

Examining the Regional Economic Integration: An Analysis of Cross Border Trade Among ASEAN, China, and India

A Thesis

**Submitted to the Master's Study Program of Economics at the Faculty
of Economics and Business in partial fulfillment of the requirements
for the degree of**

Master of Arts (M.A.)



by:

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UNIVERSITAS ISLAM INTERNASIONAL INDONESIA

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ABSTRACT

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Regional economic integration has been studied since the late 20th century, when global markets became freer. ASEAN, China, and India are key players in the current political, economic, and infrastructural scene. These regions have had economic development, but globalization has brought geopolitical difficulties, regulatory hurdles, infrastructural issues, trade patterns, trade policies, environmental issues, and social issues. This extensive study examines the many factors affecting economic integration in various regions. Using quantitative gravity model with Panel Data analysis over time period of 1999 to 2023, and empirical literature studies to analyse trade flows, trade policies, and the role of international trade organization on regional economic integration. Trade statistics, FDI flows, economic indicators, literature reviews, case studies, and data analysis are used to understand the contextual elements affecting regional economic integration and cross-border trade. Engagement with stakeholders improves data accuracy and policy direction. Cross-border trade and important players' roles are examined to assess multi-regional integration and economic growth, as well as the obstacles and design an innovative complete policy for the coming economic size. Whether bilateral or multinational, free trade agreements strengthen long-term cooperation over competition. ASEAN, China, and India have great economic and strategic potential, according to this analysis. ASEAN's middle-class population is expected to quadruple to 630 million, whereas China and India represent 2.87 billion people. The region could become the fourth-largest economy by 2030 due to its strength. Thus, regional economic integration increases trade volume and reduces geopolitical tensions, promoting mutual understanding and advantageous trading patterns. The findings provide crucial insights for governments, companies, and researchers managing regional economic interconnectivity.

Keywords: *Regional Economic Integration, Cross Boarder Trade, FTAs, Trade flows, FDI, the Regionalism Theory, Gravity Model*
JEL Classification: *F13, F14, F15, C23*

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ABBREVIATION DIRECTORY

ASEAN	The Association of Southeast Asian Nations
FTAs	Free trade Agreements
AEC	ASEAN Economic Community
BRI	Belt and Road Initiative
RCEP	Regional Comprehensive Economic Partnership
FDI	Foreign Direct Investment
AICEC	ASEAN-India comprehensive Economic Cooperation
ACCEC	ASEAN-China comprehensive Economic Cooperation
AEC	ASEAN Economic Community
PTAs	Preferential Trading Arrangements
CEPT	Common Effective Preferential Tariff
TC	Trade Creation
TD	Trade Diversion
LDC	Less Developed Countries
NIC	Newly Industrializing Countries
NIE	Newly Industrializing Economies

Chapter 1

Introduction

1.1. Background

Regional economic integration has become a prominent topic recently, as emerging economies experience rapid growth and open up international trade markets (Anshari & Ali, 2023). According to Balasa, the difference between economic integration is quantitative and qualitative, where cooperation requires action with the aim of less discrimination. Additionally, it conveys the formation and application of coordinated and standard policies on sufficient scales to ensure that primary economic and welfare objectives are achieved (Balassa, 2011). This has led to a vast amount of theoretical and empirical literature exploring the impact of trade on economic growth (Plummer, 1997). Moreover, there is a growing interest in understanding the effects of regional integration on economic development, particularly in terms of convergence of per capita GDP (Jose & Samudra, 2022; Shimizu, 2021). Considering the country's desire for growth and the ultimate objective of economic activity is an increase in welfare. Thus, decades-long economic integration has become central to regional studies (Liu et al., 2023).

