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Export Competitiveness in the Indian Manufacturing Sector: Using the Revealed Comparative Advantage (RCA)

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Abstract: Economic liberalisation, Make in India, and production-linked incentive schemes have supported the expansion of India's manufactured exports. However, continued export growth does not necessarily demonstrate durable comparative advantage or sustained export specialisation. This study examines whether the expansion of Indian manufactured exports has strengthened the sector's international market presence and relative export specialisation during the post-liberalisation period. The study uses secondary trade data obtained from the UN Comtrade Database and the Ministry of Commerce and Industry. The study uses the compound annual growth rate, export market share, and the revealed comparative advantage index to assess export growth, market participation, and relative specialisation within a unified analytical framework. Indian manufactured exports expanded more rapidly than world manufactured exports, and India improved its presence in the global manufacturing market. However, this expansion was uneven and was not accompanied by a sustained improvement in revealed comparative advantage. The findings therefore demonstrate that export scale, international market presence, and export specialisation represent related but empirically distinct dimensions of competitiveness. Manufacturing export growth is necessary but not sufficient to establish durable competitiveness. Converting a larger export presence into sustained specialisation requires stronger productivity, innovation, technological capability, product quality, domestic value addition, and institutional capacity. In addition, deeper participation in higher-value segments of global value chains is required to support a more resilient and internationally competitive manufacturing sector.

Keywords: Export Competitiveness, Export Market Share, Global Value Chain, Manufacturing Sector, Revealed Comparative Advantage

JEL Classification: F13, L5, L6, L69

1. Introduction

Manufacturing export competitiveness matters because it links productive capability with foreign-exchange earnings, industrial upgrading, employment, innovation, and long-run resilience (Munir & Javed, 2018). However, export growth alone does not establish competitiveness. At the industry level, competitiveness concerns the capacity to sustain sales in international markets through productivity, quality, technology, and profitability, while national-level comparisons require caution because countries do not compete the same way firms do (Buckley et al., 1988; Krugman, 1994). Therefore, this study treats competitiveness as a sectoral, multidimensional outcome rather than a simple ranking of national economic performance. This distinction matters because market access and export expansion produce durable gains only when supported by infrastructure, human capital, technological capability, innovation, and effective institutions (Li & Zhang, 2018; Wijaya et al., 2020).

India provides a strong setting for examining this distinction. Before the economic reforms of 1991, manufacturers operated largely within a protected domestic market. Liberalisation subsequently exposed firms to international competition, product-quality requirements, and global production networks. In addition, successive governments introduced industrial policies intended to strengthen manufacturing, attract investment, and promote export-oriented production. Make in India and the production-linked incentive schemes extended this policy direction by supporting industrial capacity and encouraging participation in global value chains (Ministry of Commerce and Industry, 2026; Yadav & Hooda, 2026). These developments create an important empirical puzzle: although India's manufactured exports have expanded, it remains unclear whether the increase reflects only greater export scale and market presence or a sustained strengthening of relative export specialisation.

Existing studies provide valuable evidence on individual manufacturing industries, bilateral comparisons, and dynamic patterns of revealed comparative advantage (Genai et al., 2023; Hooda & Anu, 2025; Ismail & Ahmed, 2022). However, export growth, global market share, and aggregate manufacturing specialisation have generally been examined separately. Consequently, limited evidence integrates these dimensions within a single long-run framework covering the full post-reform period from 1991 to 2025. This study addresses that gap by combining the compound annual growth rate, export market share, and the Balassa RCA index. Therefore, its principal contribution is to determine whether the expansion of Indian manufactured exports and India's increasing presence in world manufacturing trade were accompanied by a durable improvement in revealed export specialisation. The study addresses three research questions.

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1. How have Indian manufactured exports evolved relative to global manufactured exports since the 1991 economic reforms?
2. Has India's share of global manufacturing exports increased over the study period?
3. Has India's export market share increased alongside a sustained improvement in manufacturing RCA?

Taken together, these questions enable the study to distinguish export growth from global market presence and relative export specialisation. In addition, the integrated framework clarifies why a country may expand its manufactured exports without developing a proportionately stronger comparative-advantage position.

This study evaluates the export competitiveness of Indian manufacturing during 1991–2025 without equating export expansion automatically with stronger comparative advantage. Specifically, the study examines the evolution of India's manufactured exports relative to world manufactured exports, compares their compound annual growth rates, and evaluates the change in India's share of global manufactured exports. In addition, it measures the annual revealed comparative advantage of Indian manufacturing through the Balassa index. These objectives are examined within a unified analytical framework so that export growth, international market presence, and relative export specialisation can be interpreted as related but distinct dimensions of performance. Therefore, the study does not seek to attribute observed changes to a single policy intervention. Instead, it provides a long-run descriptive assessment of whether the post-reform expansion of manufactured exports was accompanied by a sustained improvement in India's revealed specialisation in manufacturing.

2. Literature Review

Export competitiveness is multidimensional and may be assessed through single-factor and composite indicators. Single-factor measures include export volume and growth, commodity composition, trade balance, per capita exports, productivity, labour costs, terms of trade, the real effective exchange rate, export market share, and revealed comparative advantage. Composite indices, in contrast, combine economic, institutional, technological, and business-environment dimensions. Therefore, the choice of indicator should reflect the analytical question, the level of analysis, and the causal claim being evaluated (Li & Zhang, 2018; Stanislav et al., 2020). Table 1 critically compares the principal theoretical and empirical streams informing the present study, including their analytical contributions and the limitations that motivate the integrated framework adopted here.

