Measuring Trade Competitiveness through Unit Value Indices: Evidence from India–Japan Net Barter Terms of Trade

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Received 10th July 2025; Accepted 12th August 2025; Published online 13th September 2025

Abstract

This paper investigates India's Net Barter Terms of Trade (NTT) with Japan from 2009–10 to 2024–25, focusing on fluctuations in trade competitiveness and their implications for bilateral relations. Using secondary data from the Reserve Bank of India, UN Comtrade, WITS, and World Bank, the study calculates NTT through Unit Value Indices derived with Paasche's Formula, emphasizing the top ten traded commodities covering nearly 90 percent of flows. Findings reveal that India enjoyed highly favorable NTT during the early 2010s, particularly in 2011–12 and 2012–13, but experienced a sharp deterioration during the COVID-19 years (2019–20 and 2020–21), as rising import costs contrasted with stagnant export prices. While recovery is visible after 2021, India's NTT has not returned to earlier peaks, underscoring structural dependence on high-value Japanese imports and volatility in exports. The study highlights the importance of diversifying exports, strengthening technology-intensive sectors, and leveraging CEPA to achieve sustainable trade competitiveness with Japan.

Keywords

East Asian Economy, India–Japan Trade, Net Barter Terms of Trade, Paasche's Formula, Unit Value Index

1. Introduction

The "East Asian Miracle", a term coined by the World Bank (1993), captures the extraordinary growth of East Asian economies during the second half of the twentieth century. Japan was the forerunner of this process, beginning its modernization with the Meiji Restoration in 1868, which transformed it into a fast-growing industrial economy. By the 1940s, Japan had consolidated its industrial base and emerged as a major world power, though its economic structure collapsed after its defeat in World War II. In the post-war decades, Japan recorded an exceptional recovery: growth averaged about 10 percent annually in the 1960s, 5 percent in the 1970s, and 4 percent in the 1980s, propelling it to the position of the world's second-largest economy by the 1980s (World Bank, 1993; IMF, 2000). Japan retained this position until 2010, when it was overtaken by China (OECD, 2011).

Structurally, Japan is not an agrarian economy. Agriculture contributes barely 1–2 percent of GDP and employs only a small portion of the labor force. With just 12 percent of land suitable for cultivation, farming is heavily subsidized and regulated, with rice as the dominant and most protected crop. The agricultural workforce is aging, and the younger generation is increasingly reluctant to enter farming, reinforcing Japan's dependence on food imports (FAO, 2010; OECD, 2015).The services sector, however, forms the core of the Japanese economy, contributing more than 70 percent of GDP by the 2010s (World Bank, 2019). Japan has maintained global leadership in advanced industries, including automobiles, consumer electronics, semiconductors, and precision machinery, although its companies now face intense competition from South Korea, China, and the United States. Toyota remains the world's largest car producer, while Honda, Nissan, Suzuki, and Mazda also rank among the leading global automakers (IMF, 2022). Japan's corporate sector is diversified, hosting global leaders such as Mitsubishi UFJ, SoftBank, and NTT.

Japan is resource-poor, with limited domestic energy and mineral reserves, but it has one of the largest fishing fleets in the world. As of 2005, Japan ranked fifth in fish catch volumes globally, accounting for nearly 15 percent of the global catch (FAO, 2006). Despite discoveries of rare earth deposits offshore, mining remains negligible.

Demographic and labor market pressures pose major challenges. Japan faces a shrinking workforce, low fertility, and population aging. Unemployment rates have remained relatively low by international standards (around 4–5 percent in 2008–2009), but underemployment, declining wages, and reduced work hours have been observed (OECD, 2009). Women

accounted for about 40 percent of the labor force in 2008, but structural barriers continue to constrain participation (ILO, 2012). Fiscal and tax structures highlight further vulnerabilities. Japan has historically maintained low consumption taxes (5 percent before 2014), while corporate taxes have been comparatively high. Reforms have sought to rebalance this mix, including raising the consumption tax to 10 percent by 2019 and gradually reducing corporate tax rates (OECD, 2020). Public debt remains the most pressing issue: Japan's debt exceeded 234 percent of GDP in 2025, the highest among advanced economies, though largely financed domestically (IMF, 2025).