The late 20th century witnessed a significant shift towards a more liberal and progressive world order, exemplified by the rise of the World Trade Organization (WTO) and the expanding China's export market to the rest of the world. Simultaneously, Southeast Asian (ASEAN), South Asian countries, and Sub-Saharan African nations practiced substantial economic growth. Regional economic integration serves as a development pattern that fosters economic growth enhances trade relations, and promotes overall development; this phenomenon is primarily manifested when countries within a particular region collaborate, treating the region as a unified whole and sometimes relinquishing part or all of their economic sovereignty. At the same time, in the 2000s, China revealed its capability, and the transformation and expanding economic and political influence, despite being strongly hit by COVID-19 in ASEAN and other regions, led to heightened tensions, prompting questions about how nations can benefit from this evolving landscape. As countries become increasingly interconnected, regions like ASEAN, China, and India

emerge as pivotal players, each wielding its unique geopolitical, economic, and infrastructural dynamic (Chia & Sussangkarn, 2006; Liu et al., 2023).

The empirical literature on the effects of regional economic integration, particularly in the regions of ASEAN, China, and India, has intensely focused on examining the trade-creating impact of regional trade agreements. However, there is still a need for more research on the economic growth and convergence effects of regional integration in these regions. Further research is needed to understand how regional economic integration in ASEAN, China, and India leads to convergence in terms of per capita GDP and overall economic development (Pretorius et al., 2017).

Nonetheless, following Deng Xiaoping's policy of concealing capabilities and adopting a careful approach (Xiaoping, 2012), these regions have become the engines of the world's economic growth in the post-pandemic world. Nevertheless, even as countries regain a semblance of normality, they still struggle with the repercussions of the COVID-19 pandemic. Thucydides warned in his account of the Peloponnesian War that the powerful often impose their conditions while the vulnerable suffer the consequences of their actions. In this complex landscape, interconnected international cooperation becomes more important than competition. Planet-level challenges such as pandemics, climate change, and global crises affect everyone, and no single nation can tackle these alone. Thus, multilateralism, not unilateralism, is the path forward. As ASEAN, China, and India navigate their roles in this interconnected world, fostering collaboration and shared solutions is essential for long-term sustainability, guiding us on the regionalism theory. By the end of the day, regional economic integration and cross-border trade among nations can develop collective well-being.

Enhancing the free trade region to eliminate discrimination, customs unions, and economic size disparities and navigating today's global trade complexities can be the most transformative factors in deploying a comparative analysis of the advantages and benefits of a larger, regionally integrated economic market for the 10+2 countries. ASEAN, characterized by its well-established frameworks for economic cooperation, serves as a beacon of successful regional integration in Southeast Asia. Meanwhile, China's economic ascendancy and strategic initiatives have positioned it as a central hub for trade within the Asia-Pacific region, significantly influencing regional economic dynamics. With its diverse trade policies, infrastructural developments, and geopolitical considerations, India presents a complex mosaic of opportunities and challenges for economic integration within South

Asia. The concept of ASEAN-China and ASEAN-India demonstrates their increasing economic interdependence and collaborative efforts in the region for cross-border trade growth among them as bilateral trade for ASEAN-China has reached USD 685.28 billion (AMRO, 2022), on the other hand, ASEAN-India bilateral trade has reached USD 131.5 billion (Investing India, 2022).

China is an awakened dragon; China, as the world's second-largest economy, reshapes global economic integration and cross-border trade, and its meteoric rise in the investment landscape, supply chain, and trade corridors has reshaped the world despite the COVID-19 crises; the growth continued as strong as past. Its Belt and Road Initiatives (BRI) extend tendrils across the continent as a bridge of connection for trade and culture. India is a contrast, balancing the vibrant democracy, burgeoning middle class, and tech-savvy workforce contribute significantly to economic growth. India's Look East Policy aligns with synergized economic fostering to Asia and the world. Although the research on economic reform in developing countries is impressive, China and India's reintegration impacts cross-border trade and economic integration in the region (Chia, 2013). The economic integration between ASEAN, India, and China is influenced by China's rise, impacting India's strategic partnership with ASEAN and offering opportunities for ASEAN's economic and strategic benefits (Gurunathan & Moorthy, 2021). Increased trade integration between ASEAN, China, and India leads to synchronized business cycles, impacting prospects for a unified regional currency primarily through intra-industry trade (Etty Puji Lestari, 2012).