Table 1. Critical synthesis of export competitiveness literature

Literature stream and representative studies	Contribution, limitation, and relevance to this study
RCA foundations: Balassa (1965); Vollrath (1991); Laursen (2015)	Identifies revealed export specialisation from observed trade flows. However, normalisation and asymmetry affect comparisons; therefore, this study emphasises a consistent within-country historical interpretation.
Capability-based competitiveness: Fagerberg (1988); Porter (1990)	Explains competitiveness through productivity, innovation, technology, and institutions, but does not provide a direct trade-flow measure. It complements RCA by explaining why specialisation persists or erodes.
FDI and GVC upgrading: Borensztein et al. (1998); Gereffi (1999)	Identifies knowledge transfer, supplier linkages, and upgrading mechanisms. Benefits depend on absorptive capacity and domestic value creation; consequently, market access need not translate automatically into stronger RCA.
Evidence on India: Kaushik and Paras (2000); Goswami and Nath (2020); Ismail and Ahmed (2022); Genai et al. (2023); Hooda and Anu (2025)	Documents export expansion and heterogeneous sectoral specialisation. However, product-, partner-, and period-specific designs leave the long-run aggregate relationship among growth, market share, and manufacturing RCA unresolved.

Source: Authors' synthesis based on the studies cited in the table.

Among these measures, the RCA index is widely used to establish whether a country is relatively specialised in exporting a product or product group compared with the world as a whole (Balassa, 1965). Rather than directly measuring productivity or production costs, RCA infers comparative advantage from observed trade patterns. A value above unity indicates that the product occupies a larger share of national exports than of world exports. However, RCA should be interpreted alongside export growth and market share because each indicator captures a distinct dimension of performance. In the Indian context, using them together lets the analysis separate export expansion from shifts in manufacturing specialisation.

The distinction among these indicators is analytically important. Export growth records the rate at which sales expand, whereas export market share measures a country's share of world exports. RCA, however, evaluates manufacturing's relative importance in a country's export basket compared with its importance in world exports (Vollrath, 1991). Therefore, a country may achieve rapid export growth and a rising global market share while its RCA remains below unity. Such a pattern would indicate increasing scale without a corresponding strengthening of relative specialisation. Similarly, a stable RCA may coexist with rising export values when national and world exports expand at comparable rates. Interpreting the indicators jointly consequently reduces the risk of treating any single movement as comprehensive evidence of competitiveness. It also supports a clearer distinction between short-term export expansion and the more persistent productive capabilities associated with quality, technology, domestic value addition, and industrial upgrading (Fagerberg, 1988; Gereffi, 1999).

This distinction is particularly relevant to India's post-reform manufacturing experience. Trade liberalisation widened market access and increased firms' exposure to international competition; however, market access does not automatically generate the technological capability, supplier depth, or absorptive capacity required for sustained upgrading (Borensztein et al., 1998; Kaushik & Paras, 2000). Participation in global value chains can provide access to specialised inputs, established buyers, and production knowledge, but domestic benefits depend on how far firms develop backward linkages and move into higher-value activities (Choorikkadan, 2026; Gereffi, 1999). In addition, India's manufacturing industries display heterogeneous patterns of comparative advantage. Product-level studies identify strengths in selected pharmaceuticals,

chemicals, engineering products, textiles, and other industries, alongside continuing weaknesses in technology-intensive segments (Genai et al., 2023; Goswami & Nath, 2020; Hooda & Anu, 2025). Therefore, an aggregate manufacturing RCA cannot describe every industry, but it remains informative as a long-run indicator of whether the manufacturing sector as a whole has become more prominent in India's export structure relative to the corresponding global pattern.

The literature on manufacturing export competitiveness now treats export outcomes as jointly determined by GVCs, FDI, institutional quality and industrial policy. Two widely used theoretical frameworks underpin the export competitiveness literature. The first is Balassa (1965), whose revealed comparative advantage (RCA) index infers specialisation directly from trade flows and permits cross-country comparison. The second is Porter (1990), who recast competitiveness as an outcome of productivity growth, innovation, and institutional strength. He argued that sustained advantage cannot rest solely on low labour costs. The two authors are complementary rather than competing. The Balassa index identifies where specialisation has emerged, while Porter's framework explains why it persists or erodes. In India, both frameworks are relevant to the analysis of export competitiveness. The 1991 reforms lowered trade barriers, liberalised foreign investment, and exposed domestic firms to international competition. These reforms have been associated with the subsequent expansion of manufactured exports (Kaushik & Paras, 2000; Rashid et al., 2026). The literature suggests that liberalisation is necessary but not sufficient to secure durable export competitiveness (Rahmaddi & Ichihashi, 2012). Openness has raised India's export volumes, but it has not strengthened competitiveness on its own. Gains in technological capability and delivery capacity have remained limited, and these govern international market shares more strongly than relative price (Fagerberg, 1988).

