India–Thailand Bilateral Trade and Investment Relations

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Abstract

This study examines the macroeconomic determinants of bilateral trade between India and Thailand from the period 1990–2024 using the gravity model of international trade estimated through the Autoregressive Distributed Lag (ARDL) Bounds Testing Approach. In addition, the study provides a descriptive assessment of bilateral foreign direct investment (FDI) trends between the two countries during 2019–2025. The empirical results confirm the existence of a stable long-run relationship among bilateral trade, the combined economic size of India and Thailand, the bilateral exchange rate, and the ASEAN–India Free Trade Agreement (FTA). The analysis reveals that the combined economic size of India and Thailand both countries has a positive and statistically significant impact on bilateral trade, while exchange rate movements have a negative effect in both the short run and the long run. The error correction mechanism indicates that approximately 39.5% of short-run deviations from the long-run equilibrium between India and Thailand are corrected annually, indicating a moderate speed of adjustment towards long-run equilibrium. The investment analysis reveals that bilateral investment relations have strengthened over time, with Thai investment in India exceeding Indian investment in Thailand. In addition, Thai investments in India are becoming increasingly diverse, spanning various industries, including renewable energy, manufacturing, digital technologies, electronics, and infrastructure sectors. The Findings suggest that sustained economic growth, exchange rate stability, improved trade facilitation, and stronger bilateral investment cooperation are essential for expanding trade and deepening long-term economic integration between India and Thailand.

Keywords: India, Thailand, bilateral trade, gravity model, ARDL, foreign direct investment, ASEAN–India FTA, economic integration.

JEL Classification: F14, F15, F21, C22

1. Introduction

India-Thailand relations are deep routed with strong historical, cultural and economic ties, reinforced by a Strategic Partnership. Thailand is the second-largest economy in both the Association of Southeast Asian Nations (ASEAN) and the Greater Mekong Subregion (GMS). The country has well-developed infrastructure and diversified market-oriented economy supported by investment-friendly environment. In 2024, Gross Domestic Product (GDP) of Thailand for year 2025 stood at USD 684.58 billion, with exports accounting for 55 percent of GDP highlights the country's strong integration into global trade networks. The country reported foreign direct investment (FDI) exceeded THB 324 billion for year 2025, with 42% growth in flows reflecting strong investor confidence in the Thai economy.

On the other hand, over the last two decades, India has been one of the fastest growing economies globally. India has registered real GDP growth of 7.7% for the financial year 2025-26 and is projected to grow by 6.3% during the 2026-27 financial year and by 6.4% in FY2027-28. Driven by a 18% year-on-year surge in equity inflows, India's foreign direct investment reached USD 58.85 billion in FY 2025–26. These figures highlight that foreign investors maintain strong, long-term confidence in India’s manufacturing strengths, digital economy, and growth potential.

Bilateral relations between India and Thailand have reached new heights. On 01 December 2025, during high level meeting Indian External Affairs Minister, Dr. S. Jaishankar and Thai Foreign Minister. FM Phuangketkeow reaffirmed their shared commitment to further deepening the India–Thailand Strategic Partnership. Both leaders emphasized enhancing comprehensive bilateral cooperation across all sectors to actively promote long-term peace, stability, and economic prosperity in the Indo-Pacific region.

Trade between the two economies has been rising for decades, reaching approximately US$19 billion in FY25. In FY26 bilateral trade amounted to approximately US$21 billion. India is Thailand's seventh largest trading partner in 2026. In turn, Thailand currently ranks as India's 14th largest source of imports and 25th largest export destination. Recognising the untapped potential in bilateral commerce, both governments have set an ambitious target of increasing trade to US$35 billion by FY27. To achieve the target, both nations are actively working to strengthen synergies and increase bilateral trade relations between the two countries.

The structure of bilateral trade reveals a complementary pattern between the two economies. For instance, India's exports to Thailand reached US$5.05 billion during FY26. The main products that India exported to Thailand are machinery and mechanical appliances, precious and semi-precious stones, seafood products, vehicles and automotive components, organic chemicals, electrical equipment, aluminium products, and pharmaceuticals. While India's imports from Thailand stood at US$16.42 billion during the same period. The import consists primarily of precious stones and jewellery, machinery, animal and vegetable oils, electrical equipment, plastics, chemicals, rubber products, and automotive components.

Indian market presents significant opportunities across multiple sectors mainly concentrated in renewable energy sectors infrastructure, agro & food processing sectors. India continues to promote investment opportunities under the Make in India initiative, while Thailand's Ignite Thailand vision encourages Indian investments across manufacturing, services and technology ecosystems.

Investment from Thailand in India has been rising in the recent years Thailand is the 27th largest provider of FDI equity inflows into India. Between January 2000 and December 2025, Thailand's cumulative FDI in India reached US$ 1.62 billion.

India-Thailand Bilateral Trade Overview

India–Thailand bilateral trade has witnessed significant development during the observed period. According to the UN Comtrade Data, the total value of trade between the two countries amounted to approximately US$0.31 billion in 1990 to US$16.75 billion in 2024, implying a remarkable increase during the analyzed period. At the same time, it is noticeable that the growth of India-Thailand trade was neither steady nor consistent as trade between the two countries experienced several cycles of contraction and expansion.

As shown in Figure 1 India-Thailand trade was relatively limited during the 1990s, but it still managed to demonstrate a positive trend. In particular, bilateral trade between India and Thailand was valued at approximately US$308 million in 1990 to US$781 million in 1999. The largest annual growth was recorded in 1994, when trade between the two countries grew by as much as 47.2%, followed by further growth in 1995. However, trade growth moderated considerably in the second half of the decade. By 1998, bilateral trade had increased only modestly, before recovering by approximately 21.0% in 1999. This indicates that the early stage of India–Thailand economic relations were characterized by a relatively low trade base

but considerable year-to-year fluctuations.

The 2000-2004 period was a period of trade expansion. Overall bilateral trade grew from approximately US$864 million in 2000 to US$1.61 billion in 2004. The growth was particularly strong in 2004, with bilateral trade growing by around 28.6%. The period was also one of India-Thailand economic engagement and preferential trade liberalization, including the Early Harvest Scheme.

A much more pronounced expansion occurred during 2005–2008. Bilateral trade increased from approximately US$2.26 billion in 2005 to US$4.67 billion in 2008. The annual growth rate reached approximately 38.1% in 2006 and 37.1% in 2007, demonstrating a relatively rapid acceleration in bilateral commercial activity. Although trade continued to grow in 2008, the growth rate moderated to approximately 18.3%. This period therefore represents one of the strongest phases of sustained bilateral trade expansion.