Significant developments have unfolded in the past year; several initiatives are underway toward achieving regional economic integration in these regions and Asia. ASEAN continuously seeks further economic development while remaining committed to the Paris Agreement. Among these agreements between the ASEAN regional grouping and India (AICEC) and China (ACCEC), this framework has been signed for all the initiatives (Batra, 2007). While regional integration continues to deepen in the ASEAN region, regional cooperation efforts are likely to become more challenging as remaining areas of sustainability and green financing. For example, ASEAN needs USD 27 billion in renewable energy to achieve the 23% primary energy supply targets by 2025, although they only attracted USD 8 billion from 2016 to 2021. In this subsidy, China, through the BRI, and India, through the Energy Poverty Alleviation project, has carried out other reforms with ASEAN governments, such as promoting energy efficiency and energy security through increasing the renewable energy share, and reforms to achieve the right mix of

power generation, including the option of using nuclear energy in the future. Therefore, in many ASEAN countries, China and India are on the right track with the policy they have embarked upon (ASEAN Prosperity Initiative, 2022).

The ASEAN Economic Community (AEC) -2015 has built a very diverse and appropriate group to reflect ASEAN regional economic integration as an “open regionalism approach,” with regions at various stages of economic development and economic power, and with different political systems, ethnicities, and cultural backgrounds, including China and India. Thus, how does regional economic integration, influenced by variations in geopolitical factors, trade policies, and infrastructure investment, impact intra-regional trade volume, bilateral trade flows, and market access within ASEAN, China, and India? The ASEAN economic journey has moved from voluntary liberalization under the Preferential Trade Agreement in 1970 to the ASEAN Free Trade Agreement (AFTA) in 1990, laying the foundation for an integrated investment region through the ASEAN Comprehensive Agreement with China, India, and other areas in the Asia Pacific onward. Hence, these steps were taken to challenge the nations for economic growth in the region beyond political rhetoric. AEC 2015 has also been pragmatic in its economic integration approach; it was clear that the grouping was not aiming to be a customs union, but as of today, it has adopted a regionalism grouping approach and contributed positively to the region’s economic growth(Maria et al., 2017). This phenomenon has introduced a novel aspect to international economic negotiations, which is specific to have significant implications for the management of global trade policy (Dayaratna Banda & Whalley, 2005)

It must be emphasized that ASEAN, China, and India can leverage the strengthening ties with major powers for mutual economic and strategic gains and demographic strength. ASEAN represents a combined market of over 630 million people, and by 2030, an estimated 50% of ASEAN’s population is projected to join the middle-class ranks, effectively doubling the size of the region’s middle-class population compared to 2020. On the other hand, both China and India combine markets of over 2.87 billion people. The area is projected to become the fourth-largest economy by 2030, trailing only the United States, China, and India (ASEAN Prosperity Initiative, 2022; Liu et al., 2023). While China remains the largest economy in the region, with approximately \$17,963.20 billion in GDP in 2022, India and ASEAN contribute significantly to Asia’s economic landscape. ASEAN’s combined gross domestic product (GDP) exceeded USD 3.6 trillion,

and India's gross domestic product is approximately \$ 3,385.09 billion as of 2022 (ASEAN, 2022).

However, despite their inherent strengths and potentials, the ASEAN, China, and India regions grapple with many obstacles hindering deeper economic integration. These challenges span from geopolitical tensions and regulatory barriers to infrastructural deficiencies, underscoring the need for a nuanced examination of cross-border trade dynamics and market access mechanisms within and between these regions

1.2. Problem Statement

While the world might have started focusing on this region late, it has the added advantage of its historical linkages in the ancient, medieval, and modern history with the moderately rich economic interplay. This reflects shared values, traditions, texts, architecture, culture, cooperation, and regional integration. In an era marked by cooperation integration, regional economic integration, and shifting global economic dynamics, the question arises of how this influence will shape the economic ties considering both intra-regional trade (within ASEAN, between China and India) and extra-regional trade (with other global partners).