The distinction between market access and productive capability is therefore central to the literature on export competitiveness. Market opening can enlarge the set of buyers and inputs available to firms; however, it strengthens export specialisation only when firms absorb knowledge, raise productivity, deepen domestic supplier networks, and retain a larger share of value added. Empirical work identifies two main avenues through which market access can translate into these productive capabilities. The first is FDI, which transmits technology and productivity spillovers to the host country (Hooda & Yadav, 2026). Its effect on export performance depends on the host country's absorptive capacity (Borensztein et al., 1998). The second is GVC participation, which gives firms access to advanced technology, specialised intermediate inputs and established international buyers. Participation is associated with industrial upgrading, export diversification and higher domestic value addition (Gereffi, 1999). Both channels imply that export competitiveness is built at the firm and production-network levels, not through aggregate price incentives alone. Therefore, FDI or GVC participation should not automatically raise RCA: their effect depends on whether knowledge spillovers, supplier linkages, innovation, and domestic value creation become strong enough to alter the composition of national exports. Recent policies in India seek to influence both channels. Studies of the PLI scheme, the National Logistics Policy, PM Gati Shakti and the "China+1" reallocation of global sourcing report rising investment and export growth in electronics and mobile-phone assembly (Choorikkadan, 2026; Ministry of Commerce and Industry, 2021). Domestic value addition, supplier depth, and backward linkages remain shallow (Choorikkadan, 2026). Evidence on India's specialisation points in the same direction. In this context, India's comparative advantage has strengthened in manufacturing industries such as pharmaceuticals, chemicals, engineering goods and electronics. Still, it remains weak in high-technology segments where innovation intensity and skill requirements are highest (Genai et al., 2023). This persistent pattern of strength in mid-technology and weakness in high-technology segments motivates this study's examination of revealed specialisation across the full post-reform period.

The Balassa index itself has attracted sustained methodological scrutiny, and its use in this study should be interpreted in light of that methodological literature. Vollrath (1991) examined the wider family of trade intensity measures to which the Balassa index belongs and found that the results can be reordered by normalising the same trade data differently. Similarly, Hinloopen and Van Marrewijk (2001) examined the empirical distribution of the Balassa index using Japan-European Union trade data. The authors found that the index distribution remained relatively stable over time but varied significantly across countries. Laursen (2015) demonstrated that the Balassa index is asymmetric around its neutral value and proposed the Revealed Symmetric Comparative Advantage (RSCA) transformation to address this asymmetry. These properties matter most for cross-country rankings and for regression analyses that use the index as a dependent or explanatory variable. Therefore, the study tracks one country at the aggregate manufacturing level and interprets the index against its own historical pattern. This approach supports consistent within-country inference while acknowledging the RCA measure's asymmetry. Export market share and Balassa's Index capture distinct dimensions of export performance. Export market share indicates a country's absolute significance in world trade. In contrast, the Balassa Index measures a product's relative importance in the country's export basket compared with its importance in world exports (Vollrath, 1991). Reporting these measures alongside the compound annual growth rate (CAGR), therefore, helps distinguish export scale and growth from the degree of revealed export specialisation. More importantly, divergence among the indicators is not treated as a measurement inconsistency; rather, it constitutes substantive evidence that market expansion and structural specialisation may follow different trajectories. This interpretation provides the conceptual basis for the empirical analysis that follows.

Product-level evidence qualifies what an aggregate reading can show. Goswami and Nath (2020) computed comparative advantage for 16 product groups in India's merchandise trade with high-income, middle-income and least-developed country groups from 2003 to 2018. The study found a persistent advantage in animal and food products, textiles, and clothing. The study also reported a persistent disadvantage in wood and substantial variation across partner groups for the remaining categories. Consequently, aggregating across product groups with offsetting positions can conceal strengths in mid-technology industries and weaknesses in high-technology industries. Therefore, an aggregate index is best read as a summary of overall specialisation rather than as evidence about any individual industry. The aggregate nevertheless carries its own information. Rodrik (2016) documented that the hump-shaped relationship between industrialisation and income has shifted downward, so developing economies now reach peak manufacturing at lower income levels than early industrialisers. Asian manufacturing exporters have been largely insulated from this trend. Whether Indian manufacturing has held its position in world trade across the post-reform period directly tests which of these two trajectories it has followed.

The literature leaves an unresolved empirical contradiction. India's manufactured exports and global market presence have expanded, while evidence of technological upgrading, domestic linkages, and knowledge-intensive specialisation remains uneven. Studies of aggregate export performance, policy interventions, and revealed comparative advantage have generally

developed along separate lines; therefore, they do not establish whether greater export scale has been accompanied by a durable strengthening of manufacturing specialisation. Similarly, sector- and product-level findings reveal important heterogeneity but cannot determine whether manufacturing as a whole has gained prominence within India's export structure relative to the corresponding global structure. Although previous studies have examined India's export performance and manufacturing competitiveness and identified comparative advantage, there remains scope to analyse these dimensions together over an extended period. In addition, dynamic RCA evidence confirms the importance of examining structural changes in specialisation over time (Ismail & Ahmed, 2022). The present study addresses this gap by combining compound annual growth rate, export market share and the RCA index to examine Indian manufacturing export competitiveness during 1991-2025. This integrated approach distinguishes export growth and global market presence from relative export specialisation.

3. Research Methodology

This study examines Indian manufacturing export competitiveness using descriptive trend analysis with index-based measures of comparative advantage. The descriptive analysis traces the trends and patterns in manufacturing exports. Competitiveness indices measure India's comparative advantage in world markets. The study relies on secondary data on India's manufacturing exports, world manufacturing exports, total merchandise exports and world merchandise exports. The data have been extracted from the UN Comtrade Database and the Export Import Data Bank of the Ministry of Commerce and Industry, Government of India (Ministry of Commerce and Industry, 2021; United Nations Statistics Division, n.d.). Both sources report internationally comparable trade statistics. The study covers 1991-2025, spanning the post-liberalisation phase and the Indian manufacturing sector's increasing integration with global markets. The timeframe also includes major policy interventions such as Make in India and the PLI schemes, as well as recent shifts in global trade patterns following the COVID-19 pandemic.

Analytical Framework: The framework considers sustained export growth and comparative advantage as evidence of export competitiveness. This approach provides an overall assessment of India's manufacturing export performance but does not capture variations in competitiveness across individual manufacturing industries. Manufacturing comprises heterogeneous industries, including textiles and automobiles, which differ in technology intensity, production structures, domestic value addition, and market orientation. Manufacturing export performance is evaluated using trend analysis and CAGR, whereas the RCA index and export market share measure India's relative competitiveness in international markets. The analysis also relies on reported international trade statistics. Differences in reporting coverage, revisions, and provisional trade data may affect the calculated growth rates and comparative advantage indicators, particularly in the first and last years of the study period.

