "complicated procedures" (75.8%) and "long approval times" (75%), each mentioned by three-quarters of respondents. Other issues include "unclear product scope" (41.4%) (Figure 10).

Figure 10: Challenges in Obtaining Bureau of Indian Standards Mandatory Certification (Multiple Answers) (Per cent)



Source: 2025 Japan External Trade Organization Survey on Business Conditions of Japanese Companies Operating Overseas (Asia and Oceania).

Improvement in the BIS process has also been identified as one of the priority areas for attention in the Proposals for the Enhancement of India's Economy through Improvement of Business Environment in 2024, which reflects feedback from member companies of the Japan Chamber of Commerce and Industry in India (JCCII). In individual interviews conducted by JETRO with Japanese manufacturers operating in India (2024–2025), many companies specifically pointed to challenges in acquiring BIS certification for imported components. Some of their comments are shared below.

"Products subject to BIS certification are almost always held up at customs during import, causing disruptions. Items like steel materials, aluminium, and bolts require the Indian Standard (IS) mark to be stamped, which means we have to modify the moulds, adding significant cost and time burdens. This is one of the major challenges in positioning India as an export hub," (Japanese Transport Equipment Manufacturer).

"The impact of BIS is quite substantial. Since audits of overseas factories are required, importing products from abroad has become especially burdensome." (Japanese Transport Equipment Parts Manufacturer).

There are also concerns about rising import tariffs on components and the strict procedures for obtaining Economic Partnership Agreement (EPA) certificates of origin, both of which are placing a significant burden on companies.

"Under the 'Make in India' policy, tariffs on key components have been raised, leading to higher costs." (Japanese Electrical Equipment Manufacturer).

"Using the EPA is very difficult. We have to check the HS code for each individual component, and we're also required to submit a detailed cost breakdown. Since we need to confirm the details of each part with our suppliers, it puts a heavy burden on us. In many cases, suppliers don't provide the necessary data, so we only count items as originating goods when we can fully verify their origin." (Japanese Transport Equipment Manufacturer).

"For EPA certificates of origin, we're required to submit very detailed evidence, far more than what's typically asked for in other countries." (Japanese Customs Broker).

India is an attractive location for manufacturing not only because of its growing consumer market, but also due to its abundant workforce, skilled human resources and strategic importance in the context of geopolitical risks. For Japanese companies, India holds strong potential to develop as an export-oriented manufacturing base within the global supply chain. The "Make in India" initiative supports this direction, but at the same time, protectionist policies such as stricter import regulations under BIS and increased tariffs pose significant challenges to enhancing India's competitiveness as an export hub.

3.3 Non-tariff Barriers

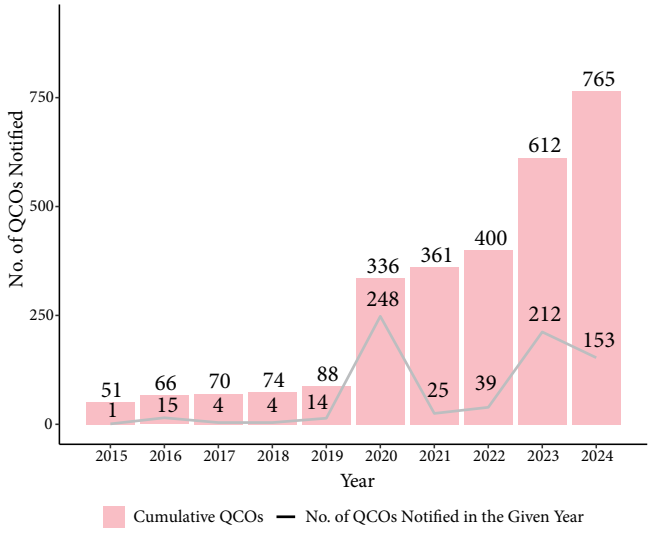
As noted in Box 1, key concerns highlighted by Japanese companies investing in India include trade barriers, both tariffs and NTBs.

Despite this evidence and the practical issues raised by investors, India has increasingly relied on non-trade barriers, most notably QCOs, which add to the tariff-driven protection.

While QCOs are introduced to ensure product quality and to create a robust manufacturing ecosystem, they actually restrict imports from specific countries, thereby disrupting important supply chains in the domestic market, particularly for the Micro, Small and Medium Enterprises (MSMEs) segment, which lacks the capacity to substitute inputs.

The scale of QCO implementation has been unprecedented. The number of QCO products increased from 88 in 2019 to 764 in 2024, reflecting a policy shift toward non-tariff protectionism (Figure 11). During the same period, India's average MFN tariff increased from approximately 13% in 2018 to around 17% in 2024**,** and FDI inflows started to decline. These overlapping trends suggest that rising protectionism may be counterproductive to India's industrial and investment goals.

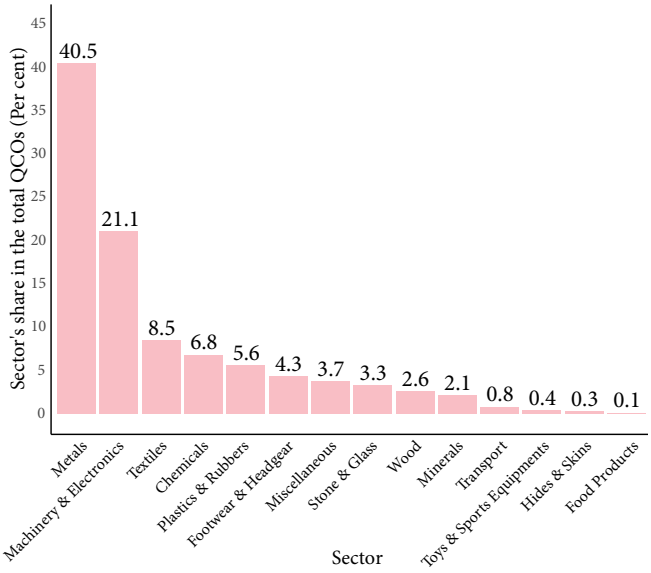
Figure 11: Surge in Quality Control Order Products Since 2019



Source: Prabhakar (2025).

Note: QCO = quality control order.

Figure 12: Sectoral Decomposition of Quality Control Orders (Per cent)

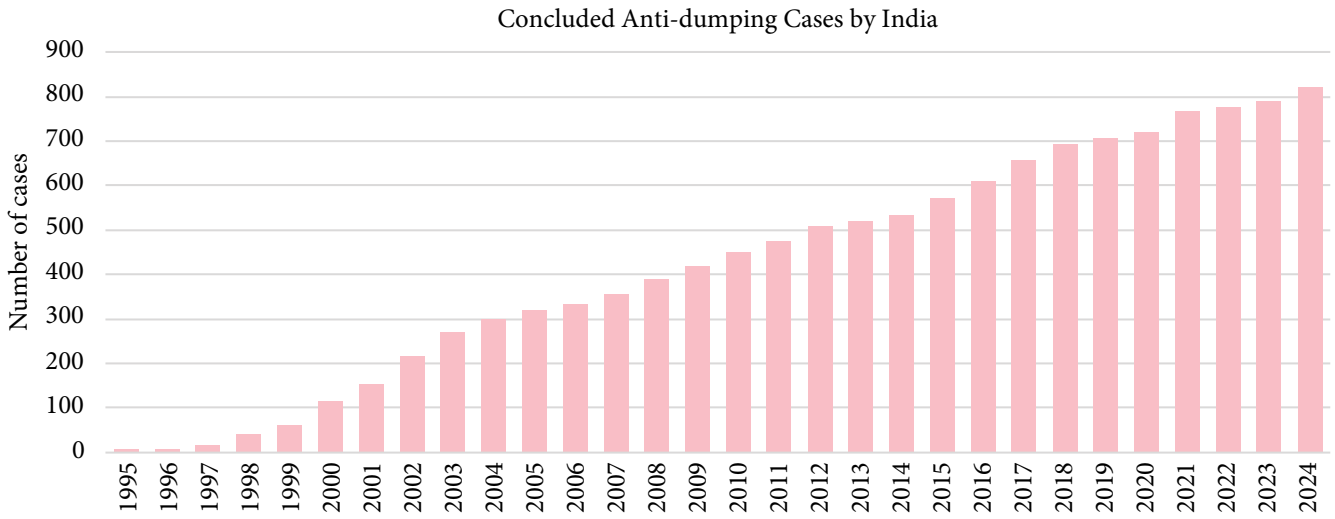


Source: Prabhakar (2025).

Around half of the existing QCOs apply to key intermediate goods or raw materials, posing significant risks to domestic production supply chains. A sectoral analysis of QCOs reveals that many of the sectors with a high number of QCOs in recent years also exhibit high firm concentration, reflecting an uncompetitive domestic economy (Figure 12). These measures seem to be limiting imports to India, as noted by Prabhakar (2025), who argues that while QCOs reduce imports, particularly of intermediate inputs, they do not generate sustained export gains.

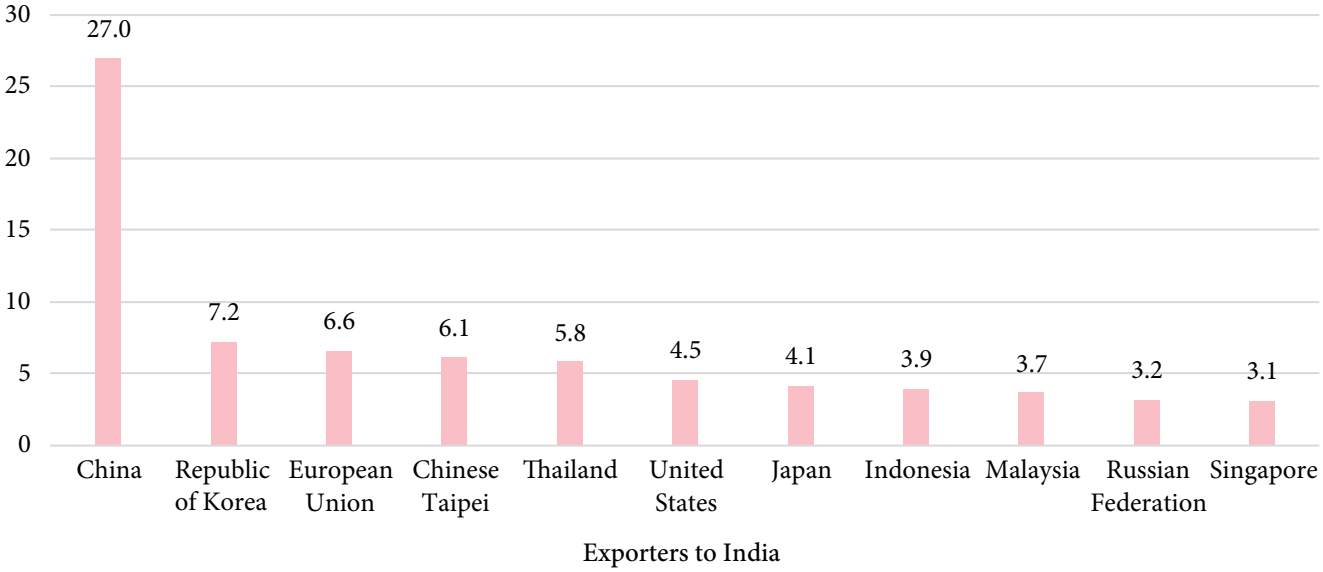
Such industries may be leveraging protectionist instruments, such as QCOs, to shield themselves from both domestic and foreign competition, rather than improving productivity or innovating. BIS, as the implementing agency, notes that QCOs are issued on grounds including public interest; protection of human, animal, or plant health; environmental safety; prevention of unfair trade practices; and national security (BIS, 2021). However, some of these issues, such as unfair trade practices, are already addressed through existing instruments, such as ADDs, which have also risen over the years, especially targeting selected trade partners, such as China and South Korea (Figures 13 and 14). While ADDs are a legitimate tool to address cross-border dumping, their rampant use is increasingly restricting the flow of imports into the country.