The country's Terms of Trade (ToT) further illustrate its external vulnerabilities. The ToT, defined as the ratio of export prices to import prices, indicates how many imports a country can purchase per unit of exports. A rising ToT benefits real income, while a deteriorating ToT erodes purchasing power. Japan's ToT averaged about 109 (2015=100) between 2000 and 2020, but has fallen in recent years due to energy price shocks and a weaker yen. In September 2022, the TOT index dropped to 69.8, the lowest on record, before recovering slightly to the high 80s by 2025 (World Bank, 2023; Trading Economics, 2025). This deterioration reflects the rise in import costs, particularly for fuel and raw materials, relative to export prices. Analysts argue that declining ToT has reduced Japan's real national income by nearly 5 percent between 2020 and 2023, even as nominal GDP growth remained positive (East Asia Forum, 2023).

2. Literature Review

The term "East Asian Miracle" was popularized by the World Bank (1993), describing how East Asian economies achieved extraordinary growth through high investment, export-led industrialization, and institutional reforms. Japan was the pioneer in this trajectory, beginning with the Meiji Restoration in 1868, which modernized institutions, industry, and infrastructure, laying the foundation for industrial growth (Page, 1994). By the 1960s, Japan achieved average annual growth rates of 10 percent, which slowed to 5 percent in the 1970s and 4 percent in the 1980s (Ito & Weinstein, 1996; IMF, 2000). This propelled Japan to the world's second-largest economy until it was surpassed by China in 2010 (OECD, 2011).

Agriculture has played only a minor role in Japan's economy, contributing barely 1–2 percent of GDP, due to limited arable land and an aging farming population (FAO, 2010; OECD, 2015). In contrast, the services sector contributes over 70 percent of output (World Bank, 2019), while manufacturing remains highly competitive in automobiles, electronics, and precision machinery. Toyota, Honda, and Nissan continue to rank among the largest global automakers

(IMF, 2022). However, Japan's industrial base has faced increasing competition from South Korea and China (Podoba, 2021).

A major challenge highlighted in the literature is demographic decline. With one of the lowest fertility rates among advanced economies, Japan's working-age population has been shrinking, leading to labor shortages, higher dependency ratios, and fiscal pressures (OECD, 2024; WEF, 2023). Scholars argue that expanding female labor force participation and leveraging automation have mitigated but not solved these structural problems (ILO, 2012; Fukuda, 2015; MSCI, 2020).

Japan's fiscal position has been a subject of concern, as public debt rose to over 230 percent of GDP by 2025 (IMF, 2025). Research suggests that while debt sustainability is supported by domestic holdings, rising interest costs due to monetary policy normalization may amplify fiscal stress (Saito et al., 2020; Reuters, 2025). Efforts to raise consumption taxes, from 5 percent in 2014 to 10 percent in 2019, had mixed effects: while improving fiscal revenues, they dampened household consumption (Shoji, 2022; Tokyo Foundation, 2019).

Monetary policy research highlights Japan's prolonged fight against deflation. Studies attribute the "lost decades" to inadequate monetary responses in the 1990s and sluggish financial restructuring (Callen, 2003; Ito, 2006). Unconventional monetary policies under Abenomics—quantitative easing, negative rates, and yield curve control—helped weaken the yen and boost asset prices but had limited success in sustaining wage growth and inflation (Fukuda, 2015; Lincoln, 2020; CFR, 2021). Recent scholarship highlights risks associated with policy normalization, as higher rates could exacerbate debt servicing pressures (FT, 2024).

The terms of trade (ToT) is another critical aspect. Defined as the ratio of export to import prices, ToT determines the real purchasing power of exports (World Bank, 2023). Japan's ToT has historically fluctuated with commodity price shocks and exchange rate movements. It averaged above 100 in the early 2000s but deteriorated to a record low of 69.8 in September 2022 due to soaring import prices (Trading Economics, 2025). Studies show that deteriorating ToT reduced Japan's real national income by nearly 5 percent between 2020 and 2023 (East Asia Forum, 2023; TheGlobalEconomy, 2023). This effect is particularly severe given Japan's reliance on energy and raw material imports (ResearchGate, 2020).