The 2009 global financial crisis led to a temporary recession in the development of this trend. The trade volume dropped to about US$4.67 billion in 2008 to US$4.49 billion in 2009, which is down by about 3.8%. In 2010, it grew by about 35.2%, increasing to US$6.08 billion. The recovery continued in 2011 and 2012, with bilateral trade reaching approximately US$7.82 billion in 2011 and 8.95 billion in 2012. Then, the growth rate began to slow down significantly in 2013 and 2014.

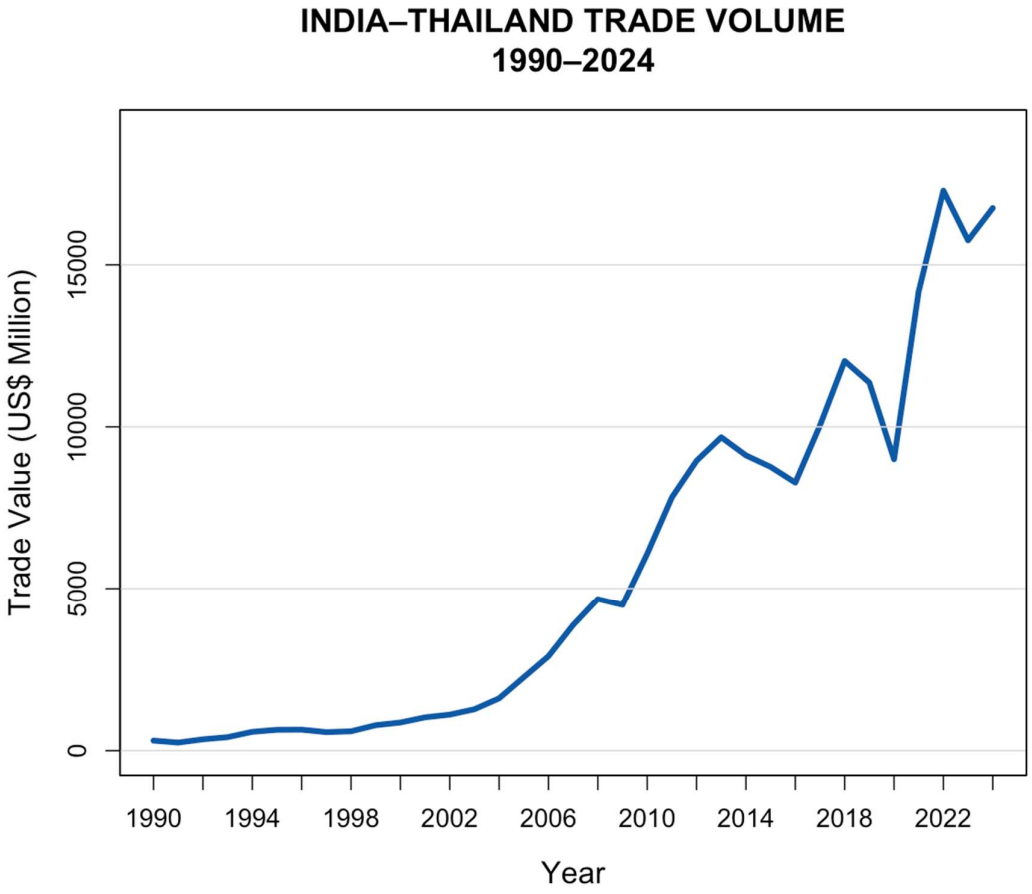
The period of time that is most relevant for the analysis of the recent trends in India-Thailand trade is 2015-2024. Overall, bilateral trade totalled approximately US$8.76 billion in 2015 but declined by 5.5% in 2016 to US$8.28 billion. The growth rate was particularly significant in 2017, with the value increasing by 21.3% to about US$10.05 billion. The upward momentum continued in 2018, with bilateral trade increasing by a further 19.8% to approximately US$12.03 billion. However, trade declined by 5.5% in 2019, indicating that the expansion was not sustained continuously. The most significant decline was recorded in 2020, which is explained by the COVID-19 pandemic, when bilateral trade fell by approximately 20.8%, from US$11.37 billion in 2019 to approximately US$9.00 billion.

A particularly strong recovery was observed in 2021. Trade between the two countries grew by around 57.6% compared to the previous year, amounting to US$14.18 billion. This was the highest annual growth rate in the 2015–2024 period and reflects the strong rebound in international economic activity following the pandemic-related disruption. Growth remained

strong in 2022, with bilateral trade increasing by another 21.9% to approximately US$17.29 billion.

Trade started to decline in 2023, decreasing by 8.9% to US$15.76 billion. In 2024, however, trade recovered moderately, increasing by 6.3% to approximately US$16.75 billion. Thus, although the 2024 level remained below the 2022 peak, bilateral trade was substantially higher than its 2015 level.

Figure 1



The composition of bilateral trade also suggests a significant imbalance in India's trade with Thailand. As shown in Figure 2 the growth in bilateral trade has been to a considerable extent driven by India's rising imports from Thailand. Indeed, while India's exports to Thailand also grew substantially over the long run, reaching a peak of US$244 million in 1990 to US$4.80 billion in 2024, imports greatly exceeded exports in value throughout the period under review and grew at a significantly higher pace, especially after 2005. This imbalance in the growth

of exports and imports accounts for the growing trade deficit between the two countries, which is another important trend characterizing the development of India-Thailand trade relations.

Overall, the trends identified in the 1990-2024 period illustrate the deepening of India-Thailand trade ties, as well as the three important features of this relationship, namely the long-term nature of its growth, its volatility, and the size of India's trade deficit against Thailand. These trends provide a solid basis for further analysis, which should focus on factors affecting bilateral trade, including the impact of institutional arrangements, economic size, exchange-rate policies, and other factors.

Figure 2



India–Thailand Free Trade Agreement

India's economic engagement with Thailand gained momentum during the 1990s with the Look East Policy and was subsequently strengthened through the Act East Policy,

launched in 2014. Thailand's strategic location at the crossroads of South and Southeast Asia has made it an important partner in India's efforts to expand trade, investment and connectivity with the ASEAN region.

The institutional foundation for bilateral trade liberalisation was established through the India–Thailand Framework Agreement for Establishing a Free Trade Area, signed on 9 October 2003. An important early step towards tariff liberalisation was the Early Harvest Scheme (EHS), which took effect on 1 September 2004. The EHS initially covered 82 products, with two additional items subsequently added, bringing the total to 84 products. It provided preferential tariff access for selected products while negotiations on a broader bilateral FTA continued. However, negotiations did not result in a fully implemented comprehensive bilateral FTA, and the EHS remained an important component of bilateral preferential trade.