CAGR: It captures the average annual growth of manufacturing exports over the study period. As a standardised measure of long-run performance, it makes India's and the world's manufacturing export growth directly comparable. The compound annual growth rate combines changes in price and volume. However, because the rate depends only on endpoint values, it should be interpreted alongside the sub-period movements traced in the trend analysis so that the long-run rate can be assessed against the phases that generate it.

$$CAGR = [(Endingvalue/Beginningvalue)^{(}1/n) - 1] \times 100(1) \quad (1)$$

Export Market Share (EMS): EMS provides a proxy for the competitiveness of Indian manufacturing exports. It is widely used to assess a country's position in foreign markets and expresses national manufacturing exports as a share of the global total.

$$EMS = (Indianmanufacturingexports/Worldmanufacturingexports) \times 100(2) \quad (2)$$

A rising share indicates improved export competitiveness, whereas a falling share indicates declining competitiveness relative to other exporting countries. A stable share indicates an unchanged position in the global manufacturing export market.

RCA: The study examines India's manufacturing sector export competitiveness using the RCA Index (Balassa, 1965). The RCA index is estimated annually to assess changes in India's comparative advantage during the study period.

$$RCA = \frac{Xij/Xi}{Xwj/Xw}(3) \quad (3)$$

Where X_{ij} is the country's exports of product j (manufacturing sector), X_{wj} is world exports of product j, X_i is the country's total exports of all products, and X_w is total world exports of all products. The RCA index is the standard measure of comparative advantage in trade flows (Hooda & Anu, 2025). The underlying assumption is that trade flows can reveal comparative advantages. For a given product j, a higher index value for one country than another indicates that the first has a larger comparative advantage or a smaller comparative disadvantage in that product (Genai et al., 2023). The index measures a product's or group of products' international competitiveness and ranges from zero to infinity. A country is a competitive producer and exporter of product j when its RCA value exceeds unity. The higher the RCA value, the stronger the export specialisation in product j. Because the empirical distribution of the index differs across countries and the measure is asymmetric around its neutral value (Hinloopen & Van Marrewijk, 2001; Laursen, 2015), the annual values are read as within-country series rather than a cross-country ranking. Therefore, the interpretation rests on the direction and persistence of movement in the index across the study period rather than on the absolute magnitude recorded in any single year.

4. Results and Discussion

This section presents the empirical findings on the export competitiveness of Indian manufacturing from 1991 to 2025. Figure 1 shows the trend in the share of manufacturing exports in total exports for India and the world from 1991 to 2025. The results show that manufacturing accounted for a larger share of India's merchandise exports than of world merchandise exports during much of the study period. Manufacturing has traditionally held the largest share of India's export basket. The share of manufacturing in India's total exports increased from 78.0% in 1991 to 82.0% in 1996. This increase coincided with the early phase of the 1991 economic reforms and the subsequent emphasis on export-oriented industrial growth. Over the years,

the world share rose from 43.7% in 1991 to 74.1% in 1996. A thirty-point rise over 5 years exceeds any plausible shift in the composition of world trade. This reflects the progressive widening of reporter coverage in the source database during the early 1990s (United Nations Statistics Division, n.d.). Therefore, comparisons between India and the rest of the world in the opening years of the study period are indicative, and the interpretation below rests on the series' movement from the late 1990s onwards. Between 1997 and 2002, the manufacturing share of India's total exports showed no clear trend, fluctuating between 68.2% and 78.1%, while the corresponding global share increased steadily from 74.6% to 83.6%. This period reflects the increasing integration of manufacturing into global trade; however, India's manufacturing share fluctuated despite growing international competition. Between 2003 and 2013, the share of Indian manufacturing exports fell from 71.1% to 57.6%, reflecting a gradual decline in manufacturing's contribution to total exports as non-manufactured merchandise exports grew in relative importance.