Figure 13: Rising Anti-dumping Cases



Source: World Trade Organization.

Figure 14: Percentage of Total Anti-dumping Duty Initiations by Exporter Country (1995–2024) (Per cent)



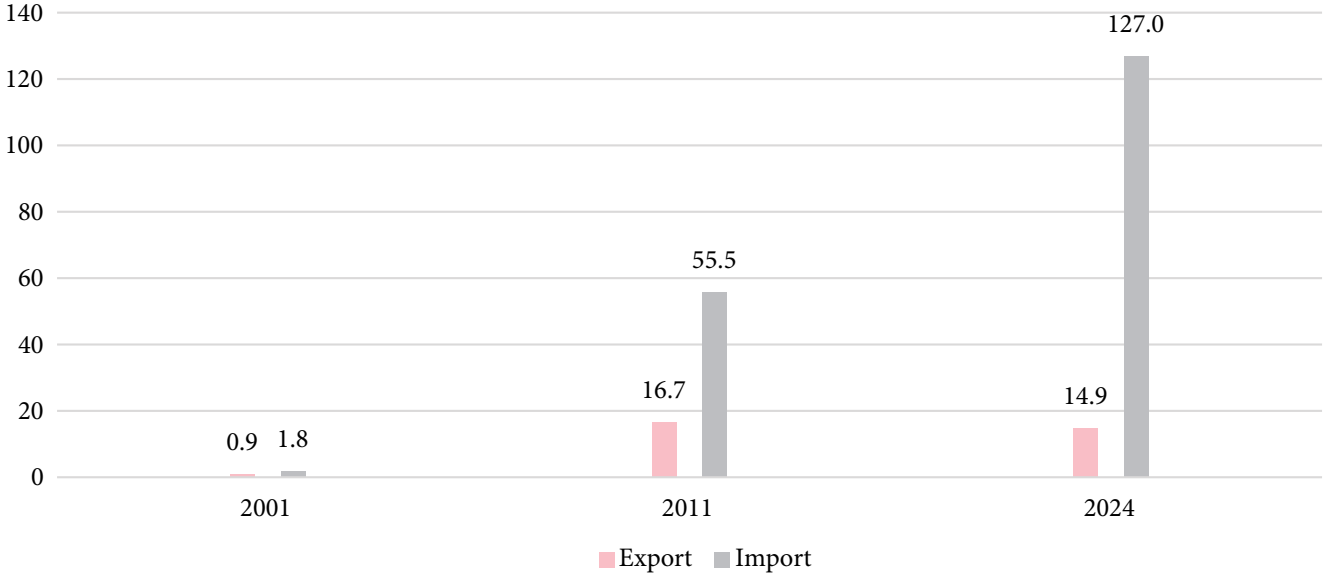
Source: World Trade Organization.

This overlap reinforces the concern that India's trade policy is drifting towards cumulative protectionism, especially in sectors where domestic players dominate and against some specific countries, particularly China.

3.4 Understanding the China Question

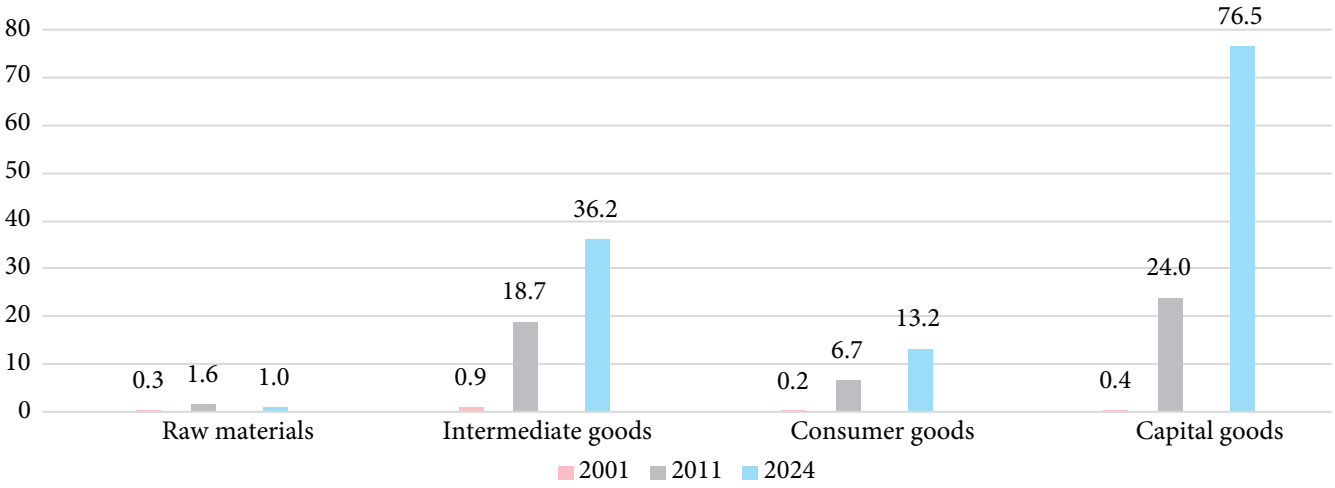
As seen in the previous section, a majority of India's ADDs are targeted toward China to address the excessive imports from China at low prices. An interesting question in this regard is to determine the optimal balance between openness and strategic protection against Chinese imports. As the data show (Figure 15), India's dependence on China has increased over the years, particularly for intermediate and capital products that are crucial to supply chains (Figure 16). If India were to impose high tariffs or stringent NTMs on Chinese imports, it could undermine the competitiveness of India's production base and its exports. For India to truly become a China-plus-one alternative, it must pursue a structural reform agenda rather than relying on reactive protectionist tools. Balancing self-sufficiency with trade openness is essential, and doing so necessitates a detailed sector- and product-level assessment.

Figure 15: India–China Trade Flows (USD Billion)



Source: World Integrated Trade Solution; World Bank.

Figure 16: Imports from China: Product Type Classification (USD Billion)



Source: World Integrated Trade Solution; World Bank.

China's dominance in global exports is rooted in sustained trade liberalisation, openness to FDI, and policies that promoted domestic competition. Together, these factors supported large-scale industrial upgrading and the emergence of internationally competitive firms, positioning China as the world's leading export hub. Box 2 elaborates on the key drivers of China's export-led growth.

Box 2: China's Experience: How External Liberalisation Fostered the Rise of its Global Players

A fundamental characteristic of firms in emerging economies is their later entry into markets relative to firms in advanced economies. When an emerging economy undertakes external liberalisation, its firms tend to face both the latecomer advantage and disadvantage. The former corresponds to what Alexander Gerschenkron (1962) termed the "advantage of backwardness." The latecomer advantage refers to the possibility for firms in emerging economies to rapidly absorb the technologies and experience accumulated by firms in advanced economies. In contrast, the latecomer disadvantage arises when more technologically advanced foreign firms dominate the domestic market, resulting in firms in emerging economies having limited opportunities for market entry and further growth. Consequently, firms in emerging economies face the challenge of determining how to benefit from the latecomer advantage and how to avoid or overcome the latecomer disadvantage.

In China, external liberalisation led not only to a large inflow of foreign firms through FDI but also to the emergence of many indigenous Chinese firms that later grew into global players. Although foreign firms can significantly increase the host country's exports, they may underinvest in R&D or relocate to lower-wage countries when domestic wages rise sharply. Therefore, indigenous firms play a crucial role in sustaining long-term economic growth and avoiding the middle-income trap. In particular, Chinese home appliance and consumer electronics manufacturers expanded overseas and increased their innovation efforts. This box outlines the growth patterns of these manufacturers.

Firstly, Chinese firms learned extensively from foreign firms and benefited from the latecomer advantage. Through transactions with foreign firms and by hiring managers and engineers previously employed by foreign firms, Chinese firms acquired technological and managerial capabilities. Consequently, within the value chain of product development, manufacturing, and sales, they developed particularly strong capabilities in manufacturing.

However, because these products have complex structures and key components are difficult to manufacture, Chinese firms with limited technological capabilities struggled to develop products efficiently. In a product's structure, value is generated through both hardware and software, and achieving substantial

differentiation and innovation in these two dimensions requires development closer to the product's core. This structure generally consists of three layers, core, intermediate, and surface, each involving both dimensions: the core layer (chips, operating systems), the intermediate layer (board assemblies, middleware), and the surface layer (casing, applications, and interfaces). Therefore, Chinese firms outsourced product development to specialised firms and purchased key components from suppliers. At the same time, they focused on differentiation at the layer closer to the surface and introduced products that appealed to Chinese consumers.

Furthermore, because foreign firms already held large market shares in major cities, Chinese firms overcame the latecomer disadvantage by expanding sales in rapidly growing secondary cities and rural markets. In major cities, domestic wholesalers were unwilling to carry lesser-known domestic brands, so Chinese firms focused on selling in other markets. In this way, Chinese firms compensated for their technological weaknesses relative to foreign firms by focusing on development in the surface layers of the product structure and on downstream sales activities within the value chain.

However, it is important to emphasise that these growth patterns were shaped and refined primarily through intense competition among Chinese firms rather than by government policies alone. Their growth was not guaranteed simply because they were indigenous firms, nor was it achieved by only a few entrants or state-owned enterprises. Admittedly, before China's accession to the WTO in 2001, the government adopted preferential measures such as licensing systems, and support policies such as subsidies and government procurement have continued thereafter. However, although these policies have helped underpin the initial phase of industrial development and stimulate investment, sustained development can by no means be achieved through policy alone. Amid fierce competition, Chinese firms sought to strengthen their competitiveness by enhancing their manufacturing capabilities, differentiating their products within reasonable limits, and establishing more efficient distribution networks.

Finally, as a concrete illustration of the growth patterns discussed earlier, a brief overview is provided of the growth of Chinese mobile phone and smartphone manufacturers that have expanded their sales in India. Until the late 1990s, foreign firms such as Nokia, Motorola, and Ericsson dominated the Chinese market, but from the late 1990s onwards, many Chinese firms entered the industry, initially under the licensing system. In this process, many employees who had worked for foreign firms shifted to Chinese firms or started their own businesses. However, in their early stages, Chinese firms lacked the technological capability to fully utilise chips developed by European and US firms and to develop products efficiently. Consequently, they outsourced product development to independent design houses and original design manufacturers. On the other hand, Chinese firms enhanced their sales networks by establishing sales subsidiaries in many provinces and deploying sales promoters to retail stores across the country to convey the value and affordability of their products directly to consumers. As a result, Chinese firms such as Bird and TCL were among the first to experience rapid growth. Subsequently, from the late 2000s, the spread of user-friendly chips developed by a Taiwanese firm lowered the barriers to product development and gave rise to a new phase of competition among Chinese firms. Around the same time, the introduction of the iPhone helped accelerate the rapid spread of smartphones. Within this new competitive environment, firms such as OPPO and Vivo strengthened not only their sales capabilities but also their product development capacity, enabling them to expand their presence in both the Chinese and overseas markets. Thus, even within the same industry, the leading firms have changed as the industry itself has continued to evolve.