The subsequent implementation of the ASEAN–India Trade in Goods Agreement (AITIGA) provided a broader regional framework for India–Thailand merchandise trade. As Thailand is an ASEAN member, bilateral trade increasingly operated through both the bilateral EHS and the wider ASEAN–India preferential trading framework.

The India–Thailand experience highlights the distinction between tariff liberalisation and effective market access. Thailand's strong manufacturing base and regional supply-chain integration have supported its exports to India, while India's exports include pharmaceuticals, chemicals, agricultural and marine products, machinery and automotive products. Based on the UN Comtrade data used in this study, India's imports from Thailand increased from US$5.65 billion in 2015 to US$11.95 billion in 2024, while exports increased from US$3.11 billion to US$4.80 billion, resulting in a widening bilateral trade deficit.

The econometric results provide a further perspective on the role of trade liberalisation. The FTA variable has a positive coefficient but is statistically insignificant, indicating a positive association between trade liberalisation and bilateral trade, but insufficient statistical evidence to conclude that the FTA had a significant independent effect. Thus, the expansion of bilateral trade cannot be attributed to trade liberalisation alone, with

factors such as economic growth, exchange-rate movements, production capacity, competitiveness and market-access conditions potentially contributing to trade outcomes.

A significant development occurred in April 2025, when India and Thailand elevated their bilateral relationship to a Strategic Partnership. The Joint Declaration identified trade and investment, connectivity, science and technology, tourism and other areas as important fields for deeper bilateral cooperation. The latest institutional development is the ongoing AITIGA review. India held the 13th AITIGA Joint Committee meeting from 6–10 July 2026, with representatives of all ASEAN member states, including Thailand. The Joint Committee directed the relevant sub-committees to accelerate work on outstanding issues, including customs procedures and trade facilitation, national treatment and market access, and rules of origin. As of August 2026, the comprehensive India–Thailand FTA has not been fully implemented as a standalone bilateral agreement.

Looking ahead, the future of India–Thailand economic relations will depend not only on preferential tariffs but also on improving market access, trade facilitation, connectivity, investment cooperation and production linkages. Policy literature has also discussed the possibility of a broader economic cooperation framework covering areas beyond merchandise trade. Such developments could help address existing trade imbalances and unlock the substantial potential for further India–Thailand trade and investment.

2. Literature Review

A great number of research studies explored the determinants of international trade through gravity models, regional trade agreements, and bilateral trade analyses. Studies related to India-Thailand economic ties can be grouped into three categories namely those analyzing bilateral trade, regional trade in ASEAN and BIMSTEC frameworks as well as gravity model-based research papers.

Several researchers have carried out studies focusing on bilateral trade between India and Thailand. Banomyong et al. (2011) found that India and Thailand increased their economic cooperation following the implementation of the Early Harvest Scheme (EHS), which

resulted in trade, investment, and tourism growth. The authors conclude that the absence of a bilateral free trade agreement affected the possibility to fully benefit from the agreements. Jitpiromsri (2016) argued that protectionist policies remained one of the principal factors constraining deeper bilateral trade liberalisation between the two countries. Chirathiwat (2013) highlighted that although India offers attractive opportunities for Thai investors, they face challenges arising from complexity of regulations, varying regional policies, and lack of knowledge about the market.

Mukherjee and Goyal (2016) discovered that despite growing commercial relations, physical connection, access to markets, and regulatory barriers still impede bilateral trade and investments. Marwah (2020) examined bilateral trade and Indian investment in Thailand during the periods 2001–2013 and post-2014 and stated that India and Thailand have a considerable potential to grow in bilateral trade and investments, especially in manufacturing, infrastructure, and services. Panda (2017) researched into India's Northeastern Region (NER) and concluded that inadequate transportation infrastructure, high transport costs and the lack of digital connectivity, institutional rigidities, and information asymmetry are some of the constraints of economic integration between India's eastern region and Thailand.

Several studies focus on India-Thailand trade within the wider context of regional economic cooperation, mainly ASEAN and BIMSTEC. Kabir and Salim (2010) estimated a gravity model with an expanded set of determinants and found that the size of the trading partners and institutions' quality have a positive impact on the bilateral trade of BIMSTEC members. Kaur and Sarin (2017) analysed trade creation and trade diversion effects between India and Thailand and concluded that regional trade liberalisation under BIMSTEC contributed positively to intra-regional trade.

Srisangnam et al. (2020) suggested that harmonization of the rules of origin and procedures would promote trade within the region. Chaipala (2021) emphasised the strategic importance of BIMSTEC in enhancing regional energy security and economic cooperation between India and Thailand. Bhardwaj et al. (2023) argue that there is a limited share of intra-industry trade in agricultural goods among BIMSTEC members and suggest that each member state should revise its trade policy to identify areas with the greatest potential for expansion, other researchers agree that BIMSTEC plays an essential role in regional economic integration and

trade facilitation. Specifically, Karmakar (2020), Kumar (2020), Rai, Paswan and Jha (2021),

and Bhatt (2016) demonstrate that BIMSTEC promotes connectivity, cooperation, and economic benefits for all participants.

Several researchers have also examined India–Thailand economic relations within the ASEAN framework. Choudhary (2013) and Masali (2016) discussed the importance of Thailand as a key player in ASEAN-India economic cooperation and highlighted the potential for expanding trade through improved regional connectivity and investment cooperation.

More recently, Huyen et al. (2025) undertook one of the most comprehensive analyses of India-Thailand bilateral trade. Using various international trade classification systems, their study revealed comparative advantage indicators, intra-industry trade indices, trade intensity parameters. Their study reports that India-Thailand bilateral trade has grown significantly in the last two decades with a growing share of manufactured products and intermediate inputs, which reflect the deepening of trade and production linkages between the two nations. However, the authors also observed that trade in high-technology products remains relatively limited, indicating scope for greater technological cooperation and industrial upgrading between the two countries.

Although there is plenty of international research on India–Thailand economic relations, the existing literature remains largely descriptive and policy-oriented mainly around trade trends, connectivity initiatives, and regional cooperation frameworks. Only a few studies integrate an econometric analysis of trade with a descriptive examination of investment relations using recent data to estimate both the long-run and short-run determinants of India-Thailand bilateral trade using the Autoregressive Distributed Lag (ARDL) approach. Furthermore, limited research combines econometric analysis of bilateral trade with a comprehensive descriptive assessment of bilateral investment trends.

Research Questions: This study seeks to address these gaps by examining the determinants of India–Thailand bilateral trade during the period 1990–2024 using a gravity model estimated through the ARDL bounds testing approach. In addition, the study complements the econometric analysis with a descriptive assessment of bilateral foreign direct investment (FDI) trends, thereby providing updated country-specific evidence on the evolving economic relationship between India and Thailand.