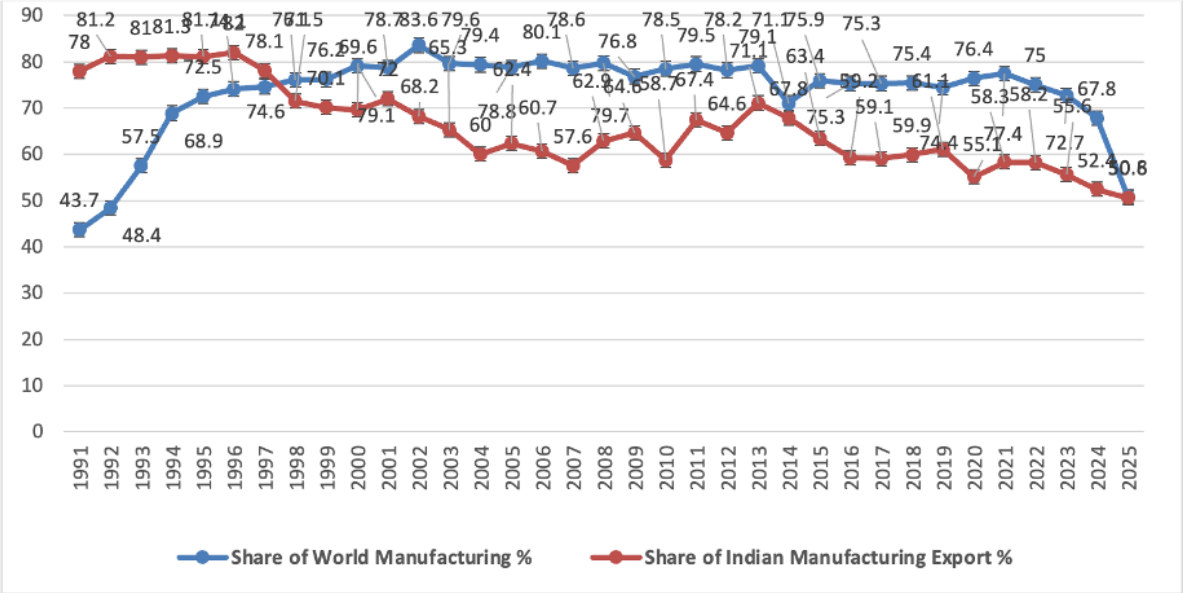

Figure 1: *Share of Indian and World Manufacturing Exports*
Source: United Nations Comtrade, 1991-2025

Figure 1 presents the share of manufacturing exports in total merchandise exports for India and the world during 1991-2025. The figure shows that manufacturing exports constituted a substantial share of India's total merchandise exports, with a relative decline over time. The share of manufacturing in world exports remained relatively stable at 76%–80%. A clear structural change occurred after 2013. Manufacturing's share of world exports fell from 79.1% in 2013 to 71.1% in 2014. Afterwards, it remained stable at around 74%–76% between 2015 and 2022. Similarly, manufacturing's share of India's total exports fell from 67.8% in 2014 to 61% in 2020, indicating the declining relative importance of manufacturing exports in India's export basket. Furthermore, manufacturing's share of India's total exports fell from 55.6% in 2023 to 50.6% in 2025. Similarly, manufacturing's share of world exports declined from 72.7% in 2023 to 50.8% in 2025. The 17-percentage-point decline in the final year is far larger than any annual movement in the preceding three decades. This fall reflects incomplete reporter coverage in the provisional 2025 data (United Nations Statistics Division, n.d.). Therefore, final-year values should be read as provisional. The simultaneous decline through 2024 coincided with weaker global demand, disruptions in international supply chains, and rising geopolitical uncertainty; however, the descriptive analysis does not establish a causal relationship. In 2025, manufacturing export shares in India (50.6%) and the world (50.8%) converged to nearly the same level, implying that manufacturing accounted for almost half of total exports in both cases. Taken together, the figure shows that manufacturing has remained central to India's export structure for three decades. However, its relative importance has gradually declined since the early 2000s. The global share of manufacturing exports remained broadly constant through most of the study period, with a sharp decline evident in the provisional 2025 observations. The latter is examined separately through the export market share indicator presented inFigure 3.

Figure 2 presents the CAGR analysis, comparing the long-term growth performance of global and Indian manufacturing exports. The results show that the CAGR for global manufacturing exports is 6.76 per cent, whereas Indian manufacturing exports grew considerably faster, with a CAGR of 9.92 per cent. However, because a compound annual growth rate is computed from endpoint values alone, both figures are sensitive to the reporting-coverage limitations identified in Figure 1. Therefore, the difference should be interpreted as evidence of the relative growth direction rather than a precise estimate of the gap's size. India's higher CAGR is consistent with the post-liberalisation expansion of manufactured exports documented by Kaushik and Paras (2000). Similarly, it supports evidence that greater integration into production networks can expand export scale; however, such expansion does not necessarily imply stronger domestic value creation or specialisation (Choorikkadan, 2026; Gereffi, 1999). Indian manufacturing exports, therefore, outpaced world manufacturing exports and contributed to the observed increase in India's global market share. Nevertheless, this result measures the pace of expansion rather than its technological or value-added content. Sustaining this growth and converting it into durable competitiveness will require improvements in infrastructure, innovation, advanced skills, supplier capabilities, and participation in higher-value segments of global value chains.

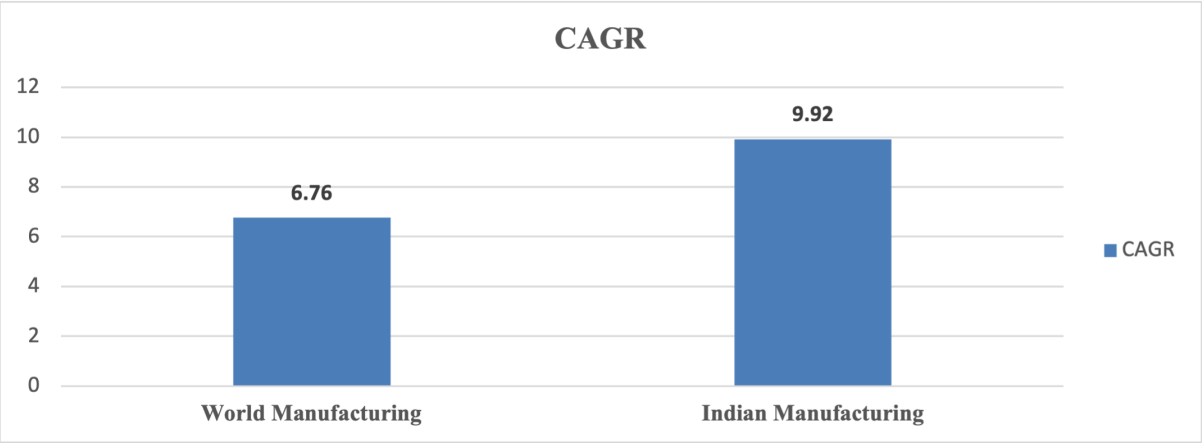

Figure 2: *CAGR comparison of India and world manufacturing exports*
Source: United Nations Comtrade, 1991–2025Source: United Nations Comtrade, 1991–2025

Measurement of Competitiveness: EMS and RCA assess the competitiveness of the Indian manufacturing sector. EMS measures India's performance and position in world manufacturing exports, while RCA measures India's manufacturing comparative advantage relative to the world. Figure 3 depicts the export market share in global manufacturing during 1991–2025.