In general, firms in emerging economies must balance the latecomer advantage and disadvantage, though the specific growth patterns vary across countries. Because China's domestic market was so large, it attracted many foreign firms, enabled the entry and expansion of numerous indigenous firms, and provided substantial business opportunities for a large number of suppliers. Therefore, when drawing on China's successful experience as a reference for other emerging economies, it is essential to determine which elements are directly applicable and which are not. India, with its vast domestic market, is one of the most interesting countries to compare with China's experience.

3.5 Industrial Policy Landscape

In recent years, India has complemented its trade policy framework with a stronger focus on industrial policy initiatives, such as the "Make in India" programme launched in 2014. This approach seeks to balance domestic manufacturing objectives with continued engagement in global trade.

A cornerstone of this industrial policy is the PLI scheme, introduced in 2020. The PLI scheme aims to encourage domestic manufacturing, attract domestic and foreign investment, enhance export competitiveness, and reduce import dependence.

So far, PLI schemes have been announced for 14 strategic sectors, including mobile phones and electronics; pharmaceuticals and medical devices; food processing; textiles and technical fabrics; white goods (like ACs and Light-emitting Diodes [LEDs]); automobiles and auto components; specialty steel; high-efficiency solar photovoltaic (PV) modules; advanced chemistry cell (ACC) batteries; and drones and related components.

The PLI schemes envision Indian manufacturing achieving scale and expanding to dominate global exports. Assessing their progress is essential to understanding how effectively the incentives have met these objectives.

To understand the implications of PLI for India's exports, the HS-4-digit codes for key sectors in which PLI schemes have been announced were identified, and cumulative export values for these codes were calculated from 2017 to 2024. The period was divided into pre-2021 and post-2021, with 2021 taken as the year when most sectoral PLIs were launched.

The results indicate that, apart from a few sectors such as solar PV and automobiles, the Compound Annual Growth Rate (CAGR) of export growth slowed in the post-PLI period. In certain sectors, such as man-made fabrics, growth rates turned negative, indicating an actual decline in exports after the implementation of PLI (Table 4).

Overall, PLI benefits appear skewed, with gains concentrated in a limited set of sectors. In other sectors, structural weaknesses needed to be addressed to leverage the incentives fully. A key critique of the PLI framework is that it primarily rewards production volumes rather than value addition, which runs counter to the broader "Make in India" objective. An important parameter for rewarding here is capital investment, as seen in Korea and China, where Capital Expenditure (CAPEX)-oriented subsidies led to greater investment in technology and R&D. Furthermore, MSMEs remain largely outside the ambit of PLI schemes.

Table 4: Export Growth in Production Linked Incentive Sectors (Per cent)

Category	CAGR 2017–2021 (%)	CAGR 2021–2024 (%)
Man-made Fabric exports	3.5	-13.4
Pharma exports	10.7	7.5
Medical devices exports	12.6	8.2
White goods exports	13.8	13
Mobile and electronics exports	39.6	40
Speciality steel exports	13.1	-22
Auto exports	0.9	7
Solar PV exports	7.7	45.1
ACC exports	22.1	13.3

Source: Authors' analysis.

Note: CAGR = compound annual growth rate; ACC = advanced chemistry cell; PV = photovoltaic.

Overall, India's export competitiveness is constrained by structural issues such as high tariffs, especially on intermediate goods, low R&D investment, limited FTA engagement, and other regulatory constraints. Instead of addressing these challenges, India has adopted a more protectionist approach since 2018. These measures have been paralleled by the introduction of PLI schemes across 14 sectors in 2021. However, PLI benefits have been concentrated in only a handful of sectors, while FDI inflows into India have declined, signalling reduced investor confidence.

Having outlined the key challenges, the next section presents empirical evidence on India's GVC participation over the years, focusing specifically on the machinery and electronics sectors.

4. India's Participation in East Asia's Machinery Production Networks

Despite its strong traditional industrial base, India has lagged in participating in the task-by-task international division of labour, notably in the machinery industry. However, over the past several years, notable changes have been observed.

Table 5 presents the international trade matrices for the machinery industry in 2017 and 2023. Machinery goods are here defined as HS 84-92 (general machinery, electric machinery, transport equipment, and precision machinery). Exporting countries/regions are in rows, while importing countries/regions are in columns. In addition to actual trade values (A), the table includes predicted trade values (B) calculated using a gravity equation for each year, including all countries in the world, which reflect the economic size of exporting and importing countries, as well as the geographical distance between them. The ratio of (A) to (B) indicates the percentage gap between the actual and predicted values. Technical details can be found in Ando, Yamanouchi, and Kimura (2025).

Table 5: Machinery International Trade Matrix (2017, 2023): The World Table (USD Million, Per cent)

(a) 2017

Exporter/ Importer	Value (USD millions, %)	China	Japan	Korea	Taiwan	ASEAN	United States	Mexico	EU	India	Rest of the World	Total World
China	Actual (A)	210,624	84,756	53,448	32,576	141,482	281,712	48,455	261,780	44,887	270,550	1,430,271
	Predicted (B)	70,864	149,215	80,914	38,477	81,946	144,159	10,132	180,024	49,187	260,620	1,065,538
	(A)/(B) (%)	*297*	*57*	*66*	*85*	*173*	*195*	*478*	*145*	*91*	*104*	*134*
Japan	Actual (A)	119,920		29,936	23,469	64,765	112,251	11,981	69,285	5,470	88,015	525,094
	Predicted (B)	91,552		25,303	7,063	21,246	58,023	4,201	65,178	7,856	84,779	365,201
	(A)/(B) (%)	*131*		*118*	*332*	*305*	*193*	*285*	*106*	*70*	*104*	*144*
Korea	Actual (A)	127,181	10,055		9,052	51,844	49,482	8,811	43,944	6,443	71,223	378,037
	Predicted (B)	55,309	28,511		6,014	8,689	20,118	1,446	24,763	3,405	32,131	180,386
	(A)/(B) (%)	*230*	*35*		*151*	*597*	*246*	*609*	*177*	*189*	*222*	*210*
Taiwan	Actual (A)	109,105	15,043	14,638		43,370	26,651	4,246	23,614	1,516	14,828	253,011
	Predicted (B)	23,762	7,028	5,311		4,407	7,265	518	9,042	1,348	12,320	71,001
	(A)/(B) (%)	*459*	*214*	*276*		*984*	*367*	*820*	*261*	*112*	*120*	*356*
ASEAN	Actual (A)	165,841	36,746	21,623	15,627	116,544	83,842	16,741	86,864	11,656	81,379	636,862
	Predicted (B)	43,051	17,121	6,205	3,647	33,736	26,660	1,825	35,649	7,608	53,604	229,106
	(A)/(B) (%)	*385*	*215*	*348*	*429*	*345*	*314*	*917*	*244*	*153*	*152*	*278*
United States	Actual (A)	82,789	27,888	23,971	16,741	47,142		97,049	147,787	8,128	249,685	701,180
	Predicted (B)	85,623	55,638	17,121	7,001	32,153		51,750	245,682	15,791	462,985	973,743
	(A)/(B) (%)	*97*	*50*	*140*	*239*	*147*		*188*	*60*	*51*	*54*	*72*

Exporter/ Importer	Value (USD millions, %)	China	Japan	Korea	Taiwan	ASEAN	United States	Mexico	EU	India	Rest of the World	Total World
Mexico	Actual (A)	6,605	2,550	1,394	375	2,748	217,059		17,132	796	35,382	284,041
	Predicted (B)	5,484	3,666	1,120	454	2,029	47,098		10,234	980	17,101	88,166
	(A)/(B) (%)	*120*	*70*	*124*	*83*	*135*	*461*		*167*	*81*	*207*	*322*
EU	Actual (A)	157,167	32,328	32,807	14,725	61,456	208,349	26,347	1,357,001	21,942	437,040	2,349,162
	Predicted (B)	120,918	70,446	23,765	9,816	48,814	279,587	12,724	1,205,083	30,314	575,913	2,377,380
	(A)/(B) (%)	*130*	*46*	*138*	*150*	*126*	*75*	*207*	*113*	*72*	*76*	*99*
India	Actual (A)	1,921	661	479	257	6,712	6,348	2,842	11,410		23,717	54,347
	Predicted (B)	54,443	14,022	5,393	2,419	18,354	29,393	2,004	50,483		90,033	266,544
	(A)/(B) (%)	*4*	*5*	*9*	*11*	*37*	*22*	*142*	*23*		*26*	*20*
Rest of the world	Actual (A)	28,976	7,617	5,488	2,156	13,544	141,124	8,117	143,757	5,685	159,089	515,553
	Predicted (B)	114,390	56,352	19,142	8,189	44,837	454,328	13,615	396,218	36,375	367,044	1,510,491
	(A)/(B) (%)	*25*	*14*	*29*	*26*	*30*	*31*	*60*	*36*	*16*	*43*	*34*
Total (World)	Actual (A)	1,010,130	217,643	183,784	114,978	549,608	1,126,818	224,591	2,162,573	106,523	1,430,909	7,127,558
	Predicted (B)	665,399	401,998	184,273	83,081	296,211	1,066,631	98,215	2,222,357	152,863	1,956,531	7,127,558
	(A)/(B) (%)	*152*	*54*	*100*	*138*	*186*	*106*	*229*	*97*	*70*	*73*	*100*

(b) 2023

Exporter/ Importer	Value (USD millions, %)	China	Japan	Korea	Taiwan	ASEAN	United States	Mexico	EU	India	Rest of the World	Total World
China	Actual (A)	207,295	92,706	76,630	48,771	243,384	239,376	65,497	421,799	75,215	507,138	1,977,810
	Predicted (B)	76,250	127,801	87,656	46,569	106,876	213,018	15,643	259,452	65,113	355,721	1,354,100
	(A)/(B) (%)	*272*	*73*	*87*	*105*	*228*	*112*	*419*	*163*	*116*	*143*	*146*
Japan	Actual (A)	103,080		19,660	24,949	60,275	113,101	11,212	71,954	8,240	93,607	506,079
	Predicted (B)	78,636		16,794	5,858	17,454	52,071	3,928	57,294	6,227	69,999	308,262
	(A)/(B) (%)	*131*		*117*	*426*	*345*	*217*	*285*	*126*	*132*	*134*	*164*
Korea	Actual (A)	131,931	8,159		21,645	35,431	81,704	12,218	51,833	8,696	42,455	394,072
	Predicted (B)	57,790	18,161		6,359	8,827	22,669	1,693	27,175	3,330	33,128	179,131
	(A)/(B) (%)	*228*	*45*		*340*	*401*	*360*	*722*	*191*	*261*	*128*	*220*
Taiwan	Actual (A)	128,360	24,968	15,017		67,899	65,149	7,549	39,462	5,282	16,523	370,209
	Predicted (B)	27,849	5,641	5,662		5,284	10,068	748	12,210	1,623	15,583	84,666
	(A)/(B) (%)	*461*	*443*	*265*		*1,285*	*647*	*1,009*	*323*	*326*	*106*	*437*
ASEAN	Actual (A)	224,810	43,839	23,891	22,999	144,268	167,390	23,808	104,983	17,759	109,056	882,802
	Predicted (B)	64,829	15,916	7,435	5,203	45,772	41,147	3,000	54,130	10,054	75,771	323,257
	(A)/(B) (%)	*347*	*275*	*321*	*442*	*315*	*407*	*793*	*194*	*177*	*144*	*273*