3. Econometric Methodology

To estimate the determinants of bilateral trade between India and Thailand, the study employs the Autoregressive Distributed Lag (ARDL) modelling framework developed by Pesaran and Shin (1999) and Pesaran, Shin, and Smith (2001). The ARDL approach is suitable for this study because it performs well with relatively small sample sizes and can be applied when the variables are integrated of various orders, I(0) and I(1).

The ARDL model also allows the simultaneous estimation of both short-run dynamic adjustments and long-run equilibrium relationships among the variables which makes it well suited for analysing bilateral trade study.

This study examines the determinants of bilateral trade between India and Thailand using annual data covering the period 1990–2024. The selected period captures major developments in economic cooperation between the two countries following India's economic liberalisation in the early 1990s. It also controls for major global and regional disruptions that exerted a substantial impact on international trade patterns, including the implementation of the India–Thailand Early Harvest Scheme (2004), the ASEAN–India Free Trade Agreement in Goods (2010), major global shocks, such as the 2008 Global Financial Crisis and the COVID-19 pandemic. These shocks provide the necessary empirical variation needed to separate short-run fluctuations from long-run trade trends.

Given the time-series focus on a single country pair, fixed structural factors like geographic distance and shared borders are omitted due to a lack of variation. because they remain constant throughout the sample period. Therefore, the empirical model focuses on the time-variant macroeconomic factors that impact bilateral trade.

Bilateral trade is represented by trade volume (TV) which aggregates the total exports and imports exchanged between India and Thailand. The study adopts the Gravity Model of Trade as its theoretical foundation. According to the gravity model, bilateral trade increases with the economic size of trading partners while decreasing with trade costs. Since geographical distance remains constant over time for India and Thailand, the combined economic size of the two countries is represented by the GDP product, calculated as the product of India's GDP and Thailand's GDP. Exchange rate movements are included to capture changes in international price competitiveness, while a dummy variable is incorporated to examine

whether the implementation of the Free Trade Agreement has significantly influenced bilateral trade. Accordingly, the empirical gravity specification is expressed as:

$$Trade_t = f\left(\left(GDP_{IND,t} \times GDP_{THA,t}, \ EXR_t, FTA_t\right)\right)$$

As the traditional gravity model is multiplicative, the variables are transformed into their natural logarithms to obtain a log-linear specification. Logarithmic transformation offers several econometric advantages. It stabilises the variance of the series, reduces the influence of extreme observations, control for heteroskedasticity, and establish an elasticity-based interpretation for the estimated coefficients.

The long-run gravity model estimated in this study is therefore specified as:

$$\ln(Trade_t) = \beta_0 + \beta_1 \ln\left(GDP_{IND,t} \times GDP_{THA,t}\right) + \beta_2 \ln(EXR_t) + \beta_3 FTA_t + \varepsilon_t$$

where: Trade denotes the bilateral trade volume between India and Thailand, GDP is gross domestic product of country India and Thailand, EXR denotes the bilateral exchange rate, FTA is a dummy variable taking the value of 1 for the post-Free Trade Agreement period during 2010-2024 and 0 otherwise

4. Results and Discussion

4.1. Unit Root Tests

The ARDL Bounds Testing approach requires that variables be integrated of order zero, I(0), or order one, I(1), but not order two, I(2). To ensure compliance with this property, ADF and PP unit root tests are executed to evaluate the stationarity profile of the data.

Table 1-2 represents the test results of unit root test using the Augmented Dickey-Fuller and Phillips-Perron methods. These tests indicate that all variables are non-stationary at levels. While the ADF test revels variables are non-stationarity after first differencing, the Phillips-Perron test indicates that all variables become stationary at first differences. Such differences are common in macroeconomic time-series studies with relatively small samples. The PP results are considered robust and given greater weight in determining the precise order of integration.

Table 1. Augmented Dickey–Fuller (ADF) Unit Root Test Results

Variable	Level ADF Statistic	p-value	First Difference ADF Statistic	p-value
lnTrade	-1.0185	0.9210	-2.4544	0.3969
lnGDP	-2.0565	0.5511	-2.1592	0.5113
lnEXR	-2.8452	0.2449	-2.9864	0.1908

Note: The null hypothesis of the ADF test is that the series contains a unit root (non-stationary).

Table 2. Phillips–Perron (PP) Unit Root Test Results

Variable	Level PP Statistic	p-value	First Difference PP Statistic	p-value
LnTrade I(1)	-5.1860	0.8023	-30.2750	0.010**
LnGDP I(1)	-6.7949	0.6982	-25.2020	0.010**
LnEXR I(1)	-12.6590	0.3184	-22.0710	0.0177**

Note: The null hypothesis of the PP test is that the series contains a unit root (non-stationary). ** denotes significance at the 5% level.

Lag Length selection: The optimal lag structure was determined using the Information Criterion with a maximum lag length of two. The selected ARDL model is ARDL(1,2,0,1)

4.2 Long-Run ARDL Estimation

An ARDL approach was employed to examine the long-run cointegrating dynamics among bilateral trade, the combined economic size of India and Thailand, the bilateral exchange rate, and the Free Trade Agreement (FTA). Table 3 presents the estimated long-run coefficients derived from the ARDL model. The results show the combined economic size of India and Thailand has a statistically significant positive effect on trade volume with 1% increase in the combined GDP of the two countries increases long-run bilateral trade 1.125%. The findings reveal that the joint economic mass of India and Thailand is a positive and statistically significant determinant of bilateral trade volumes. An elasticity greater than one implies that trade responds more than proportionately to changes in the combined economic size of the two nations. This finding is consistent with the Gravity Model of Trade, which argues that larger economies generate greater production capacity, higher income levels, and stronger demand for international trade. As both India and Thailand experience economic growth, production expands, consumer purchasing power rises, and firms engage more actively in cross-border trade, thereby strengthening bilateral trade relations.

The exchange rate also significantly affects the trade performance. This is also evident in the

results which exhibits a negative and statistically significant long-run relationship with bilateral trade. The estimated coefficient implies that a 1% increase in the bilateral exchange rate reduces trade by approximately 1.87%. India consistently imports more goods from Thailand than it exports. A weaker rupee increases the cost of these imports and raises production costs for domestic industries. Therefore, exchange-rate depreciation is more likely to reduce bilateral trade than stimulate it.

The Free Trade Agreement (FTA) dummy variable has a positive but statistically insignificant coefficient in the long run. This finding reflects the slow progress in concluding and implementing FTA, the limited product coverage of the Early Harvest Scheme, the existence of non-tariff barriers has been limiting trade growth between two nations. Which indicates that trade flows expanded primarily because of sustained economic growth of these two nations.