As these regions become comprehensive strategic partners, there are still technical and quite strategic problems to look forward to deepening the ties in five broad areas. Geopolitical factors, trade policies and infrastructure gaps, environmental sustainability concerns, and the need for digital transformation have significant Tensions between major powers and affect regional cooperation. ASEAN-China, to the effect of COVID-19 issues as non-tariff barriers, supply chain, and quality assurance, has created a significant market gap. On the other hand, the obstacles with ASEAN-India are more the infrastructure gaps, skill mismatches, and trade imbalance. Moreover, China and India's persistent trade deficits and infrastructure connectivity issues have posed significant challenges. Nonetheless, there are limited financial services in the regional growth due to a need for measurement in the agreement for economic integration. To tackle these complex challenges, it is necessary to implement thorough measures, make policy changes, and strengthen collaboration among ASEAN, China, and India. This will facilitate economic integration and encourage cross-border trade dynamics, which is the main focus of the comparative analysis on regional economic integration (Chiang, 2019; Sudan, 2022; WB, 2023).

Despite the rapid growth, each region has geopolitical and trade policies, economic integration concerns, and challenges. Previous studies show that economic growth alone cannot significantly balance welfare and social development. The problem statement highlights the link between ASEAN, China, and India regarding these challenges. This research question addresses the sustainable transformation in achieving deeper economic integration and cross-border trade growth. Through cross-border trade development in the current times, understanding the consequences of financial integration on intra-regional trade, economic size, and development's impact on FDI flows, as well as examining regional cooperation that can improve global partnership and long-run resilience. This connection guarantees that the research problems are predicated on the practical and strategic issues outlined in the problem statement, making it easier for the author to conduct a focused and pertinent study.

1.3. Research Questions:

Against the backdrop, the study intends to answer the following questions:

1. How do China and India contribute to economic integration and cross border trade within ASEAN?
2. How does FDI affect trade among ASEAN, China, and India?
3. Do FTAs and geopolitical factors affect trade cooperation among ASEAN, China, and India?

1.4. Research Objectives:

The main objectives of this study are indicated below:

1. To examine the impact of Regional economic integration and the current dynamic of cross-border trade among ASEAN, China, and India.
2. To examine how FDI influence economic attractiveness and trade flows among ASEAN, China, and India.
3. To assess the effectiveness of Trade agreements and impact of geopolitical factors in promoting long-term economic growth, interdependence, and resilience.

1.5. Research Hypothesis:

The following hypotheses are developed based on the research questions and objectives:

H1: The cross-border trade volumes have a significant impact on intra-regional trade among ASEAN, China, and India, driven by regional economic integration.

H2: The economic size, level of FDI and growth in ASEAN, China, and India have a significant impact on trade, moderating the effect of geopolitical tensions on cross-border trade dynamics.

H3: Free trade agreements and geopolitical factors significantly impact trade and strengthen long-term cooperation over competition

1.6. Significance of the Study:

Every study is expected to be helpful and illuminate a new era of the findings. The economic landscape of Asia is undergoing a dramatic transformation, fuelled by regional economic integration initiatives like those between ASEAN, China, and India. The research seeks to assess multi-regional integration and economic growth through the lens of cross-border trade and the roles of significant players while also evaluating the challenges to developing an innovative, comprehensive policy for the forthcoming economic size. By fostering dialogue on economic integration, geopolitics, and trade dynamics within the regions, the study contributes to a deeper understanding of geopolitical factors volume over the bilateral trade flows and market access for the ASEAN within India and China.

The variables of this study are highly competitive and align with the hypotheses and objectives based on an econometric model. The research questions were answered through econometric statistical analysis and a qualitative descriptive study of the current situation and economic trends. This combined approach examines current and past growth and cooperation to help stakeholders reach better conclusions.