Exporter/ Importer	Value (USD millions, %)	China	Japan	Korea	Taiwan	ASEAN	United States	Mexico	EU	India	Rest of the World	Total World
United States	Actual (A)	65,968	27,039	21,835	17,166	52,837		108,056	175,272	11,491	266,564	746,226
	Predicted (B)	114,778	45,374	18,267	9,111	39,548		73,164	320,061	17,428	549,065	1,186,797
	(A)/(B) (%)	*57*	*60*	*120*	*188*	*134*		*148*	*55*	*66*	*49*	*63*
Mexico	Actual (A)	6,332	2,351	918	1,286	3,739	313,946		23,568	1,379	46,400	399,919
	Predicted (B)	9,295	3,758	1,498	743	3,245	80,349		17,564	1,482	26,863	144,798
	(A)/(B) (%)	*68*	*63*	*61*	*173*	*115*	*391*		*134*	*93*	*173*	*276*
EU	Actual (A)	170,756	35,209	37,671	22,904	66,410	277,787	34,101	1,688,400	31,119	457,468	2,821,825
	Predicted (B)	157,323	55,892	24,526	12,366	59,288	360,948	17,983	1,467,873	34,293	685,002	2,875,494
	(A)/(B) (%)	*109*	*63*	*154*	*185*	*112*	*77*	*190*	*115*	*91*	*67*	*98*
India	Actual (A)	4,387	1,351	937	395	8,815	22,445	3,558	21,636		40,596	104,119
	Predicted (B)	88,980	13,751	6,800	3,721	26,832	44,168	3,420	78,288		130,429	396,390
	(A)/(B) (%)	*5*	*10*	*14*	*11*	*33*	*51*	*104*	*28*		*31*	*26*
Rest of the world	Actual (A)	30,407	7,618	4,404	3,063	16,094	173,300	11,612	192,323	9,564	196,492	644,876
	Predicted (B)	168,251	49,858	22,069	11,524	61,277	589,874	20,792	538,644	47,107	485,647	1,995,043
	(A)/(B) (%)	*18*	*15*	*20*	*27*	*26*	*29*	*56*	*36*	*20*	*40*	*32*
Total (World)	Actual (A)	1,073,326	243,240	200,962	163,178	699,152	1,454,199	277,611	2,791,228	168,745	1,776,298	8,847,938
	Predicted (B)	843,981	336,152	190,707	101,455	374,403	1,414,313	140,372	2,832,690	186,657	2,427,209	8,847,938
	(A)/(B) (%)	*127*	*72*	*105*	*161*	*187*	*103*	*198*	*99*	*90*	*73*	*100*

Sources: Data drawn from Ando, Yamanouchi, and Kimura (2025).

Note: The detailed technical explanation is given in Ando, Yamanouchi, and Kimura (2025).

Table 5(a) for 2017 shows the presence of "Factory Asia" in East Asia (including Northeast and Southeast Asia), which is deeply engaged in both exports and imports of machinery products. It is not shown in the table, but more than half of the machinery trade in East Asia consists of machinery parts. Gaps between actual and predicted trade values indicate extremely high commitments to machinery production networks, particularly by ASEAN countries. India's gap ratios for total exports and imports are 20% and 70%, respectively, indicating that India has not yet fully tapped into significant opportunities to participate in machinery production networks.

Changes from 2017 to 2023 reflect the effects of Trump 1.0 tariffs and rising geopolitical tensions, and we can confirm a sharp decline in US–China bilateral trade, as well as positive trade diversion effects captured by South Korea, Taiwan, and ASEAN. India does not seem to exploit positive trade diversion fully, but some signs of a regime switch are evident. Table 6 highlights changes in India's exports in the same dataset, by decomposing machinery goods into machinery parts and final products. India's total machinery exports increased by 1.9 times (on a nominal basis) in 2017–2023, but the gap ratios did not increase much. However, exports to the US increased; actual values rose 3.5 times, and gap ratios rose by 29 points. In particular, exports of final products to the US increased by 6.3 times, partly reflecting Apple's smartphone operations, though gap ratios are still well below 100%.

Table 6: Machinery International Trade Matrix: India's Exports by Export Destination in 2017 and 2023 (USD Million, Per cent)

All											
Exporter/ Importer	**Value (USD million, %)**	**China**	**Japan**	**Korea**	**Taiwan**	**ASEAN**	**United States**	**Mexico**	**EU**	**Rest of the World**	**Total World**
India 2017	Actual (A)	1,921	661	479	257	6,712	6,348	2,842	11,410	23,717	54,347
	Predicted (B)	54,443	14,022	5,393	2,419	18,354	29,393	2,004	50,483	90,033	266,544
	(A)/(B) (%)	*4*	*5*	*9*	*11*	*37*	*22*	*142*	*23*	*26*	*20*
India 2023	Actual (A)	4,387	1,351	937	395	8,815	22,445	3,558	21,636	40,596	104,119
	Predicted (B)	88,980	13,751	6,800	3,721	26,832	44,168	3,420	78,288	130,429	396,390
	(A)/(B) (%)	*5*	*10*	*14*	*11*	*33*	*51*	*104*	*28*	*31*	*26*
	Actual 23/17	2.3	2.0	2.0	1.5	1.3	3.5	1.3	1.9	1.7	1.9
	Predicted 23/17	1.6	1.0	1.3	1.5	1.5	1.5	1.7	1.6	1.4	1.5
	Gap 23/17	1	5	5	-0	-4	29	-38	5	5	6
Parts											
Exporter/ Importer	**Value (USD million, %)**	**China**	**Japan**	**Korea**	**Taiwan**	**ASEAN**	**United States**	**Mexico**	**EU**	**Rest of the World**	**Total World**
India 2017	Actual (A)	1,275	478	336	136	2,666	4,716	845	7,720	8,969	27,141
	Predicted (B)	23,168	5,633	2,208	1,002	10,034	12,914	769	20,043	45,647	121,418
	(A)/(B) (%)	*6*	*8*	*15*	*14*	*27*	*37*	*110*	*39*	*20*	*22*
India 2023	Actual (A)	1,847	924	804	227	4,500	12,159	1,569	12,276	13,224	47,531
	Predicted (B)	37,023	5,637	2,784	1,515	14,646	19,825	1,292	30,896	64,496	178,113
	(A)/(B) (%)	*5*	*16*	*29*	*15*	*31*	*61*	*121*	*40*	*21*	*27*
	Actual 23/17	1.4	1.9	2.4	1.7	1.7	2.6	1.9	1.6	1.5	1.8
	Predicted 23/17	1.6	1.0	1.3	1.5	1.5	1.5	1.7	1.5	1.4	1.5
	Gap 23/17	-1	8	14	1	4	25	12	1	1	4

Final											
Exporter/ Importer	**Value (USD million, %)**	**China**	**Japan**	**Korea**	**Taiwan**	**ASEAN**	**United States**	**Mexico**	**EU**	**Rest of the World**	**Total World**
India 2017	Actual (A)	646	183	143	121	4,047	1,632	1,997	3,689	14,748	27,206
	Predicted (B)	31,137	8,422	3,185	1,412	7,305	16,122	1,242	30,886	41,848	141,559
	(A)/(B) (%)	*2*	*2*	*4*	*9*	*55*	*10*	*161*	*12*	*35*	*19*
India 2023	Actual (A)	2,541	426	132	168	4,315	10,286	1,988	9,359	27,372	56,588
	Predicted (B)	52,199	8,057	3,995	2,202	11,005	23,691	2,154	47,957	62,756	214,016
	(A)/(B) (%)	*5*	*5*	*3*	*8*	*39*	*43*	*92*	*20*	*44*	*26*
	Actual 23/17	3.9	2.3	0.9	1.4	1.1	6.3	1.0	2.5	1.9	2.1
	Predicted 23/17	1.7	1.0	1.3	1.6	1.5	1.5	1.7	1.6	1.5	1.5
	Gap 23/17	3	3	-1	-1	-16	33	-68	8	8	7
Parts ratio (%)	2017	66	72	70	53	40	74	30	68	38	50
	2023	42	68	86	57	51	54	44	57	33	46
Export share (%)	2017	4	1	1	0	12	12	5	21	44	100
(ALL)	2023	4	1	1	0	8	22	3	21	39	100

Sources: Data drawn from Ando, Yamanouchi, and Kimura (2025).

The import side shows clearer signs of progress. Although India's total machinery imports increased by 1.6 times from 2017–2023, the gap ratios remain below 100%. However, imports from East Asian countries expanded in actual values and in gap ratios. China is the largest import origin, but other East Asian countries, including Japan, Korea, Taiwan, and ASEAN, are also major import origins with over 100% gap ratios. India enters East Asian machinery production networks through imports (Table 7).

Table 7: Machinery International Trade Matrix: India's Imports by Import Origin in 2017 and 2023 (USD Million, Per cent)

All		2017	2023	23/17	Parts		2017	2023	23/17	Parts Ratio (%)		Share in India's imports (%)	
								2017	2023	2017	2023		
China	Actual (A)	44,887	75,215	1.7	China	Actual (A)	26,052	45,799	1.8	58	61	42	45
	Predicted (B)	49,187	65,113	1.3		Predicted (B)	24,327	31,700	1.3				
	(A)/(B) (%)	*91*	*116*	24		*(A)/(B) (%)*	*107*	*144*	37				
Japan	Actual (A)	5,470	8,240	1.5	Japan	Actual (A)	3,096	4,681	1.5	57	57	5	5
	Predicted (B)	7,856	6,227	0.8		Predicted (B)	4,814	3,667	0.8				
	(A)/(B) (%)	*70*	*132*	63		*(A)/(B) (%)*	*64*	*128*	63				
Korea	Actual (A)	6,443	8,696	1.3	Korea	Actual (A)	3,844	6,302	1.6	60	72	6	5
	Predicted (B)	3,405	3,330	1.0		Predicted (B)	2,041	1,967	1.0				
	(A)/(B) (%)	*189*	*261*	72		*(A)/(B) (%)*	*188*	*320*	132				
Taiwan	Actual (A)	1,516	5,282	3.5	Taiwan	Actual (A)	763	4,292	5.6	50	81	1	3
	Predicted (B)	1,348	1,623	1.2		Predicted (B)	829	984	1.2				
	(A)/(B) (%)	*112*	*326*	213		*(A)/(B) (%)*	*92*	*436*	344				
ASEAN	Actual (A)	11,656	17,759	1.5	ASEAN	Actual (A)	5,119	9,572	1.9	44	54	11	11
	Predicted (B)	7,608	10,054	1.3		Predicted (B)	5,754	7,206	1.3				
	(A)/(B) (%)	*153*	*177*	23		*(A)/(B) (%)*	*89*	*133*	44				
United States	Actual (A)	8,128	11,491	1.4	United States	Actual (A)	5,101	6,097	1.2	63	53	8	7
	Predicted (B)	15,791	17,428	1.1		Predicted (B)	11,055	12,013	1.1				
	(A)/(B) (%)	*51*	*66*	14		*(A)/(B) (%)*	*46*	*51*	5				
Mexico	Actual (A)	796	1,379	1.7	Mexico	Actual (A)	255	746	2.9	32	54	1	1
	Predicted (B)	980	1,482	1.5		Predicted (B)	522	757	1.4				
	(A)/(B) (%)	*81*	*93*	12		*(A)/(B) (%)*	*49*	*99*	50				
EU	Actual (A)	21,942	31,119	1.4	EU	Actual (A)	9,731	13,881	1.4	44	45	21	18
	Predicted (B)	30,314	34,293	1.1		Predicted (B)	18,014	20,391	1.1				
	(A)/(B) (%)	*72*	*91*	18		*(A)/(B) (%)*	*54*	*68*	14				
Rest of the World	Actual (A)	5,685	9,564	1.7	Rest of the World	Actual (A)	2,321	2,579	1.1	41	27	5	6
	Predicted (B)	36,375	47,107	1.3		Predicted (B)	26,720	32,940	1.2				
	(A)/(B) (%)	*16*	*20*	5		*(A)/(B) (%)*	*9*	*8*	-1				
Total (World)	Actual (A)	106,523	168,745	1.6	Total (World)	Actual (A)	56,283	93,949	1.7	53	56	100	100
	Predicted (B)	152,863	186,657	1.2		Predicted (B)	94,076	111,625	1.2				
	(A)/(B) (%)	*70*	*90*	21		*(A)/(B) (%)*	*60*	*84*	24				

Sources: Data drawn from Ando, Yamanouchi, and Kimura (2025).