Table 3. Long-Run ARDL results

Variable	Coefficient	Std. Error	t-Statistic	p-value
GDP Product	1.125	0.103	10.906	0.000
Exchange Rate	-1.871	0.614	-3.047	0.005
FTA	0.337	0.300	1.123	0.272
Constant	-38.199	5.369	-7.114	0.000

4.3 ARDL Short-run dynamic: captures both the short-run and long-run effects among the variables (Shrestha and Bhatta, 2018) and the speed at which deviations from the long-run equilibrium are corrected.

As reported in Table 4, The negative and statistically significant error correction term (ECT) (−0.3950, p = 0.0036) confirms a stable, long-run cointegrating relationship among the variables, indicating that 39.5% of short-run disequilibrium is corrected within one year with moderate speed of adjustment towards long-run equilibrium,

In the short run, changes in the combined GDP of India and Thailand have a statistically significant positive effect on bilateral trade, whereas the Free Trade Agreement (FTA) remains statistically insignificant. In summary, the ECM results suggest that bilateral trade experiences temporary fluctuations due to short-run shocks. Moreover, it gradually returns to its long-run equilibrium, supporting the validity and stability of the estimated ARDL model.

Table 4. Short-run coefficient and the ECT

Variable	Coefficient	Std. Error	T Statistic
Short run Coint(Eq1)	-0.395	0.123	-3.212
ΔGDP	0.904	0.158	5.726
Δ EXR	-0.739	0.228	-3.246
Δ FTA	-0.049	0.132	-0.375

The ARDL Bounds Test produces an F-statistic of 4.333 which exceeds the critical lower bound and provides evidence of a stable, long-run relationship linking bilateral trade to economic size, exchange rates, and the FTA framework.

Table 5. ARDL Bounds Cointegration Test

Test Statistic	Value
F-statistic	4.333
Decision	Evidence of Cointegration

The study conducted comprehensive diagnostic checks to validate the statistical properties and robustness of the estimated ARDL-ECM specification. These tests examine evaluated the residuals for serial correlation, heteroscedasticity, non-normality, and functional form misspecification Specifically, the Breusch–Pagan test was employed to assess homoscedasticity, the Jarque–Bera test to examine the normality of the residuals, the Breusch–Godfrey LM test for second-order serial correlation, and the Ramsey RESET test for functional form misspecification. Table 6 presents the null hypotheses and the empirical results of these diagnostic tests.

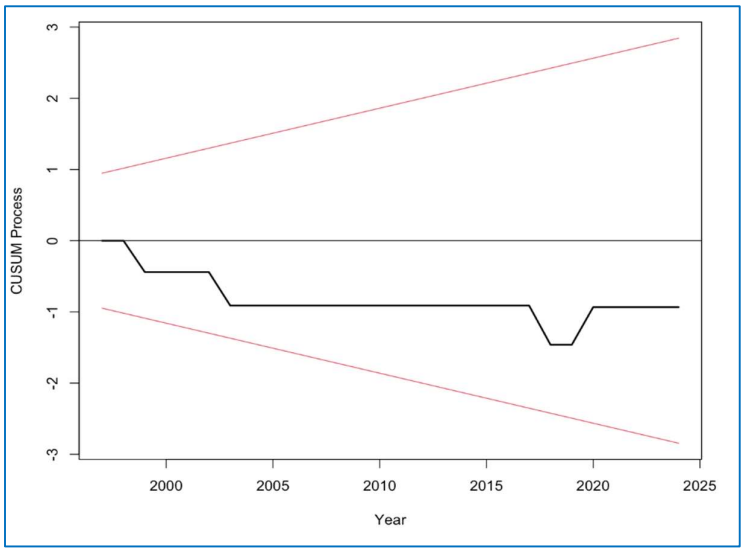
The Breusch–Pagan test confirms that the residuals are homoscedastic, indicating the absence of heteroscedasticity. The Jarque–Bera test suggests that the residuals are normally distributed. Similarly, The Breusch–Godfrey LM test indicates no signs of residual serial correlation up to two lags, while the Ramsey RESET test confirms that the estimated ARDL model is free from functional form misspecification

Table 6. Diagnostic test results.

Diagnostic Test	Test Statistic	p-Value
Breusch–Pagan heteroskedasticity Test	8.501	0.291
Jarque–Bera Normality Test	0.948	0.623
Breusch–Godfrey serial correlation Test (2 lags)	4.584	0.101
Ramsey RESET Test	0.027	0.974

Figure 3 The Recursive CUSUM test indicates that the estimated coefficients remain stable at 5% confidence level throughout the sample period.

Figure 1 The Recursive CUSUM



5. Thailand's Foreign Direct Investment (FDI)

Foreign direct investment (FDI) has played an important role in Thailand's economic development by supporting industrialisation, export expansion, and integration into global value chains. Thailand remains a top-tier investment destination in Southeast Asia. Beyond its traditional capacity as an FDI recipient, it has simultaneously emerged as a dominant source of outward FDI (OFDI) within the ASEAN bloc.

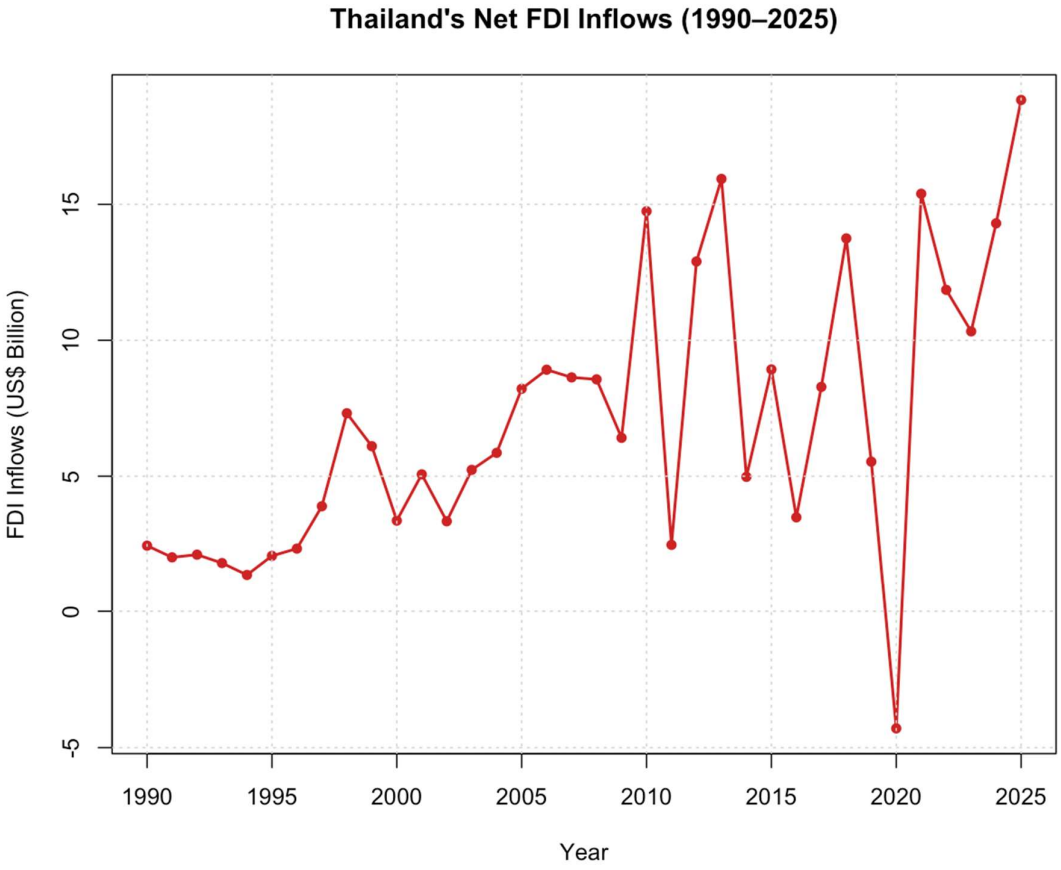
The country is the largest automotive exporter in Southeast Asia and has emerged as a key production hub for global automobile manufacturers. It is also the world's second-largest producer of hard disk drives (HDDs). Furthermore, the nation is ranked among the world's leading biodiesel producers.