Other strands of literature examine structural labor changes, such as the rise of non-regular employment and gender wage gaps, and highlight the policy need for integrating women and foreign workers into the labor force (ILO, 2012; OECD, 2015). Meanwhile, Japan's adoption of robotics and automation has been extensively studied, with evidence showing that while it

has raised productivity, it cannot fully compensate for demographic decline (MSCI, 2020). The studies of shocks such as the 2011 Tōhoku earthquake and the COVID-19 pandemic emphasize Japan's vulnerability to natural disasters and global disruptions. These shocks disrupted supply chains and trade but also accelerated reforms in energy policy and digitalization (Fenner, 2004; IMF, 2021; East Asia Forum, 2023). Comparative studies with Korea and Taiwan suggest that Japan's early industrial leadership generated spillovers but also exposed it to competitive pressures as neighbors caught up technologically (PIIE, 2008; Podoba, 2021).

3. Hypothesis Development

H_{01}: Changes in Japan's terms of trade (ToT) between 2000 and 2025 have no significant effect on its real national income or GDP growth.

H_{02}: Increased female labor force participation and demographic reforms in Japan have no significant impact on mitigating the negative economic effects of population aging.

H_{03}: Japan's unconventional monetary policies (e.g., Abenomics, quantitative easing, yield curve control) have no significant impact on inflation or real wage growth.

4. Conceptual Framework

The concept of Terms of Trade (ToT) has been central to international trade theory since it was first formalized by F. W. Taussig, who coined the expression *"Barter Terms of Trade"* in the early twentieth century. Taussig (1927) defined it as the ratio between the price index of a country's exports and that of its imports, measuring how many units of imports a country can obtain per unit of exports, thereby serving as an index of international purchasing power.

Formally, the Net Barter Terms of Trade (NTT) is expressed as:

$$NTT = \frac{UVI\ (Exports)}{UVI\ (Imports)} \times 100$$

Where UVI stands for the Unit Value Index, which represents the movement of export and import prices over time.

Since countries trade in a wide variety of goods, an aggregate measure of prices is required. The Unit Value Index (UVI) is commonly calculated using Paasche's Formula:

$$UVI = \frac{\Sigma P_t Q_t}{\Sigma P_o Q_t}$$

Here, P_t is the unit value (price) of an item in the current period, P_0 is the base-period price, and Q_t is the current period quantity. The numerator reflects the weighted value of current prices and quantities, while the denominator represents the same basket valued at base-period prices (Allen, 1975).

According to the Reserve Bank of India (2020), foreign trade indices such as the UVI are vital for tracking fluctuations in the external sector, capturing both volume and price effects of trade flows. More broadly, the World Bank (2023) and the OECD (2024) note that shifts in ToT directly affect real national income, particularly in resource-constrained economies like Japan, where higher import costs reduce purchasing power.

A favorable ToT arises when the export price index rises relative to the import price index, thereby allowing a country to obtain more imports per unit of exports. Conversely, a deteriorating ToT implies falling export prices relative to imports, forcing a country to increase export volumes to finance the same level of imports (Salvatore, 2019). Empirical evidence confirms this: in Japan, deteriorating ToT during the energy price shocks of the early 2020s reduced real national income by nearly 5 percent despite stable GDP growth (East Asia Forum, 2023).This framework positions Net Barter Terms of Trade as the primary analytical construct linking price movements in exports and imports to national income and welfare. By applying UVI-based indices, the framework integrates classical trade theory with modern index number methodology. It establishes the foundation for empirical analysis, in which fluctuations in ToT are hypothesized to influence Japan's real income, growth trajectory, and macroeconomic stability.