India's existing policy framework has not yet translated into the export growth envisioned under the Government of India's goal of achieving USD 1 trillion in merchandise exports by 2030. Nevertheless, there have been notable success stories in recent years, the smartphone segment being a prominent example. In production networks, imports are essential to exporting. Machinery parts imports may or may not necessarily translate into part/final goods exports, particularly in a country like India with a large domestic market. However, producing goods at an exportable price and quality is certainly important.

What worked in this sector was a strategic combination of policy openness and integration: facilitating the entry of foreign players, allowing imports of critical parts and components, and enabling seamless participation in GVCs. This approach not only attracted investment but also fostered large-scale manufacturing and export competitiveness. To realise similar gains, this model of openness and integration requires replication across other manufacturing sectors, with a focus on reducing import barriers and improving supply-chain connectivity.

5. Assessment of India's Protection Measures

One of the key challenges to investment in India is the high degree of trade protectionism, which often makes it difficult for global and domestic firms to establish manufacturing operations competitively. As discussed in earlier sections, India witnessed a sharp decline in import tariffs following the 1991 economic reforms. However, in recent years, this liberalisation trend has reversed. Tariffs have begun to rise again, accompanied by NTMs such as QCOs and technical regulations. While ADDs are a legitimate tool to address cross-border dumping, their rampant use is increasingly restricting the flow of imports into the country.

This shift appears to be a policy response aligned with the "Make in India" and PLI schemes, aimed at nurturing domestic manufacturing capabilities and reducing import dependence. This raises a crucial question: Is protectionism helping India's domestic industry, or is it proving counterproductive?

This section explores this question through a granular assessment of trade protection in the Indian manufacturing sector.

For the analysis, export, import, and tariff data for 2023 at the HS 6-digit-level were assessed, along with existing ADDs and QCOs mapped to these products. Out of 3,927 HS 6-digit products analysed, approximately 92.5% of HS 6-digit product lines are subject to non-zero MFN tariffs. In contrast, 7.9% are covered under ADDs, and 8.6% are subject to QCOs (Table 8). In terms of value, ADD accounts for 9% of imports (around USD 40 billion), while QCO accounts for 11.3% (USD 50.7 billion). Tariffs cover imports worth USD 410 billion, accounting for around 92% of total imports.

Table 8: Coverage Under Protection Measures

Measure	Number of Products	Per cent of Total Products	Import (USD billion)
ADD	310	7.9	40
QCO	338	8.6	50.7
MFN > 0	3,631	92.50	410

Source: Authors' analysis.

Note: ADD = anti-dumping duty; QCO = quality control order; MFN = most favored nation.

An analysis of products across different tariff bands reveals that the largest share, approximately 49% of all products assessed, are subject to tariffs in the 10–15% range. In terms of trade value, this MFN tariff band covers imports worth USD 242 billion, accounting for around 54% of India's total imports (Table 9).

A substantial share of these tariff lines (66% of product lines, worth USD 138 billion) cover intermediate goods and capital goods (Table 10). Such a structure undermines the competitiveness of Indian production and constrains the country's ability to integrate into global supply chains.

Table 9: Coverage Under Most Favored Nation Brackets

MFN Tariff Bracket (%)	Number of Products	% of Total Products	Import Value (USD billion)	Share in Total Imports (%)
0–5	94	2.4	49.2	11.0
5–10	771	19.6	88.2	19.7
10–15	1,911	48.7	241.8	54.1
15–20	440	11.2	47.9	10.7
20–30	400	10.2	14.0	3.1
30–40	51	1.3	2.1	0.5
40+	41	1.0	1.4	0.3

Source: Authors' analysis.

Note: MFN = most favored nation.

Table 10: Distribution of Tariff Lines Across Type of Goods

MFN Tariff (%)	Capital Goods (USD billion)	Consumer Goods (USD billion)	Intermediate Goods (USD billion)	Raw Materials (USD billion)	Capital Goods (%)	Consumer Goods (%)	Intermediate Goods (%)	Raw Materials (%)
0–5	47.7	0.4	0.8	0.2	67	11.7	10.6	10.6
5–10	45.7	1.3	27	14.2	63.3	4.1	26.1	6.5
10–15	15.4	48.4	122.7	55.3	9.6	29.4	56.5	4.6
15–20	17.2	7.9	15.8	7	20.2	27.7	49.6	2.5
20–30	3.8	7.8	2.1	0.3	3.8	79.8	16	0.5
30–40	–	0.8	1.3	–	0	45.1	49	5.9
40+	0.1	0.7	0.3	0.4	36.6	43.9	4.9	14.6

Source: Authors' analysis.

Note: MFN = most favored nation.

When examining the combined application of different forms of protectionism, including MFN tariffs, ADDs and QCOs, it emerges that the 10–20% MFN tariff bracket not only contains the highest number of products overall but also has the largest concentration of products subject to both ADD and QCO measures (Table 11). QCOs are most prevalent (by product count) in the 15–20% MFN tariff bracket, affecting 25% of goods in that range. ADDs are concentrated in the 10–20% tariff bracket, representing the highest import values (approximately USD 26 billion in the 10–15% bracket). This indicates that products in this relatively high tariff range of 10-20% are disproportionately exposed to multiple layers of trade protection.

Table 11: Anti-dumping Duty and Quality Control Order Coverage Across Tariff Bands

MFN Tariff (%)	QCOs (USD billion)	ADD (USD billion)	QCOs (% of goods)	ADD (% of goods)
0–5	0.24	1.52	4.26	6.38
5–10	13.36	5.42	7.26	2.72
10–15	21.37	25.58	6.49	11.3
15–20	12.65	6.9	25	11.82
20–30	2.2	0.36	8.75	2
30–40	0.83	0.15	11.76	11.76
40+	0.07	0.09	2.44	2.44

Source: Authors' analysis.

Note: ADD = anti-dumping duty; QCO = quality control order; MFN = most favored nation.

5.1 Protection Scenarios

To examine the nature of protectionism in India, HS 6-digit-level products were filtered with import values above the national average, indicating that these goods are imported in substantial quantities and are integral to India's consumption and production needs.

Protection Scenario 1: High Tariff, High Import, Intermediate/Capital Goods

Focusing on the above-average imported products, the analysis was further narrowed to intermediate and capital goods that are critical to the functioning of domestic supply chains.

Within this filtered set, the products that were highly protected were identified, i.e., those subject to a 10% or higher import tariff. This subset accounts for USD 148 billion in imports, representing 33% of India's total import basket. This clearly indicates that several key input products, for which India has significant import dependence, are also highly protected. This can have adverse implications for India's manufacturing competitiveness and GVC integration.

To better understand the picture, the key HS 2-digit codes of the top HS six-digit products in this category were identified (Table 12). The major sectors include jewellery, plastics and rubber, iron and steel, chemicals, and electronic items, most of which are critical inputs for production processes.

Table 12: Top 10 Harmonised System 2-digit Sectors in Protection Scenario 1

HS 2-digit Code	Import Value (USD billion)	Share in Scenario 1 Imports (%)	Share in Total Imports (%)
71–Precious metals/jewellery	48.15	32.42	10.77
39–Plastics and articles thereof	15.91	10.71	3.56
29–Organic chemicals	13.72	9.24	3.07
85–Electrical machinery & equipment	11.72	7.89	2.62
72–Iron & steel	9.49	6.39	2.12
27–Mineral fuels & oils	6.57	4.42	1.47
84–Machinery & mechanical appliances	6.15	4.14	1.38
87–Vehicles & automotive parts	5.77	3.89	1.29
28–Inorganic chemicals	5.62	3.78	1.26
90–Optical & scientific instruments	5.61	3.78	1.26

Source: Authors' analysis.

Note: HS = Harmonised System.

Protection Scenario 2: Protection 1 plus QCOs and ADD

The protection scenario was further deepened by adding the layers of ADD and QCOs to the existing tariff protection (Scenario 1). The data show that the products subject to QCOs account for USD 26 billion, representing 5.9% of total imports, while those under ADD measures account for USD 23 billion, or 5% of total imports. Together, goods covered by both QCOs and ADDs account for USD 9.3 billion imports, i.e. 2.1% of India's total import basket (Table 13).

Table 13: Import Distribution in Protection Scenario 2

Measure	Import Value (USD billion)	Share in Scenario 2 Imports (%)	Share in Total Imports (%)
QCO	26.14	17.60	**5.8**
ADD	22.63	15.23	**5.1**
Goods with both QCO & ADD	**9.34**	**6.29**	**2.1**

Source: Authors' analysis.

Note: ADD = anti-dumping duty; QCO = quality control order.

The top sectors under Protection Scenario 2 include plastics and rubber, organic chemicals, iron and steel, aluminium, and articles of iron and steel (Table 14), which are all critical inputs.

Table 14: Top Harmonised System 2-digit Sectors Among Goods in Protection Scenario 2

HS 2-digit Code	Product Description	Import Value (USD billion)	Share in Both QCO + ADD Imports (%)
39	Plastics and articles thereof	5.43	58.1
29	Organic chemicals	2.74	29.4
72	Iron and steel	0.84	9.0
76	Aluminium and articles thereof	0.17	1.8
73	Articles of iron or steel	0.15	1.6

Source: Authors' analysis.

Note: ADD = anti-dumping duty; HS = Harmonised System; QCO = quality control order.

The key takeaway from this analysis is that critical industrial inputs are protected through multiple policy instruments, which is likely to raise production costs and constrain manufacturing competitiveness. The findings also highlight that in Protection Scenario 1, about 69% of the product lines have a Revealed Comparative Advantage (RCA) below one, indicating that India lacks a comparative advantage in these goods. Still, these very products are subject to high tariff protection, suggesting misalignment of competitiveness and trade policies. The goods in this scenario need to be reconsidered with respect to their protection policies.

Similarly, when NTMs such as QCOs and ADDs are layered on top of tariff protection (Protection Scenario 2), the degree of protection deepens further. These results bring out the need to prioritise liberalisation of such inputs, particularly those with low RCA values, to enhance industrial efficiency and competitiveness across the manufacturing ecosystem.

The liberalisation efforts need to be supported by strengthening the export ecosystem through reforms that address domestic constraints, diversify manufacturing production, exports, and markets. To substantiate the need for import liberalisation, the next section assesses the impact of recent US tariff policies on India and highlights the export potential India could realise if it were to liberalise its own trade barriers.

6. Geopolitical Reorganisation Under the US "Reciprocal Tariffs" and India's Resilience Strategy: A Geographical Simulation Analysis

6.1 From Rules-based Trade to Arbitrary Sanctions

On April 2, 2025, the US government announced the reciprocal tariff policy. Contrary to its name, this was not a truly reciprocal system but tariffs targeting trade surpluses with the US. The policy focused on applying tariff rates based on the US trade deficit with its trade partners.

This move signalled a shift in the international trade system from a multilateral, rules-based framework to one driven by geopolitical factors, placing greater importance on bilateral negotiations. Multinational corporations worldwide now face uncertainty regard-

ing import tariffs, which is likely to influence their investments. This will then result in realignments of the supply chains.