According to UNCTAD's World Investment Report 2025, Thailand received approximately US$10.58 billion in FDI inflows in 2024. Under its ambitious 2026 agenda, The Thai government has extended its 'Year of Investment' initiative into 2026, targeting THB 900 billion to THB 1 trillion in realized FDI.

Manufacturing continues to account for a significant share of foreign investment, particularly in automobile and electronics industries. However, the composition of FDI has gradually

shifted towards emerging sectors. In 2024, investment in data centres and cloud computing exceeded traditional leading sectors such as electronics and electrical appliances which reflects Thailand's efforts to attract digital and technology-oriented investment.

Thailand's Board of Investment (BOI) has implemented Thailand Investment Promotion Strategy (2023–2027). The strategy focuses on attracting investment in high-technology, innovation-driven, and environmentally sustainable industries, including electric vehicles (EVs), smart electronics, digital industries, and green technologies. Investment incentives are also promoted through Special Economic Corridors (SECs) and Special Economic Zones (SEZs), which aim to encourage regional development and strengthen Thailand's role in international production networks



6. India's Foreign Direct Investment (FDI)

Foreign direct investment serves as an essential pillar of India's economic expansion. Since economic liberalization, India has seen a steady rise in Foreign Direct Investment (FDI),

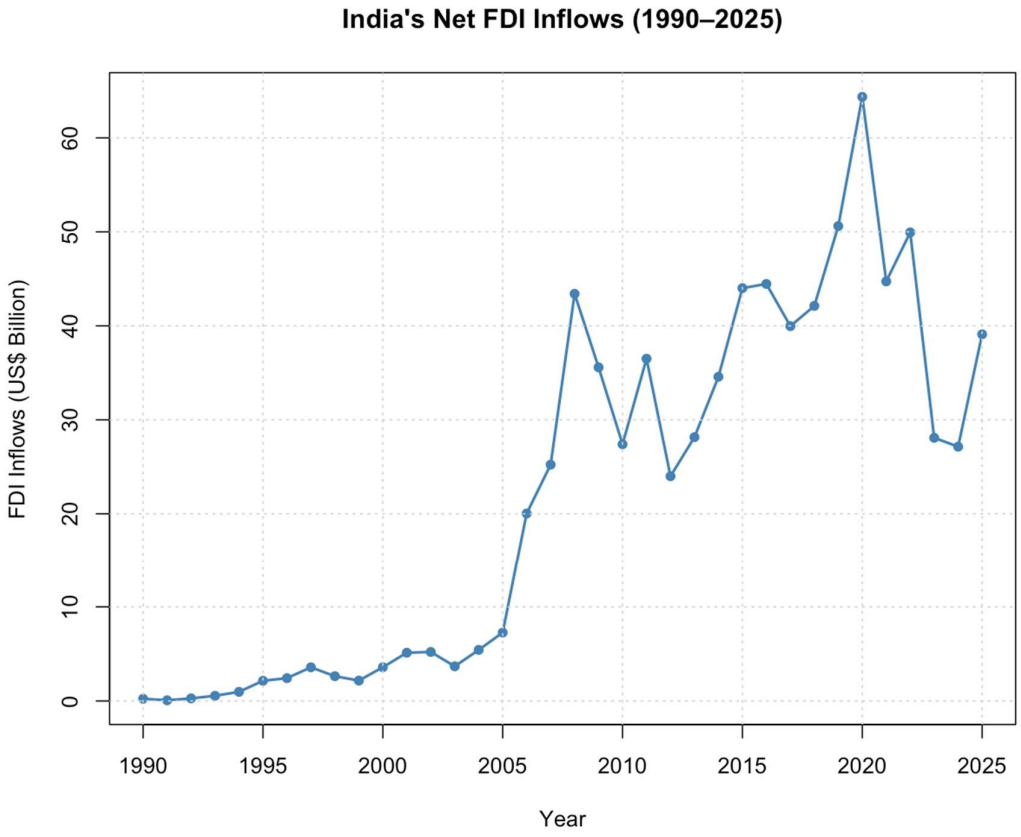
making it a cornerstone of foreign capital. FDI serves as a catalyst for tech transfer, critical sector growth, innovation, market competition, and job creation.

FDI in developing India is evolving. Traditional manufacturing sectors like electronics, automotive, and machinery still lead, but capital is rapidly shifting to high-tech and digital industries. Driven by major investments from American tech giants like Amazon, Google, and Microsoft, digital infrastructure and services across India experienced significant expansion. This growth was driven by new hyperscale data centres, with India attracting the largest share of capital.

The implementation of the Goods and Services Tax (GST) has simplified the domestic tax structure, improved transparency, and reduced interstate transaction costs. Special Economic Zones (SEZs) also continue to provide infrastructure support, fiscal incentives, and a favourable regulatory environment for export-oriented investment. India rolled out targeted national initiatives such as Make in India programme, Production-Linked Incentive (PLI) schemes, Start-up India, and the National Industrial Corridor Development Programme to stimulate foreign and domestic investment in critical sectors like electronics and semiconductor manufacturing.