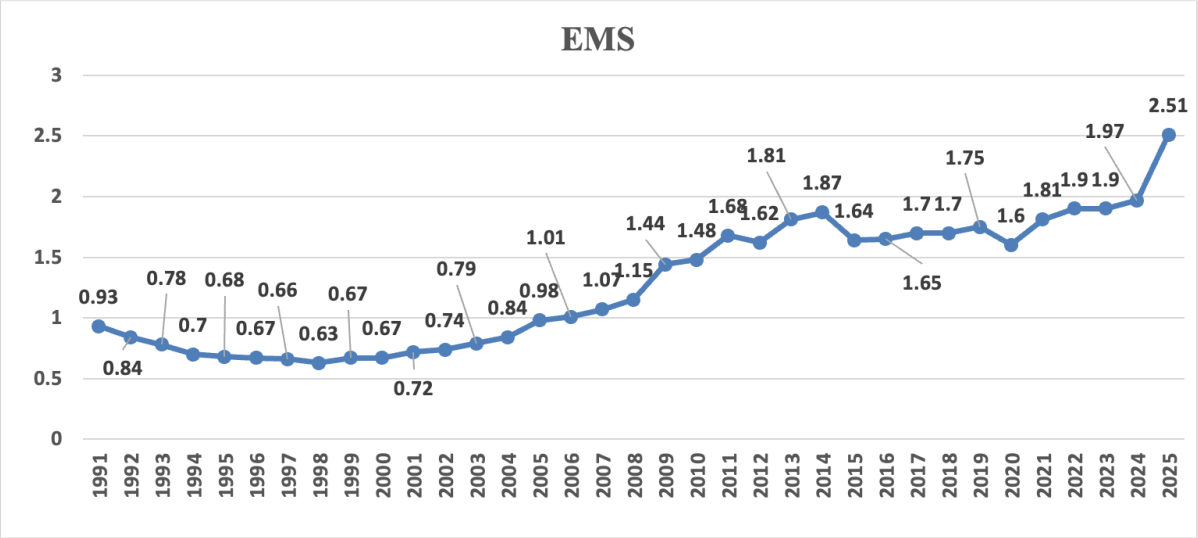

Figure 3: *Export Market Share (EMS) in percentage.*
Source: United Nations Comtrade, 1991-2025

Figure 3 traces India's share of world manufacturing exports over the study period. Initially, India's export market share fell from 0.93% in 1991 to 0.63% in 1998. However, this initial decline in EMS ran counter to expectations following the 1991 reforms. This suggests that, during the early reform years, liberalisation of the manufacturing sector did not immediately translate into a larger share of world trade. Instead, the economy faced structural weaknesses, technological constraints, and mounting competition from rapidly industrialising East Asian economies (Genai et al., 2023; Kaushik & Paras, 2000). The EMS increased from 0.67% to 1.15% between 1999 and 2008. This improvement coincided with continued trade liberalisation, growth in export-oriented industries, and further integration into global value chains. India's export market share continued to rise between 2009 and 2014, even as the 2008 global financial crisis affected world trade. This upward trend coincided with broader export-destination diversification and greater participation in international trade. India's export market share was stable between 2015 and 2020, ranging from 1.64% to 1.75%. The EMS fell to 1.60% in 2021 amid weak global demand, intensifying international competition, and pandemic-related disruptions to production networks and trade flows. Afterwards, the EMS recovered, reaching 1.97% in 2024 and 2.51% in 2025. The recovery coincided with the reopening of global trade and broader export diversification; nevertheless, the provisional nature of the 2025 data requires caution. Domestic measures such as Make in India and associated incentive schemes aim to integrate India into global supply chains (Ministry of Commerce and Industry, 2021). Over the full period, India's position in the world market for manufactured exports strengthened gradually. This finding is consistent with evidence of expanding Indian export participation after liberalisation (Kaushik & Paras, 2000) and with dynamic analyses showing that changes in export presence and comparative advantage need not move together (Ismail & Ahmed, 2022). Therefore, the rise in EMS answers the market-presence question positively, but it does not by itself establish stronger export specialisation.