This section discusses the results of IDE-GSM modelling that is used to quantitatively examine the changes in India's trade ecosystem under this new normal. It aims to present the strategic importance of adopting policies focused on the reduction of MFN tariffs and NTBs for strengthening domestic competitiveness.

6.2 Initial Impact on the Indian Economy

The initial IDE-GSM analysis (as of April 2, 2025) assessed the impact of US tariffs on the global economy. The results showed that the US itself bore the greatest negative impact, and China, that was initially subject to a high tariff of 54% tariff, also faced significant negative effects.

In contrast, India initially faced a relatively lower US tariff rate (26%) and, due to its relatively low dependence on exports to the US (2% of GDP), it saw a slight positive economic effect of 0.4%. This was possibly due to the trade diversion effect, wherein China's exports were diverted to countries like India with relatively lower tariffs.

However, bilateral negotiations in the second half of 2025 significantly reversed this situation. Following a US–China summit at the end of October, tariffs on China were lowered to a favourable 20% tariff rate until November 2026. However, India faced 25% reciprocal tariff from August 7, and an additional 25% tariff on imports of Russian crude oil from August 27, resulting in a composite tariff rate of 50% on some items, a sign of clear disadvantage.

Given these revisions, this section assesses the quantitative effects of India adopting appropriate measures to strengthen domestic competitiveness and diversify export markets.

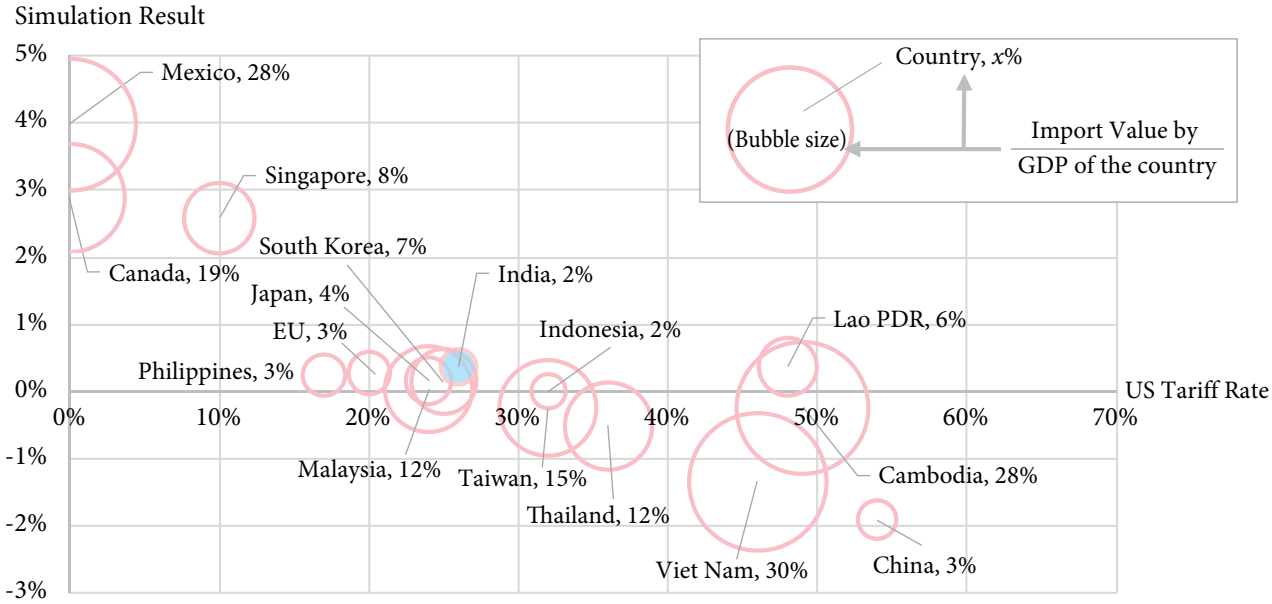
The impact of the US tariff policy on national economies is not uniform, and its effects are determined by multiple factors, including major ones like the relative tariff rates imposed by the US, the US's share in a country's export basket, its industrial structure, competitive relations with other countries, and supply-chain dynamics. Simulation analysis indicates that countries facing relatively high tariff rates tend to experience significant negative effects, whereas those subject to lower rates often benefit from trade diversion effects. Moreover, the greater the dependence on exports to the US, the wider the variation in impact; conversely, lower dependence enhances resilience to external shocks. The initial simulation results of the US tariff policy on the global economy, as announced on April 2, 2025, are shown in Figure 17.

- **Baseline Scenario**: This scenario considers not only the MFN tariff rates but also preferential tariff rates under FTAs, including the tariff reduction schedules the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and RCEP, as well as the pre-existing US–China tariff hikes up to 2019 (i.e., Section 301 tariffs).[2]
- **Tariff Scenario**: This scenario applies the country-specific tariff rates announced by the US on April 2, 2025. For the automotive industry, these tariffs are excluded, and an additional 25% tariff is imposed.[3] For China, the tariff rate is set at 54%, combining the 20% additional tariff introduced after the inauguration of the second Trump administration with an additional 34% reciprocal tariff. For Mexico and Canada, all goods are treated as exceptions under the US–Mexico–Canada Agreement (USMCA), and neither these tariffs nor the additional automotive tariffs are applied. For countries without publicly disclosed tariff rates, an additional 10% tariff is assumed, and retaliatory tariffs by other countries against the US are not considered.

[2] The minimum tariff rate applied to imports from each country was identified at the HS 6-digit-level, and a simple average was calculated across the seven industries classified in the IDE-GSM model (agriculture, mining, and five manufacturing sectors). However, this tariff calculation process does not reflect the additional tariffs imposed by the US after 2020.

[3] For exempt items listed in Annex II—such as iron, steel, aluminium, copper, pharmaceuticals, semiconductors, lumber, certain critical minerals, and energy and energy-related products—the IDE-GSM industry classification does not allow for clear separation, and thus, these items were included within the scope of reciprocal tariffs. Using this list, the share of exempted imports in total US imports by country in 2024 was calculated. Among Asian countries, Singapore exhibited the highest proportion at 51%, followed by India at 22%, and Malaysia at 21%, indicating a relatively high share. In countries with high proportions, the current simulation may overestimate the negative impacts. Meanwhile, Taiwan and South Korea recorded shares of 12% and 11%, respectively, while Japan and most other East and Southeast Asian nations remained below 10%.

Figure 17: Economic Impact of the Reciprocal Tariff Policy Announced on April 2, 2025 (2027, Relative to Baseline)



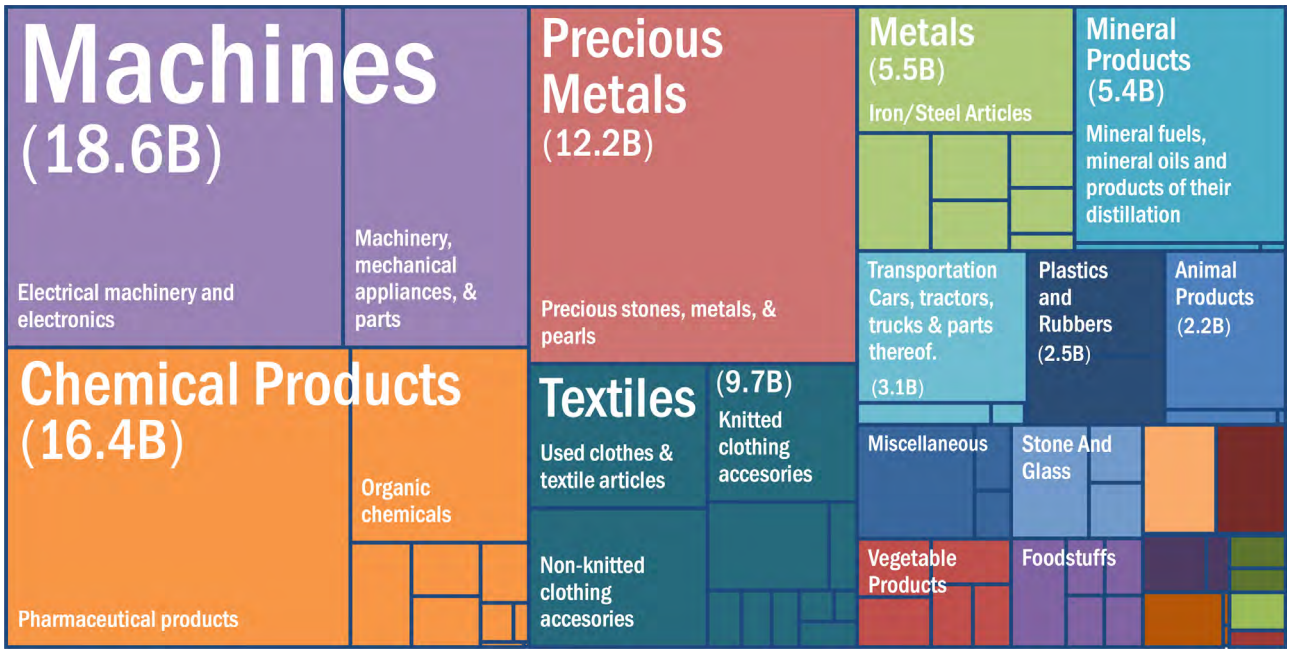
Source: Based on Kumagai et al. (2025).

As shown in Figure 17, India initially enjoyed a positive economic effect (+0.4%) in the simulation. This outcome emerged from two broad reasons.

First, the tariff rate imposed on India, at 26%, was relatively low compared with China's 54%. Second, while the US is India's top export destination, India's dependence on exports to the US accounted for only 2% of GDP. This combination of low export dependence and a lower tariff rate enabled India to maintain macroeconomic resilience initially against the shock of US protectionist measures (Figure 18 shows India's export basket with respect to the US).

This suggests that India is likely to maintain its long-term growth prospects even amid global trade uncertainty, supported by strong domestic demand. However, some manufacturing sectors, such as textiles and apparel, continue to remain highly dependent on the US market, implying that the adverse impacts of tariffs cannot be completely ruled out.

Figure 18: India's Major Exports to the US (2023) (USD Billion)



Source: Authors' observations from Observatory of Economic Complexity.

6.3 The Dramatic Reconfiguration of the Geopolitical Tariff Environment and the Dissipation of Trade Diversion Effect

Post the reciprocal tariff announcement on April 2, 2025, individual countries tried to maximise their own interests by engaging in bilateral negotiations with the US. This move reflects the US trade policy's shift away from a rules-based multilateral framework.

As a consequence, the tariff ecosystem underwent significant restructuring. Brazil succeeded in securing the removal of tariffs on key agricultural exports such as beef and coffee. The EU pursued renegotiations and had reductions across a wide range of products, from whisky to medical equipment.

The most significant change was in the case of China, where, after the Sino–American summit towards the end of October 2025, the US agreed to relax its tariffs substantially, and the tariff for China was reduced from 20% to 10%, and the baseline rate of 10% remained in effect. This arrangement gave China a comparative advantage with a tariff level of 20% until November 2026.

By contrast, India faced heightened geopolitical pressure, and on August 7, a reciprocal 25% tariff was imposed, followed by a further 25% levy on India's imports of Russian crude oil. In certain product categories, this resulted in an aggregate tariff burden of 50%, placing India at a severe competitive disadvantage within the US market.

India's Minister of Commerce and Industry sought to reassure domestic stakeholders by declaring that there was no need for panic, emphasising that "we'll be able to resolve some of these issues and come to an equitable, fair, and balanced agreement" (HT News Desk, 2025). This statement conveyed a negotiation underway. As noted earlier, India's bargaining strength derives from its relatively low dependence on exports to the US. This structural dimension has moderated the macroeconomic impact of the tariff shock.