A recent trade report from the United Nations reveals that India climbed two positions to become the 11th-largest global destination for foreign direct investment. This advancement follows a remarkable 44% year-on-year surge, bringing total FDI inflows to $38.89 billion in 2025. FDI inflows have expanded across diverse sectors, with cumulative inflows since April 2000 exceeding US$1.16 trillion. These investments demonstrate India’s increasing integration into global production networks and its growing attractiveness as an investment destination.

Although total FDI inflows expanded to USD 39 billion, forward-looking project indicators pointed toward a more conservative investment cycle. Announced greenfield investment projects experienced a notable contraction, with capital commitments falling from an estimated US$111 billion in 2024 to US$74 billion in 2025. The observed investment slowdown was heavily concentrated in manufacturing activities, as the total value of newly announced projects dropped from about USD 65 billion in 2024 to USD 27 billion in 2025. This slowdown reflects broader global challenges, including tariff uncertainty, supply-chain restructuring, geopolitical risks, and weaker international investment sentiment.



7. India–Thailand Investment Relations

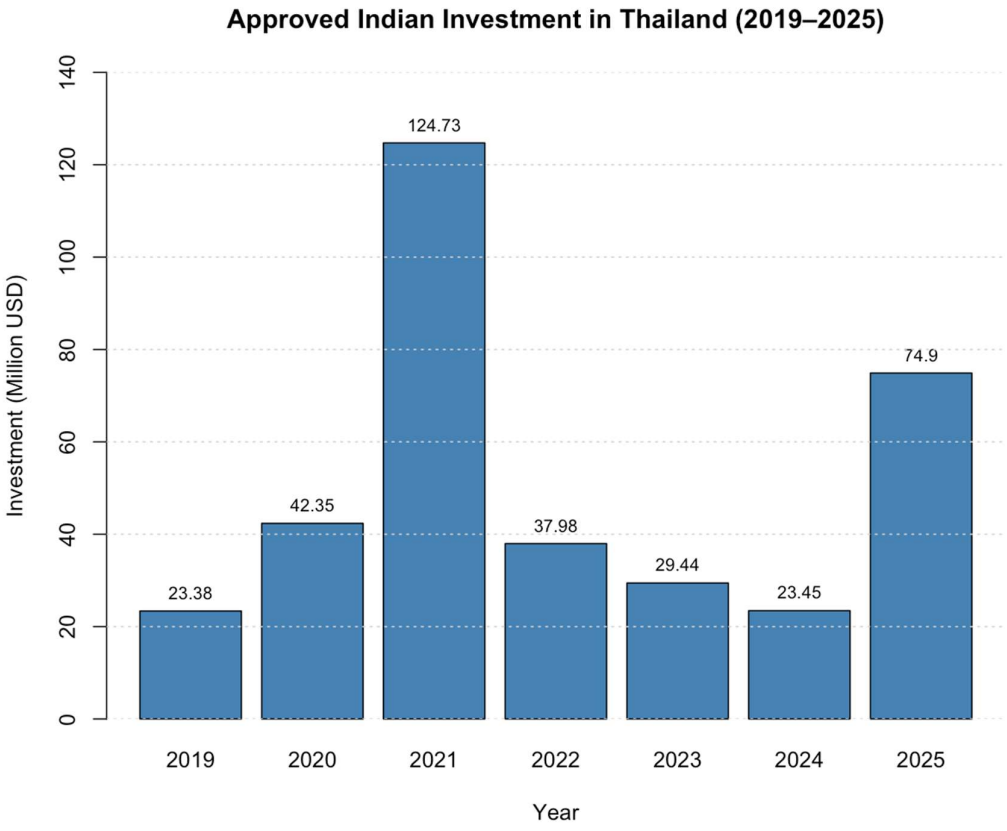
7.1 Indian Investment in Thailand

Indian investment in Thailand has remained relatively stable but fluctuated significantly across years. According to Thailand's BOI, investments rose from US$23.38 million in 2019 to a peak of US$124.73 million in 2021, then dropped to US$29.44 million in 2023. This trend reflects a shift in priorities and Thailand’s evolving industrial strategy.

A wide range of Indian companies have established operations in Thailand, including Tata Group (Tata Steel Thailand and Tata Consultancy Services), Apollo Tyres, Dr. Reddy's Laboratories, Tech Mahindra, Aditya Birla Group, Polyplex, Kirloskar, Larsen & Toubro, Royal Enfield, SRF Industries, Torrent Pharmaceuticals, Indian Overseas Bank, Data centres, and several other firms operating across pharmaceuticals, automotive components, chemicals, engineering, financial services, and information technology. These investments have strengthened industrial cooperation and enabled Indian firms to utilise Thailand as a regional production and export platform for ASEAN markets.

Image: Approved Indian Investment in Thailand (2019–2025)

Source: Thailand Board of Investment (BOI)



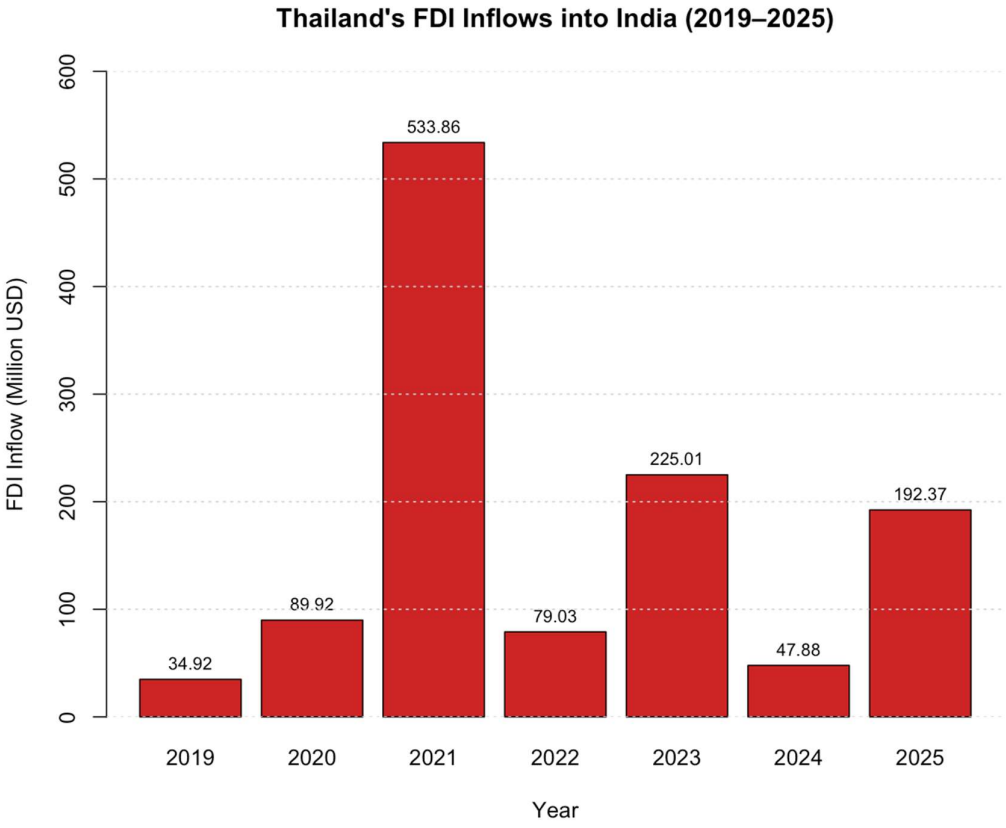
The figure indicates that Indian investment in Thailand experienced a sharp increase in 2021, mainly supported by investments in manufacturing and industrial activities. However, investment declined after 2021 as global uncertainty, higher financing costs, and supply-chain disruptions affected international investment decisions. The subsequent recovery in 2025 suggests renewed investor confidence, particularly in technology-oriented sectors and industries linked with regional value chains.