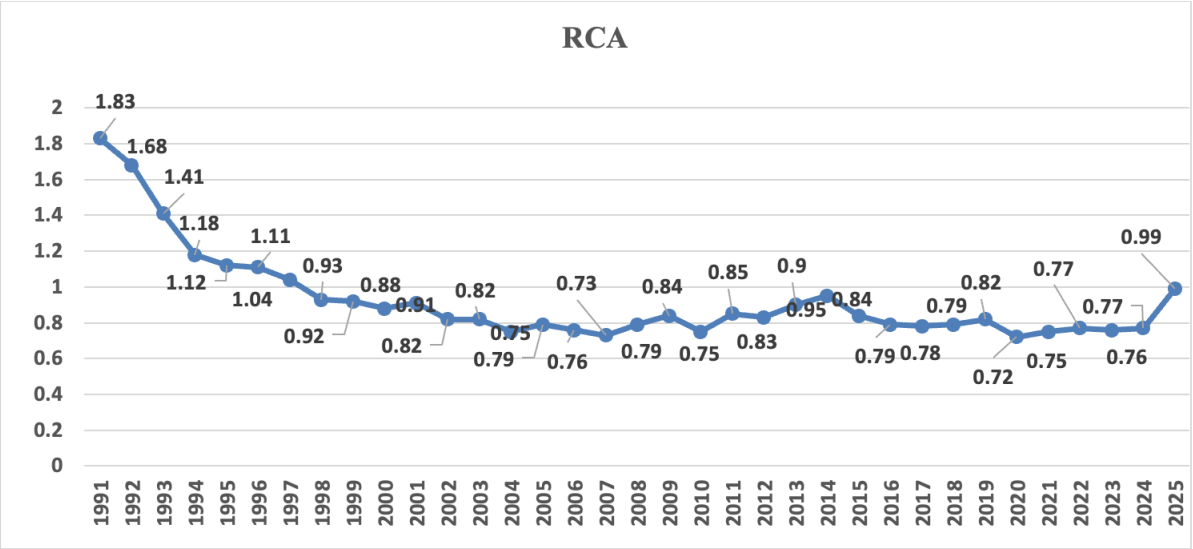

Figure 4: *Revealed comparative advantage (RCA) index, Indian manufacturing, 1991-2025*
Authors' calculation on the basis of UN Comtrade data

Figure 4 presents the RCA index for India's manufacturing sector from 1991 to 2025. The index is widely used to assess revealed export specialisation because it identifies the sectors in which a country holds a comparative advantage relative to world trade. The figure shows that India's manufacturing sector recorded an index value of 1.83 in 1991, indicating a strong comparative advantage. However, this position began to erode relative to the rest of the world, and the index subsequently fell below the benchmark value of unity. The RCA value declined from 0.93 in 1998 to 0.82 in 2003. Over these years, Indian manufactured exports grew more slowly than world manufacturing exports. The decline coincided with stronger competition from China, South Korea, and other emerging industrial economies (Genai et al., 2023). These economies expanded their global market shares through large-scale industrialisation, technological advancement, and export-oriented policies, whereas India did not match this pace of export specialisation. Between 2004 and 2013, the index moved within a narrow band of 0.73 to 0.90, indicating a persistently weak position in world manufacturing trade. Indian manufactured exports grew during 2004–2013, but not sufficiently to restore relative specialisation. During 2016–2024, the index fluctuated between 0.72 and 0.82, remaining below unity. The persistent values below unity indicate that manufacturing did not retain the relative export specialisation observed in the early 1990s. This pattern is consistent with product-level evidence showing that India's comparative advantage is concentrated in selected industries rather than distributed uniformly across manufacturing (Genai et al., 2023; Goswami & Nath, 2020; Hooda & Anu, 2025). Therefore, aggregate export expansion coexisted with continuing structural weaknesses in several manufacturing segments.

The index rises to 0.99 in 2025, the highest value since the mid-1990s. However, the recent increase appears to reflect, to a considerable extent, a decline in manufacturing's share of world exports. Figure 1 shows that manufacturing's share of world exports fell from 72.7% in 2023 to 50.8% in 2025. Therefore, the convergence appears to reflect a contraction in the denominator rather than an unambiguous gain in Indian specialisation. The RCA index alone cannot distinguish genuine competitive improvement from changes in the composition or reporting coverage of world trade. Policy support under Make in India and the production-linked incentive schemes is intended to strengthen investment, production capacity, and participation in global value chains (Ministry of Commerce and Industry, 2021). However, the descriptive results cannot identify the separate effects of these measures, foreign investment, or sector-specific changes on the RCA trajectory. The RCA results describe a reversal of India's manufacturing comparative-advantage position. The sector held a comparative advantage in the early 1990s, but that position steadily weakened and remained below unity from 1998 onwards. Therefore, the findings indicate a comparative disadvantage at the aggregate manufacturing level and the need to improve product quality, technological capability, reliability, and domestic value addition while retaining cost competitiveness.

Figure 5 compares these results with the leading manufacturing exporters in 2025. Although India's export market share reached a high of 2.51% in 2025, provisional data show its export values remain well below those of the leading exporters. This suggests that India's recent gains stem from broad capacity expansion rather than deep specialisation in manufactured goods. Narrowing the gap with the leading exporters will therefore depend less on further scale than on domestic value addition and deeper participation in GVCs.

India retained and modestly expanded its position in world manufacturing trade over the post-reform period. This places Indian manufacturing closer to the Asian exporters that Rodrik (2016) identifies as relatively shielded from premature deindustrialisation than to the wider pattern among developing economies. The combination of a high compound growth rate and an RCA below unity for most of the period aligns with Choorikkadan (2026), who reported that export volumes rose while domestic value addition and supplier depth lagged, indicating that scale expanded without proportionate specialisation. The aggregate index also conceals offsetting product-level positions documented by Goswami and Nath (2020), because an advantage in some product groups may coexist with a persistent disadvantage in others. Therefore, the findings address the principal gap identified above by placing export trends, compound growth, market share, and revealed comparative advantage within a single framework. The evidence consistently answers the three research questions: Indian manufactured exports grew faster than world manufactured exports; India's share of world manufacturing exports increased; however, the increase in market presence was not accompanied by a sustained strengthening of RCA. This divergence is the study's central contribution because it demonstrates that export scale, global market presence, and relative specialisation are empirically distinct dimensions of competitiveness. Nevertheless, the aggregate series cannot identify the contribution of individual

policies, industries, foreign investment, or GVC participation to the observed movements. These mechanisms consequently remain subjects for sector-level and causal research.