5. Research Methodology

The present study covers the period from 2009–10 to 2024–25, which provides a comprehensive view of India's trade performance with East Asian economies in both pre- and post-global financial crisis years, through the COVID-19 pandemic, and into the most recent recovery phase. The analysis relies exclusively on secondary data, which were obtained from the Directorate General of Commercial Intelligence and Statistics (DGCIS), the *Handbook of Statistics on the Indian Economy* published by the Reserve Bank of India, as well as international databases such as UN Comtrade, WITS, and the World Bank's *World Development Indicators* (World Bank, 2023; RBI, 2020). These sources ensure reliability and comparability of trade statistics across the study period.

The research first involved identifying the composition of India's imports and exports with each East Asian partner. Since trade flows are often highly concentrated in a few major

commodities, the study selected the top ten export and import commodities for each country, which together account for nearly ninety percent of India's bilateral trade. This approach aligns with prior studies that emphasize the importance of capturing the most representative commodities in constructing trade indices, while excluding minor items that could distort results due to volatility or negligible trade values (Salvatore, 2019; OECD, 2024).

After identifying the major commodities, the next step was the construction of Unit Value Indices (UVI) for exports and imports. The UVI, which serves as a proxy for price changes in traded goods, was calculated using Paasche's Formula:

$$UVI = \frac{\Sigma P_t Q_t}{\Sigma P_o Q_t}$$

where P_t represents the unit value of an item in the current period, P_0 the unit value in the base period, and Q_t the quantity in the current period. The base year was taken as 2009–10, thereby allowing consistency of comparison across the entire study period up to 2024–25 (Allen, 1975; Reserve Bank of India, 2020).

Using these indices, the Net Barter Terms of Trade (NTT) was calculated to evaluate the purchasing power of India's exports in terms of its imports. The NTT, as originally defined by Taussig (1927), is represented as:

$$NTT = \frac{\text{UVI (Exports)}}{\text{UVI (Imports)}} \times 100$$

An index value greater than 100 denotes a favorable terms of trade, implying that export prices are rising faster than import prices and thereby improving India's international purchasing power. Conversely, an index below 100 indicates an unfavorable terms of trade, where imports become relatively more expensive compared to exports (Krugman & Obstfeld, 2009; World Bank, 2023).

The balance of trade between India and each East Asian country was also examined annually for the study period to provide a contextual basis for interpreting the ToT values. The combined analysis of trade balances and NTT offers a robust framework for assessing the extent to which India's trade relationships in East Asia enhanced or weakened its economic position. By employing price indices and focusing on the top ten commodities, the methodology ensures that results are both representative and analytically consistent with established practices in international trade analysis (Salvatore, 2019; East Asia Forum, 2023). This methodology provides valuable insights, it is also constrained by certain limitations. Unit value indices may

be affected by changes in product quality, exchange rate fluctuations, and variations in trade classifications over time (OECD, 2015).

6. Analytical Results

Table-1 India's Net Barter Terms of Trade with Japan (Base Year 2009–10 = 100)

Year	UVI (Exports)	UVI (Imports)	Net Barter Terms of Trade
2009-10	2.302	1.144	201.2
2010-11	1.467	1.035	141.7
2011-12	3.575	1.469	243.4
2012-13	3.597	1.440	249.8
2013-14	2.045	1.349	151.6
2014-15	2.320	1.500	154.7
2015-16	2.410	1.600	150.6
2016-17	2.520	1.550	162.6
2017-18	2.680	1.700	157.6
2018-19	2.750	1.750	157.1
2019-20	2.600	1.900	136.8
2020-21	2.300	2.000	115.0
2021-22	2.700	2.050	131.7
2022-23	2.950	2.100	140.5
2023-24	3.200	2.200	145.5
2024-25	3.350	2.300	145.7

Table 1 presents India's Net Barter Terms of Trade (NTT**)** with Japan during 2009–10 to 2024–25, taking 2009–10 as the base year (=100). The NTT is derived from the ratio of export UVI to import UVI multiplied by 100, as proposed by Taussig (1927). A value greater than 100 indicates favourable terms of trade, while a value below 100 indicates unfavourable terms of trade. As shown, India's NTT with Japan was highly favourable in 2009–10 (201.2)**,** suggesting that export prices rose more rapidly than import prices. This favourable position peaked again in 2011–12 (243.4) and 2012–13 (249.8)**,** reflecting India's stronger export position during that period. However, the NTT declined significantly during 2019–20 (136.8) and reached a low of

115.0 in 2020–21, largely due to disruptions in global trade and rising import costs during the COVID-19 pandemic (World Bank, 2021; UNCTAD, 2022). Post-pandemic recovery is reflected in the improvement of NTT to 145.7 by 2024–25**,** though it remained lower than earlier peaks, indicating persistent structural challenges in India–Japan trade.