7.2 Thailand Investment in India

Investment from Thailand into India has expanded considerably, supported by India's large domestic market, manufacturing opportunities, and investment reforms. Thai companies have invested mainly in infrastructure, renewable energy, food processing, electronics, automotive components, hospitality, and real estate.

Image: Thailand FDI Inflows into India (2019–2025)

Source: DPIIT, Ministry of Commerce and Industry, Government of India



Thai investment in India shows greater volatility compared with Indian investment in Thailand, mainly because of large individual projects. The substantial increase in 2021 was primarily driven by Global Renewable Synergy Co. Ltd.'s investment in India's renewable energy sector. Despite fluctuations, the continued presence of Thai firms demonstrates confidence in India's long-term growth prospects and expanding manufacturing ecosystem.

Thai investment in India has followed a relatively stronger upward trajectory. FDI inflows increased from US$34.92 million in 2019 to US$533.86 million in 2021, largely due to Global Renewable Synergy Co. Ltd.'s investment of over US$453 million in India's renewable energy sector. Although inflows moderated subsequently, Thailand continues to invest actively in infrastructure, electronics, automotive components, agro-processing, hospitality, renewable energy, food processing, and real estate. Major Thai investors include

Charoen Pokphand Group, Siam Cement Group (SCG), Delta Electronics, Thai Summit Group, Srithai Superware, Indorama Ventures, Italian Thai Development, Dusit Hotels, and Global Renewable Synergy, reflecting the broadening scope of bilateral investment cooperation.

Recent policy initiatives in both countries are expected to strengthen future investment flows. India's Production-Linked Incentive (PLI) schemes, Make in India, and improvements in the ease of doing business have created new opportunities for Thai manufacturers in sectors such as electronics, automotive components, chemicals, machinery, and renewable energy. Similarly, Thailand's BOI continues to promote investment through generous tax incentives, streamlined approval procedures, and support for strategic industries including electric vehicles, artificial intelligence, advanced electronics, digital services, and biotechnology. These complementary policy frameworks provide favourable conditions for deeper bilateral investment integration and stronger participation in regional value chains.

8. Conclusion and Policy Implications

This study examined the determinants of bilateral trade relations between India and Thailand over the period 1990–2024 and the evolution of investment during period 2019-2025. The gravity model was applied to investigate the relationship between the India and Thailand bilateral trade, using the Autoregressive Distributed Lag (ARDL) Bounds Testing Approach, and the investment relationship was analysed using descriptive trends in bilateral foreign direct investment (FDI) for the same period. When analysing the trade structure between the two countries, this study confirms the existence of a stable long-run relationship among bilateral trade, the combined economic size of India and Thailand, the bilateral exchange rate, and the ASEAN–India Free Trade Agreement (FTA). The negative and statistically significant error correction term (ECT =−0.395) indicates that approximately 39.5% of short-run disequilibrium is corrected annually, suggesting a moderate speed of adjustment towards long-run equilibrium in bilateral trade flows.

The empirical results show that the combined economic size of India and Thailand has a positive and statistically significant effect on the trade volume between the two countries, consistent with the gravity model of international trade. the study also indicate that bilateral exchange rate has a significant negative effect in both the short run and the long run. The results suggest that the exchange rate movements reduce bilateral trade by altering the

relative prices of traded goods. A positive coefficient was observed for the ASEAN–India FTA, which however, was found to be statistically insignificant, suggesting that macroeconomic fundamentals have played a more important role in shaping bilateral trade than the trade agreement itself. Diagnostic tests further confirm that the estimated ARDL model is statistically robust and stable.

The investment analysis indicates that bilateral investment relations have strengthened over time, although investment flows have remained uneven. Thai investments in India have consistently been higher and more diverse than Indian investment in Thailand. This can be explained by India's vast domestic market, ongoing economic reforms, and incentives for foreign investors, especially through flagship programs such as Make in India and the Production-Linked Incentive (PLI) schemes. Indian investments in Thailand has remained concentrated in manufacturing, pharmaceuticals, information technology, and automotive industries, while Thai investments in India are growing exponentially in digital technologies, data centres, electronics, and green industries. These developments suggest that bilateral investment complements trade by strengthening production linkages and supporting deeper economic integration.

The findings of this study can contribute towards formulating policy recommendations. First, as the analysis has revealed a positive impact of the economic size on trade, both countries should continue to promote sustained economic growth through investment, industrial upgrading, technological innovation, and productivity improvement. Second, maintaining a stable exchange rate environment should remain a policy priority to minimise adverse effects on trade competitiveness. Third, there is a need to facilitate the implementation of the ASEAN–India FTA by reducing non-tariff barriers, simplifying customs procedures, strengthening logistics connectivity, and promoting digital trade facilitation.

Besides developing a high-quality investment policy, both nations need to promote bilateral investment in high-value manufacturing, electronics, electric vehicles, renewable energy, pharmaceuticals, digital technologies, and advanced manufacturing. Strengthening investment cooperation allow technology transfer, improving supply chain, and creating new opportunities for bilateral trade. Additionally, it is essential to develop and effectively utilise existing regional and bilateral platforms, including ASEAN, BIMSTEC, and the India–Thailand Joint Trade Committee to improve connectivity, facilitate investment, and promote private-sector collaboration.

Overall, the findings indicate that economic growth and exchange rate changes are the key factors influencing India-Thailand bilateral trade. Moreover, expanding bilateral investment provides an important complementary channel for strengthening long-term economic cooperation. It is recommended to continue promoting economic growth, maintain exchange-rate stability, improve trade facilitation, and deepen investment partnerships for enhancing bilateral trade and advancing economic integration between India and Thailand.

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