6.4 Implications of the New Simulation (China 20 Per cent vs India 25 Per cent)

Negotiations on a Bilateral Trade Agreement (BTA) between India and the US have made progress. Taking into account India's geopolitical importance, the US has indicated that, should the additional tariffs on Russian crude oil imports be withdrawn, India's tariff rate would revert to 25%. Furthermore, the eventual target is set at 15% (TOI Business Desk, 2025). In this context, the present simulation assumes that India achieves a moderate tariff rate of 25%, reflecting expectations of continued progress in negotiations.

The critical issue here is the reversal of the relative tariff structure. Even if India's tariff rate falls to 25%, the fact that China has secured 20% signifies the collapse of the additional trade diversion effect that India had initially enjoyed. In the original scenario (India at 26% vs China at 54%), India had a 28-point tariff advantage over China. In contrast, under the new scenario (India 25% vs China 20%), India finds itself at a 5-point tariff disadvantage in the context of the tariffs imposed by the second Trump administration.[4]

Trade diversion effects arise from relative shifts in competitiveness due to changes in sourcing. With China securing a lower tariff rate than India, imports from China become a comparatively more attractive option for American buyers. Consequently, India can no longer expect to benefit from the additional export opportunities that had previously emerged during the US–China trade conflict.

Simulation analysis substantiates this structural change. In the scenario where China secures a 20% tariff rate (10% reciprocal tariff plus 10% fentanyl tariff), and India is subject to 25%, India's GDP growth rate falls to -0.07% (Table 15). This represents a shift from the initial positive effect into negative territory, underscoring how the loss of relative competitive advantage vis-à-vis China can materially affect India's economic trajectory.

- **Baseline Scenario**: This scenario considers not only the MFN tariff rates but also preferential tariff rates under FTAs, including the tariff reduction schedules of CPTPP and RCEP, as well as the pre-existing US–China tariff hikes up to 2019 (i.e., Section 301 tariffs).
- **Tariff Scenario**: This scenario applies the country-specific tariff rates announced by the US in July–November 2025. For the automotive industry, these tariffs are excluded, and an additional 25% tariff is imposed.[5] For China, the tariff rate is set at 20%, combining the 10% baseline tariff and the additional tariff related to fentanyl. For Mexico and Canada, all goods are treated as exceptions under USMCA, and neither these tariffs nor the additional automotive tariffs are applied.

[4] The trade diversion effect stemming from the existing US–China Section 301 tariffs (pre-2019) is accounted for in the baseline and remains in place.

[5] Same as the simulation of April 2.

Table 15: Estimated GDP Impact of US Reciprocal Tariffs Under Alternative Scenario (2027) (Per cent)

	Agriculture	Automotive	E&E	Textile	Food Proc.	Oth. Mfg.	Services	Mining	GDP
US	-1.62	-4.52	0.67	1.36	0.70	-0.05	-3.34	-5.28	-3.00
China	-0.34	-0.80	-0.59	0.03	-1.23	-1.44	-0.43	0.16	-0.74
EU	-0.07	-0.12	0.14	0.42	0.11	0.27	0.08	0.42	0.11
Japan	-0.23	-0.66	0.45	0.17	0.02	0.30	0.07	0.23	0.08
Cambodia	0.03	0.00	-0.08	-0.23	0.21	-0.06	0.03	0.95	-0.02
Indonesia	0.02	-0.37	-0.06	-0.46	-1.47	-0.02	-0.02	0.21	-0.08
Malaysia	-0.17	-0.07	-2.29	0.05	-0.49	-0.10	-0.23	0.31	-0.37
Philippines	-0.17	-0.04	-1.25	0.22	-3.75	0.11	-0.22	0.42	-0.52
Singapore	-0.35	0.07	0.32	-0.07	0.02	0.80	0.22	0.23	0.36
Thailand	-0.23	0.07	-2.44	-0.11	-0.73	-0.65	-0.25	0.19	-0.47
Vietnam	-0.37	-0.62	-0.44	0.09	-1.51	-1.63	-0.44	0.26	-0.65
India	**-0.03**	**-0.16**	**0.24**	**0.10**	**-0.04**	**-0.30**	**-0.03**	**0.23**	**-0.07**
World	-0.18	-0.61	-0.25	0.08	-0.33	-0.42	-0.99	-0.19	-0.77

Source: Institute of Developing Economies-Geographical Simulation Model Results.

Note: EE = electrical and electronics; Food Proc. = food processing; Oth. Mfg. = other manufacturing.

6.5 Strategic Resilience Under Adversity: Liberalisation Towards the World

The results simultaneously demonstrate the Indian economy's relative resilience to external shocks. Compared with certain ASEAN economies-Vietnam (-0.65%), the Philippines (-0.52%), Thailand (-0.47%), and Malaysia (-0.37%), which secured lower tariff levels (19–20%) but remain highly dependent on exports to the US, India's negative impact is markedly smaller. This limited effect provides quantitative evidence that India's low dependence on US exports continues to function as a buffer against geopolitical tariff shocks.

This structural change highlights the importance of India shifting its strategic focus away from a growth model that passively benefits from the by-products of geopolitical confrontation, towards autonomous competitiveness enhancement through domestic structural reform.

Given the arbitrary nature of US tariff policy and the uncertainty surrounding future targets, deepening reliance on any single country would entail a concentration of economic risk. To address this uncertainty, India's strategic course must be the promotion of "liberalisation towards the world," accompanied by diversification of export markets.

Trade liberalisation, particularly reductions in MFN tariffs, improves access to imported intermediate goods and enhances total factor productivity (TFP) in domestic manufacturing (Topalova, 2004). Moreover, exposure to international competition fosters innovation among domestic firms and establishes the foundation for long-term economic growth. For India, efforts to improve institutional efficiency at home remain indispensable as an autonomous growth strategy, even when US tariff policy is treated as an exogenous constraint.

To quantitatively evaluate this pursuit of domestic competitiveness, the IDE-GSM simulation sets out a liberalisation scenario with the following elements:

- **MFN Tariff Reduction**: India's average MFN tariff rate is reduced by 2%, bringing it closer to Thailand's average level in the IDE-GSM industrial classification.
- **Reduction of NTBs**: NTBs, estimated as broad impediments to trade, including cumbersome customs procedures, opaque standards, political risks, and divergent business practices, are lowered from India's current estimated level (ranked 55th globally) to the level of Australia (ranked 44th).

The effects of this combined tariff and NTB reduction scenario, measured against the baseline of the US reciprocal tariff scenario, are presented in Table 16.

Table 16: GDP Effects of Most Favored Nation Tariff Reduction and Non-tariff Barrier Liberalisation Scenario (2027), Relative to the New Simulation (China 20 per cent vs India 25 per cent) (Per cent)

	Agriculture	Automotive	E&E	Textile	Food Proc.	Oth. Mfg.	Services	Mining	GDP
India	+0.18	+3.36	+1.67	+3.23	+0.75	+2.97	+0.83	+5.17	+1.55

Source: Institute of Developing Economies-Geographical Simulation Model Results

Note: EE = electrical and electronics; Food Proc. = food processing; Oth. Mfg. = other manufacturing..

The simulation results clearly demonstrate that, even under the continuation of US protectionist measures, addressing its trade barriers through MFN tariff reductions and NTB reductions yields a strong positive economic effect for India. Specifically, India's GDP rises by +1.55% compared with the baseline scenario of reciprocal tariffs. Notably, significant positive effects are also observed in industries where enhanced competitiveness is critical, such as automobiles, textiles, and E&E equipment.

The reduction in NTBs is extremely crucial as it strengthens the international competitiveness of Indian products, enabling access to a diverse range of markets, including the EU, ASEAN, and the Middle East and Africa, without much reliance on the US.

6.6 Considerations in Pursuing Liberalisation Efforts

Efforts to enhance competitiveness and expand exports by reducing NTBs can result in a situation where India can become a target of US reciprocal tariffs again. As India strengthens its presence in international markets and increases exports to the US, this is likely to widen the US trade deficit with India and may hence face reciprocal tariffs again.

As India's dependence on US exports remains low (2% of GDP), there is substantial scope for firms to strategically expand their presence in the US market, a goal which the government should actively support. However, this expansion needs to be balanced with the inherent advantage of its low US export dependence, which acts as an important buffer against external geopolitical shocks. This required a strategy that prevents India's export concentration in the US market and diversification to other key markets. In this regard, negotiating and concluding key FTAs would diversify external demand. The recent agreement with the EU is a welcome development in this direction and should be extended to other key economies in Asia and Africa as well. By spreading competitiveness gains across multiple countries, India can adopt a multilateral competitiveness strategy, which can possibly break this negative feedback loop.

There is also a need to strategically act on the problem of Chinese overproduction. In recent years, China has generated excess supply reserves in sectors such as steel, electric vehicles, and solar panels, largely driven by immense state-led industrial policies and subsidies, which have distorted the international competitive environment.

Within India, there remains a strong debate over the need to maintain certain trade restrictions to prevent the inflow of cheap Chinese products from overpowering domestic manufacturing. India should therefore strengthen incentives for capital investments, such as technology and R&D, for fostering domestic industrial competitiveness, and should also diversify sources of imports. These measures would combat the impact of Chinese overproduction on the domestic market. In this regard, the pragmatic approach for India is not the complete removal of barriers, but that of strategic protection.

7. Conclusion and Policy Recommendations

Manufacturing is central to mass job creation, as demonstrated by the growth stories of East and Southeast Asian economies. India, however, has struggled to scale its manufacturing sector to similar levels. A combination of structural challenges, including land-acquisition hurdles, low labour productivity, limited R&D investment, high firm concentration, and complex regulatory requirements, has constrained the sector's expansion.

In addition to these domestic bottlenecks, India's trade policies have also played a significant role in shaping its competitiveness. Rising tariff protection and an extensive use of NTMs have limited India's ability to integrate into the global production networks. Import tariffs have surged in recent years along with a broader rise in NTMs, QCOs, ADDs, and related instruments, tightening import control, particularly on the intermediate and capital goods that are the backbone of the domestic production. In parallel, PLI schemes aimed at self-reliance have delivered only selective export gains.

India has significant untapped potential to integrate into GVCs, as indicated by the gap between actual and predicted export values in the machinery segment of its trade basket. While this gap narrowed between 2017 and 2023, it remains far from the potential. This observation highlights the importance of tapping India's GVC integration potential across the machinery sector and other key manufacturing sectors.

The 2023 assessment of 3,927 HS-6 product lines in this paper finds that 92.5% of lines are protected by positive MFN tariffs, 7.9% are covered by ADDs, and 8.6% are covered by QCOs. The MFN band that covers the largest import is 10–15%, spanning USD 242 billion imports, dominated by intermediate and capital goods, creating concentrated supply-chain risk. The high-import product lines with MFN greater than 10% that are intermediate/capital goods account for 33% of total imports (USD 138 billion), with heavy concentration in chemicals, metals, machinery, and electronics. Many of these items also face QCOs and ADDs (mostly in the MFN range of 10–20%), covering around 2% of the total import value, making them an over-protected group that requires reassessment, as these are critical inputs to production.

An assessment of the projected impact of the recent US tariff policies reveals that, because of India's relatively lower dependence on the US, it is better safeguarded against these policies than its competitors, such as ASEAN economies. This also suggests that India should diversify both its product base and export markets to leverage the current global realignment. A simulation of a tariff-liberalisation scenario indicates that such reforms are likely to generate GDP gains, reflecting the broader positive effects of liberalisation on the Indian economy.