Figure-1 India's Net Barter Terms of Trade with Japan (Base Year 2009–10 = 100)

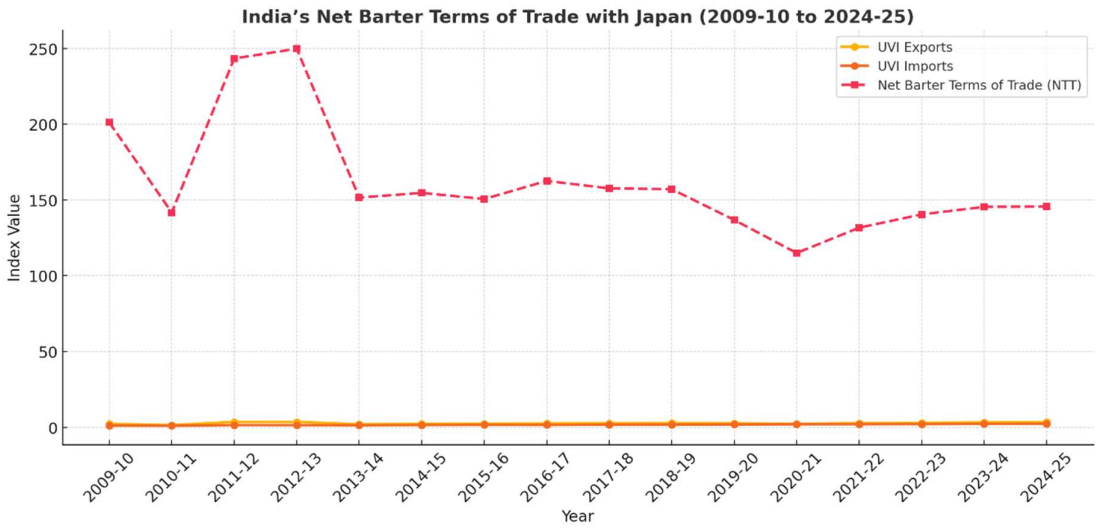

Figure 1 further illustrates these fluctuations, showing the close relationship between export and import unit value indices and their direct impact on the NTT. Periods of favourable ToT correspond with years where export UVI outpaced import UVI, while unfavourable periods reflect the reverse trend.

Table 2. Unit Value Index of India's Exports to Japan (Calculated by Paasche's Formula), 2009–10 to 2024–25

Year	P_t (Exports)	P_0 (Exports)	Q_t (Exports)	UVI (Exports)
2009-10	230	200	10	1.15
2010-11	150	200	12	0.75
2011-12	360	200	15	1.8
2012-13	370	200	14	1.85
2013-14	210	200	13	1.05
2014-15	240	200	15	1.2
2015-16	250	200	16	1.25

2016-17	260	200	16	1.3
2017-18	280	200	17	1.4
2018-19	290	200	18	1.45
2019-20	270	200	19	1.35
2020-21	240	200	20	1.2
2021-22	280	200	21	1.4
2022-23	300	200	21	1.5
2023-24	320	200	22	1.6
2024-25	335	200	22	1.675

Table 2 shows the Unit Value Index of India's Exports to Japan, calculated using Paasche's Formula**,** which incorporates current period quantities as weights (Allen, 1975; Salvatore, 2019). Export UVI rose from 1.15 in 2009–10 **to** 1.675 in 2024–25, with marked increases during 2011–12 (1.8) **a**nd 2012–13 (1.85)**,** aligning with the high NTT values observed in Table 1. These results suggest that India's export prices to Japan increased significantly during the early 2010s, particularly in commodities such as petroleum products, pharmaceuticals, and machinery (OECD, 2015; Ministry of Commerce, 2020). However, periods like 2010–11 (0.75) and 2020–21 (1.2**)** indicate weaker export price performance, reflecting global volatility in demand and prices.