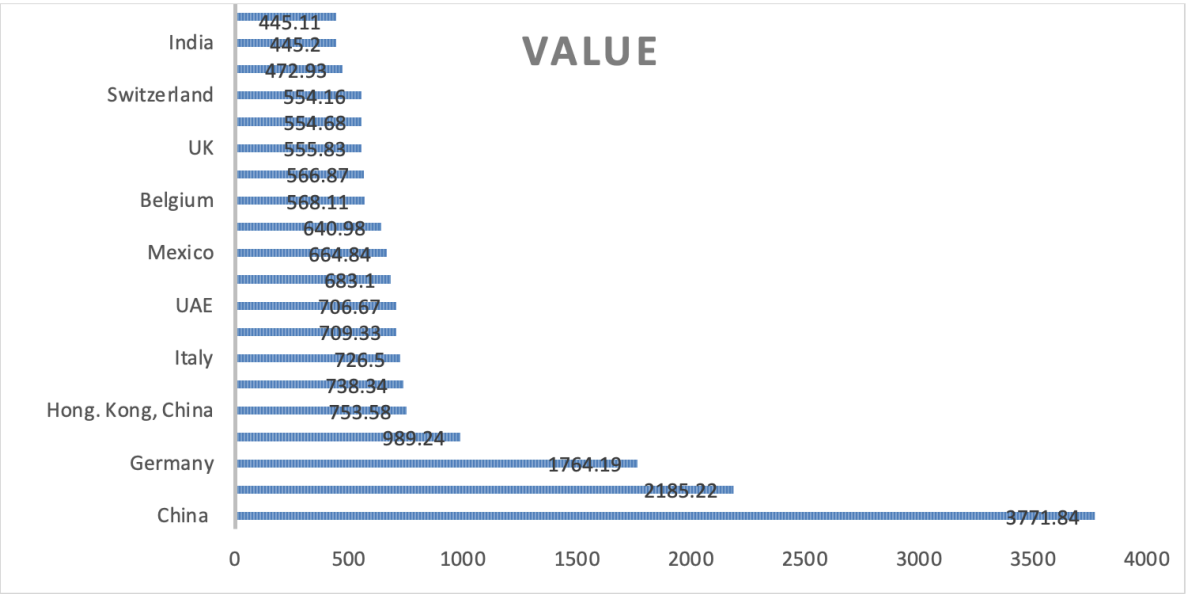

Figure 5: *Top exporting countries in the Manufacturing sector 2025 (USD Billions)*
Source: Authors' compilation based on UN Comtrade data

Note: Export values are expressed in USD billions and refer to the manufacturing exports used in this study.

Table 2. Synthesis of Research Questions and Findings

Research question	Empirical answer	Interpretation
RQ1: How did Indian manufactured exports evolve relative to world manufactured exports?	Indian manufactured exports recorded a CAGR of 9.92%, compared with 6.76% for world manufactured exports.	Indian exports expanded faster; however, CAGR measures the pace of growth rather than its technological content, domestic value addition, or durability.
RQ2: Did India's share of world manufacturing exports increase?	EMS increased from 0.93% in 1991 to 2.51% in provisional 2025 data, although the path was uneven.	India strengthened its global market presence. Nevertheless, the final-year magnitude requires caution because incomplete reporting may affect the 2025 estimate.
RQ3: Did the higher market share produce sustained improvement in RCA?	No. RCA exceeded unity only in the early period and remained below one from 1998 onwards, reaching 0.99 in provisional 2025 data.	Export scale and market presence increased without a proportionate strengthening of relative specialisation; therefore, volume growth was necessary but insufficient for durable competitiveness.
Integrated finding	CAGR and EMS improved, whereas RCA remained persistently weak for most of the study period.	The divergence demonstrates that export growth, world-market presence, and revealed specialisation are related but empirically distinct dimensions of manufacturing competitiveness.

Source: by the author

5. Conclusion

This study evaluated the export competitiveness of Indian manufacturing during 1991–2025 by examining export trends, compound annual growth, export market share, and revealed comparative advantage within a unified framework. Indian manufactured exports grew at a CAGR of 9.92%, compared with 6.76% for world manufactured exports, while India's share of world manufactured exports increased from 0.93% to 2.51%. However, the expansion in export scale and global market presence was not accompanied by a sustained strengthening of relative export specialisation. The RCA exceeded unity early in the study period, fell to 0.93 in 1998, and remained below one through 2024. Although the index increased to 0.99 in 2025, this movement should be interpreted cautiously because the final-year trade data are provisional and the world manufacturing share declined sharply. Therefore, the study's principal contribution is to demonstrate that export growth, international market presence, and revealed specialisation are related but empirically distinct dimensions of competitiveness. Faster export growth is necessary, but it is insufficient when it does not produce proportionate improvements in productivity, technological capability, product quality, domestic value addition, and movement into higher-value segments of global value chains. The findings consequently suggest that policy should extend beyond incentives for production volume and export expansion. In addition, greater attention is required to research and development, advanced skills, logistics, supplier development, quality infrastructure, innovation, and stronger linkages between exporting firms and domestic producers. Nevertheless, these implications should not be interpreted as causal estimates of particular policies. The study uses aggregate descriptive indicators and cannot isolate the effects of Make in India, production-linked incentives, foreign investment, exchange-rate movements, or individual industries. Similarly, aggregate RCA may conceal comparative advantage in selected products alongside disadvantage in technology-intensive segments. Future research should therefore employ disaggregated product- and industry-level data, distinguish domestic value added from gross export values, test structural breaks across policy periods, and examine the causal roles of productivity, foreign investment, innovation, and global value-chain participation. Such analysis

would clarify the conditions under which India's growing manufacturing export presence can translate into durable, broad-based export specialisation.

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Data Availability: The data used in this study are publicly available from the sources identified in the methodology and figure notes. In addition, the manuscript describes the variables required to reproduce the reported indicators.

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