To break out of the middle-income trap in the coming years, Indian industries must grow through international competition. Old import-substitution development strategies with trade protection do not work in the globalisation era. The most advanced technologies can be largely brought in through inward FDI, and by hosting competitive multinationals, opportunities for technological catch-up and for efficient industrial agglomerations with foreign and local firms can be created. Multinational firms choose the best or the next-to-best location (for hedging purposes) in the world for their activities; India must provide such location advantages. Making trade freer and showing respect for trade rules are certainly necessary.

As for high-tech machinery industries, enhancing technological competition between superpowers makes industrial promotion policies of newly developed economies more complicated. However, for imports of non-essential products and their parts, which can be substituted by imports from third countries or domestic production in the middle run, India does not have to be too cautious about increasing trade dependency. Only some essential, strategic products and their parts must be given special attention in the intensifying decoupling moves. To choose a side is not the Indian way, but India may want to be strategic in technological links. In the future, some innovative bridging between high-tech manufacturing and human capital for digitalisation may be achievable.

A blanket protectionist approach, particularly on intermediate goods, needs to be critically reviewed. Protection should be strategic, temporary, and performance-linked, rather than structural and persistent, especially when it risks impairing the competitiveness of larger industrial ecosystems.

In terms of future strategy, the approach can be categorised into short-, medium-, and long-term priorities.

Short Term: Prevent New Distortions and Fix the Most Growth-Restricting Barriers.

- *Freeze further tariff hikes*. Announce a pause on new tariff increases for a specified period to provide predictability to investors and importers.
- *Correct inverted duty structures.* Prioritise sectors where intermediate inputs face higher tariffs than finished goods, especially metals, chemicals, machinery, and electronics.
- *Remove QCOs on intermediate goods.* Suspend QCOs on raw materials and components that are not consumer-facing or safety-critical. The recent decision to rescind nearly 78 QCOs, largely covering intermediate goods and raw materials, is a highly constructive move. This momentum must continue.

Medium Term: Rationalisation and Realignment.

Objective: To build a coherent and predictable structure that supports production efficiency.

- Lowering tariffs on key inputs and bringing these goods into a 0–5 MFN tariff band to lower domestic producers' costs.

- *Consolidate multiple duties.* Identify and streamline products with overlapping measures (e.g., ADDs, tariffs, QCOs) to achieve higher cumulative protection. This dimension is partially reflected in the cumulative analysis, but deeper research on this front would yield more robust policy insights to guide future reforms.
- *Reassess QCOs.* Review each QCO based on the rationale for regulation (safety/quality vs protection) and the extent of domestic production capacity. Retain only those justified on safety or critical-quality grounds.
- *More FTA engagements.* India should strategically reinforce export market diversification and expand its FTA network. While actively pursuing commercial opportunities for market expansion in the US, India must simultaneously intensify efforts to promote FTAs with Asian, and African economies, thereby institutionalising multipolar market access as the foundation of medium- to long-term competitiveness.

3. Long Term: Competitiveness and Integration.

- Link trade policy to competitiveness outcomes, and move from protecting domestic markets to supporting productivity, scale, and exports.
- The incentive schemes should be linked to value addition and productivity.
- In the long term, focusing on fundamental issues such as labour regulations, regulatory quality, R&D investments, firm concentration, etc., will be essential.

To achieve its export goals, India needs to prioritise two things. Firstly, reforms to strengthen its overall business climate. Secondly, a stronger policy thrust on imports, given their critical role for exports and GVC integration. In this regard, the paper demonstrates the potential GDP gains India could achieve through reduced import tariffs. Such liberalisation can begin with a structured approach that identifies critical intermediate goods where India has a lower comparative advantage and high import dependence, particularly those subject to multiple layers of protection beyond tariffs.

References

Ando, M., Yamanouchi, K., & Kimura, F. (2025). *East Asian machinery production networks under Trump 1.0 tariffs in retrospect: The trade matrix approach with gravity predictions* (Unpublished manuscript).

BIS. (2021). *Guidance document on quality control orders (QCOs).* https://www.bis.gov.in/wp-content/uploads/2021/07/Guidance-document-on-QCOs-Revised-1.pdf

Gerschenkron, A. (1962). E*conomic backwardness in historical perspective*. Harvard University Press.

HT News Desk. (2025). Minister explains why Trump tariffs aren't cause for panic: 'You have to...'. *Hindustan Times*. https://www.hindustantimes.com/india-news/piyush-goyal-india-us-trade-talks-donald-trump-tariffs-imports-russian-oil-101757039941261.html

International Monetary Fund. (2025). *World economic outlook: Global economy in flux, prospects remain dim*. https://www.imf.org/-/media/files/publications/weo/2025/october/english/text.pdf

Japan External Trade Organization. (2025a). S*urvey on the international operations of Japanese firms: JETRO overseas business survey,* jafirms2024.pdf

Japan External Trade Organization. (2025b). S*urvey on business conditions of Japanese companies operating overseas: Asia and Oceania.* EN_Asia_and_Oceania_2025_r.pdf

Japan Business Council for Trade and Investment Facilitation. (2025). *Issues and requests for improvements on trade and investment barriers in 2025.*

Kumagai, S., Hayakawa, K., Isono, I., Gokan, T., Keola, S., Tsubota, K., & Kubo, H. (2025). *The impact of the Trump Administration's reciprocal tariff policy on the global economy (In response to the White House announcement on April 2, 2025)* [in Japanese]. IDE-JETRO. https://www.ide.go.jp/Japanese/IDEsquare/Eyes/2025/ISQ202520_009.html

Observatory of Economic Complexity. (2025). International trade data. https://oec.world

Prabhakar, P. (2025). *Decoding India's* quality control orders (CSEP Working Paper No. 105). Centre for Social and Economic Progress.

Prabhakar, P., Kathuria, S., & Srinivasan, T. G. (2025). *Why is India struggling with manufacturing competitiveness?* Centre for Social and Economic Progress. https://csep.org/working-paper/why-is-india-struggling-with-manufacturing-competitiveness/

TOI Business Desk. (2025). Trump's tariff tango: India is 'ready to wait' for deal - What gives New Delhi the space to negotiate with US. *Times of India*. https://timesofindia.indiatimes.com/business/india-business/trumps-tariff-tango-india-is-ready-to-wait-for-deal-what-gives-new-delhi-the-space-to-negotiate-with-us/articleshow/125463107.cms

Topalova, P. (2004). *Trade liberalization and firm productivity: The case of India*. International Monetary Fund. https://www.imf.org/external/pubs/ft/wp/2004/wp0428.pdf

World Bank. (2024, September). *India development update: India's trade opportunities in a changing global context*.

World Bank. (2025). *World Integrated Trade Solution (WITS) database*. https://wits.worldbank.org

World Bank. (2025). *World Development Indicators*. https://databank.worldbank.org/source/world-development-indicators

World Trade Organization. (2025). *Trade remedies database*. https://www.wto.org

World Trade Organization, International Trade Centre, & United Nations Conference on Trade and Development. (2024). *World tariff profiles 2024*. https://www.wto.org/english/res_e/booksp_e/world_tariff_profiles24_e.pdf

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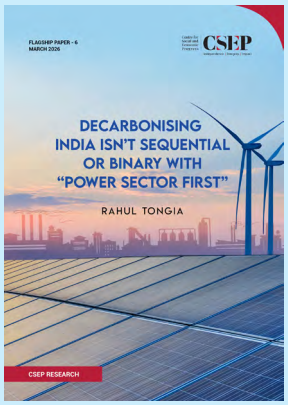
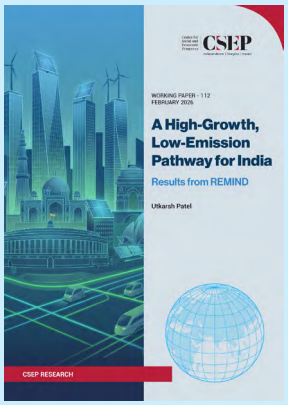
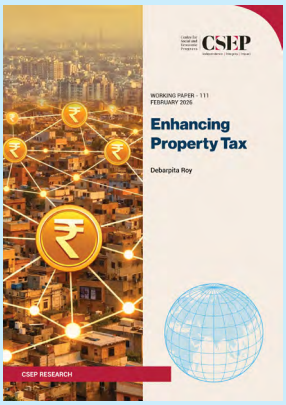
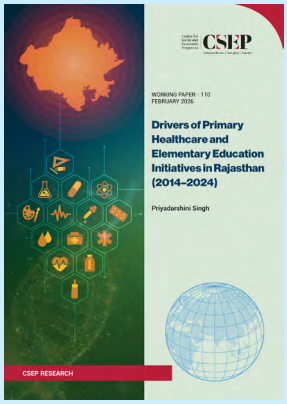
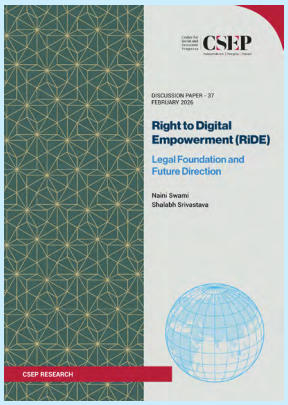
Other publications

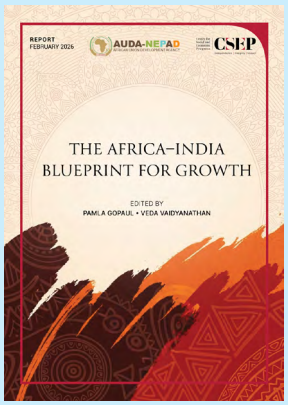


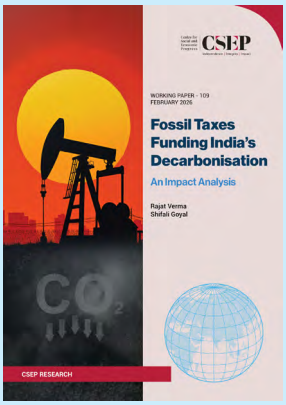


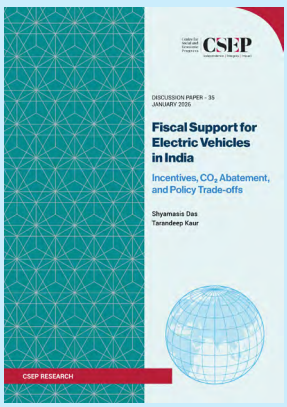


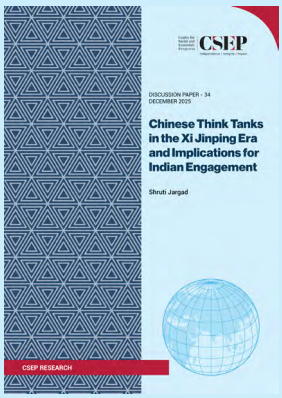


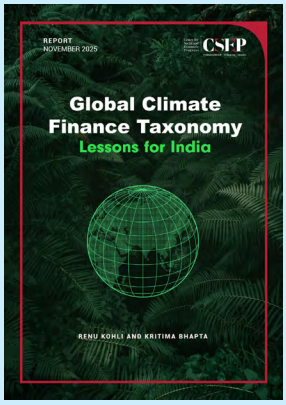


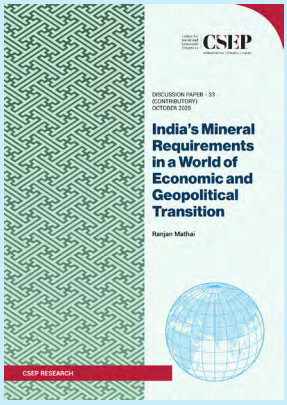












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