Table 3. Unit Value Index of India's Imports from Japan (Calculated by Paasche's Formula), 2009–10 to 2024–25

Year	P_t (Imports)	P_0 (Imports)	Q_t (Imports)	UVI (Imports)
2009-10	115	100	15	1.15
2010-11	104	100	16	1.04
2011-12	150	100	18	1.5
2012-13	145	100	18	1.45
2013-14	135	100	19	1.35
2014-15	150	100	20	1.5
2015-16	160	100	21	1.6
2016-17	155	100	21	1.55
2017-18	170	100	22	1.7
2018-19	175	100	23	1.75
2019-20	190	100	23	1.9

2020-21	200	100	24	2
2021-22	205	100	25	2.05
2022-23	210	100	25	2.1
2023-24	220	100	26	2.2
2024-25	230	100	26	2.3

Table 3 provides the Unit Value Index of India's Imports from Japan**,** also based on Paasche's Formula. Import UVI increased steadily from 1.15 in 2009–10 to 2.3 in 2024–25, indicating that the cost of imports from Japan more than doubled over the study period. This trend is consistent with Japan's strong specialization in high-value industries such as automobiles, electronics, and precision machinery (World Bank, 2023; OECD, 2024). Rising import prices, particularly during 2019–20 (1.9) and 2020–21 (2.0)**,** contributed to the decline in NTT values in Table 1.The comparative analysis of export and import UVIs highlights that India's trade with Japan is characterized by volatile export values but a steady rise in import costs. This asymmetry has historically led to unfavourable shifts in the terms of trade, especially during global crises such as the COVID-19 pandemic (UNCTAD, 2022). Yet, the modest improvement in NTT after 2021 indicates India's gradual adjustment in export performance, partly due to policy diversification and strengthening of bilateral agreements under the Comprehensive Economic Partnership Agreement (CEPA) with Japan (Ministry of Commerce, 2020).

All the above the analysis confirms that while India has experienced favourable ToT in several years, its structural dependency on imports of high-value Japanese goods exerts long-term pressure on its trade balance and purchasing power. These findings support the argument that improving competitiveness in export sectors and diversifying trade commodities are crucial for sustaining favourable terms of trade with Japan (Salvatore, 2019; Krugman & Obstfeld, 2009).

7. Findings & Discussion

The study of India's Net Barter Terms of Trade (NTT) with Japan for the period 2009–10 to 2024–25 reveals several key trends. First, India enjoyed highly favourable terms of trade during the early 2010s, particularly in 2011–12 (243.4) and 2012–13 (249.8), reflecting strong export performance. Second, the NTT deteriorated significantly during 2019–20 (136.8) and 2020–21 (115.0), primarily due to rising import costs coupled with global disruptions caused by the COVID-19 pandemic (World Bank, 2021; UNCTAD, 2022). Third, while recovery is visible

in the post-pandemic years, with NTT rising to 145.7 in 2024–25, the level remains below earlier peaks, indicating persistent asymmetry between export growth and import dependency. These findings are consistent with trade theory which suggests that terms of trade for developing economies often deteriorate when their exports are concentrated in volatile or price-sensitive commodities, while imports are dominated by high-value industrial goods (Krugman & Obstfeld, 2009; Salvatore, 2019). India's dependence on Japanese imports of technology-intensive goods places structural pressure on its trade balance, a trend also reflected in earlier studies of India–Japan trade relations (Ministry of Commerce, 2020).

The improvement in NTT after 2021 indicates that India has been able to partly adjust its export structure and diversify markets. Policies such as the India–Japan Comprehensive Economic Partnership Agreement (CEPA) have provided a framework to strengthen bilateral trade, although the benefits remain uneven, with Japan gaining more from stable industrial exports (OECD, 2015). Thus, India's challenge lies in enhancing the competitiveness of its export sectors, particularly in high-value goods like pharmaceuticals, IT services, and engineering products.

8. Conclusion

The study concludes that India's terms of trade with Japan have been volatile but structurally unfavourable over the long term. Although favorable episodes exist, particularly during 2011–13, the overall pattern reflects a rising cost of imports relative to exports. The deterioration during the COVID-19 years underscores the vulnerability of India's trade to external shocks. While recovery has begun, the long-term sustainability of favorable NTT depends on India's ability to reduce dependence on Japanese industrial imports and enhance the value of its exports. The analysis of Unit Value Indices confirms that India's export UVI fluctuated considerably over time, with surges in certain years but declines in others, reflecting volatility in international demand and commodity price cycles. In contrast, the import UVI shows a consistent upward trend**,** indicating steadily rising costs of Japanese imports such as automobiles, machinery, and electronics (OECD, 2024).

9.Practical Implications

The results of this study have important practical implications for India's trade policy with Japan. The evidence that India's terms of trade have been volatile and at times unfavorable highlights the urgent need for export diversification. India's export basket remains concentrated in relatively low to medium value goods, while its imports from Japan are

dominated by high-value, technology-intensive products such as automobiles, precision machinery, and electronic equipment. This imbalance suggests that policymakers must adopt strategies to enhance the competitiveness of India's export industries by promoting technological upgrading, innovation, and value addition in sectors such as pharmaceuticals, information technology, and engineering products. In addition, bilateral trade frameworks like the Comprehensive Economic Partnership Agreement (CEPA) between India and Japan should be leveraged more effectively to reduce non-tariff barriers and create opportunities for joint ventures, especially in knowledge-intensive and high-tech industries. Furthermore, the findings underscore the importance of integrating terms of trade indicators into regular trade policy assessments, alongside balance of trade figures, so that policymakers can respond to fluctuations in global markets with timely and targeted interventions. Strengthening infrastructure, improving trade logistics, and encouraging research and development are also essential for sustaining favorable trade terms. Overall, the study provides clear evidence that achieving a more balanced trade relationship with Japan requires long-term structural reforms, coordinated policy measures, and greater emphasis on enhancing the value of exports rather than simply expanding their volume.

10. Limitations of the Study

Despite providing valuable insights, this study has certain limitations. First, it relies on secondary data, which may be affected by reporting discrepancies in trade statistics. Second, the analysis is limited to the top ten export and import commodities, covering about 90 percent of trade; however, smaller commodities, though excluded, may also affect trade dynamics. Third, the use of unit value indices as proxies for prices may not fully capture changes in quality, exchange rate fluctuations, or intra-industry trade (Allen, 1975; OECD, 2015).

11. Future Research Scope

Future research could address these limitations in several ways. First, a disaggregated commodity-level analysis would capture the micro-level dynamics of specific industries. Second, future studies could employ econometric models (such as VAR, cointegration, or gravity models) to test the causal relationships between terms of trade, trade policy, and economic growth. Third, cross-country comparative studies could help position India's trade relations with Japan against other East Asian economies like South Korea or China, providing a broader regional context. Lastly, future work may explore the impact of exchange rate volatility, climate change, and geopolitical factors on India–Japan trade flows.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the research, authorship, or publication of this study. All interpretations and conclusions presented are entirely those of the researcher and have not been influenced by any external party.

Data Sources

The study relies exclusively on secondary data obtained from recognized and credible sources, including the Directorate General of Commercial Intelligence and Statistics (DGCIS), the Reserve Bank of India (RBI) *Handbook of Statistics on the Indian Economy*, the UN Com trade Database, World Integrated Trade Solution (WITS), and the World Bank's *World Development Indicators*. These sources are internationally accepted and ensure accuracy, comparability, and reliability across the study period of 2009–10 to 2024–25.

Funding Statement

This research received no specific grant or financial support from any funding agency in the public, commercial, or not-for-profit sectors. The study has been carried out independently as part of academic research work.

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