The significance of this study lies in its comprehensive analysis of the policy implementations and their impact on intra-regional trade volume, bilateral trade flows, and market access within these regions. This study examines how China and India influence regional integration through ASEAN into the broader world, focusing on interactions within regions as economic interdependencies are uncovered. Furthermore, the study

considers the political economy both nationally and regionally. While recognizing these processes within international systems, this project also explores their domestic implications. The research also points to the potential for financial cooperation and advancement in the Asian region while stressing that not competition but cooperation is the best way forward for nations because such problems as pandemics, climate change as well and trade imbalances are global in nature and cannot be addressed by a single country. This study aims to contribute to long-term improvement and collaboration in the region by investigating the economic patterns behind integration, trade, and policy impact on the economy. Additionally, a detailed examination of how trade agreements and policies are implemented gives an idea of how effective the measures adopted in Regional economic integration efforts are.

This research will assist a diverse range of shareholders and stakeholders. Scholars and academics can use the findings to advance theoretical frameworks and empirical research on regional economic integration and trade dynamics. ASEAN, China, and India's governments can benefit from the findings by enhancing a new policy, addressing the trade imbalance, and looking beyond the trade. In these regions, investors and entrepreneurs can use the research to find avenues for growth and penetration. In contrast, international organizations and other stakeholders utilize it to stimulate sustained economic growth despite worldwide threats. The primary purpose of this study is to promote a deeper understanding of regional economic integration and its implications for cross-border trade and provide workable solutions.

1.7. Study Outline

To provide a clear picture of the study and discussion, the author has divided the study into sub-chapters with the following systematic. The first chapter is the introduction; it contains the background of the study, including problem formulation, limitations, research objectives, research significance, research questions, research hypothesis, and writing structure. The second chapter of the dissertation is devoted to the literature review. It overviews relevant academic works and identifies key concepts and definitions related to regional economic integration and cross-border trade with a comprehensive analysis of policy overlooks within the ASEAN, China, and India. Additionally, this chapter highlights the existing gaps in the literature, which will help the reader to understand the significance of the current research.

The third chapter of the dissertation is the research methodology chapter. The author will explain the methods used to gather and analyze data in this chapter. This chapter will include a detailed explanation of the research design, the research instruments used, the sampling techniques employed, and the data analysis techniques employed. The fourth chapter is the results and discussion chapter. The author will present the data analysis results and discuss the findings here. The results will be delivered using tables, graphs, or charts to facilitate easy comprehension. The discussion section will provide an interpretation of the results and examine their implications for the research questions and hypotheses. The fifth and final chapter of the dissertation will be the conclusion and recommendations. This chapter will summarize the study's main findings, evaluate the research hypotheses, and conclude. Additionally, we will provide recommendations for future research in this area, highlighting the study's limitations and suggesting avenues for further investigation.

Chapter 2

Literature Review:

This chapter presents an in-depth review of the available literature on regional economic integration and trade dynamics. Integration is critical to promoting more substantial power and building long-term financial resilience. Our review focuses on economic integrations, current cross-border trade development, FTA agreements in relationship with geopolitical and policy growth to overcome economic discrimination, previous study findings, and research gaps. We aim to establish a solid foundation for our study by assessing the present level of knowledge in these areas and identifying areas that require further investigation. This literature review will help us understand ASEAN, China, and India's regional economic integration and their current growth volume.

2.1. Conceptual Framework

The figure 2.1 shows the conceptual framework for understanding the dynamics of cross-border trade among ASEAN, China, and India and regional economic integration. It emphasizes how economic integration helps to promote international trade, raise price competitiveness, and drive GDP growth as well as export increase include creating stability for other factors. Emphasizing their importance to boost trade demand and enable Foreign Direct Investment (FDI), the framework places ASEAN's Free Trade Agreements (AFTA, AIFTA, and ACFTA) within a larger context. The RCEP is shown as a general agreement that improves the results of various FTAs, therefore endorsing ongoing economic development. Particularly through more trade and FDI, the diagram emphasizes even more the interdependence among several degrees of economic integration, including political unions, economic unions, common markets, and customs unions, so fostering deeper economic ties and mutual benefits for member nations. This conceptual framework fits the concentration of the study on how regional economic integration affects trade dynamics and economic resilience among ASEAN, China, and India.

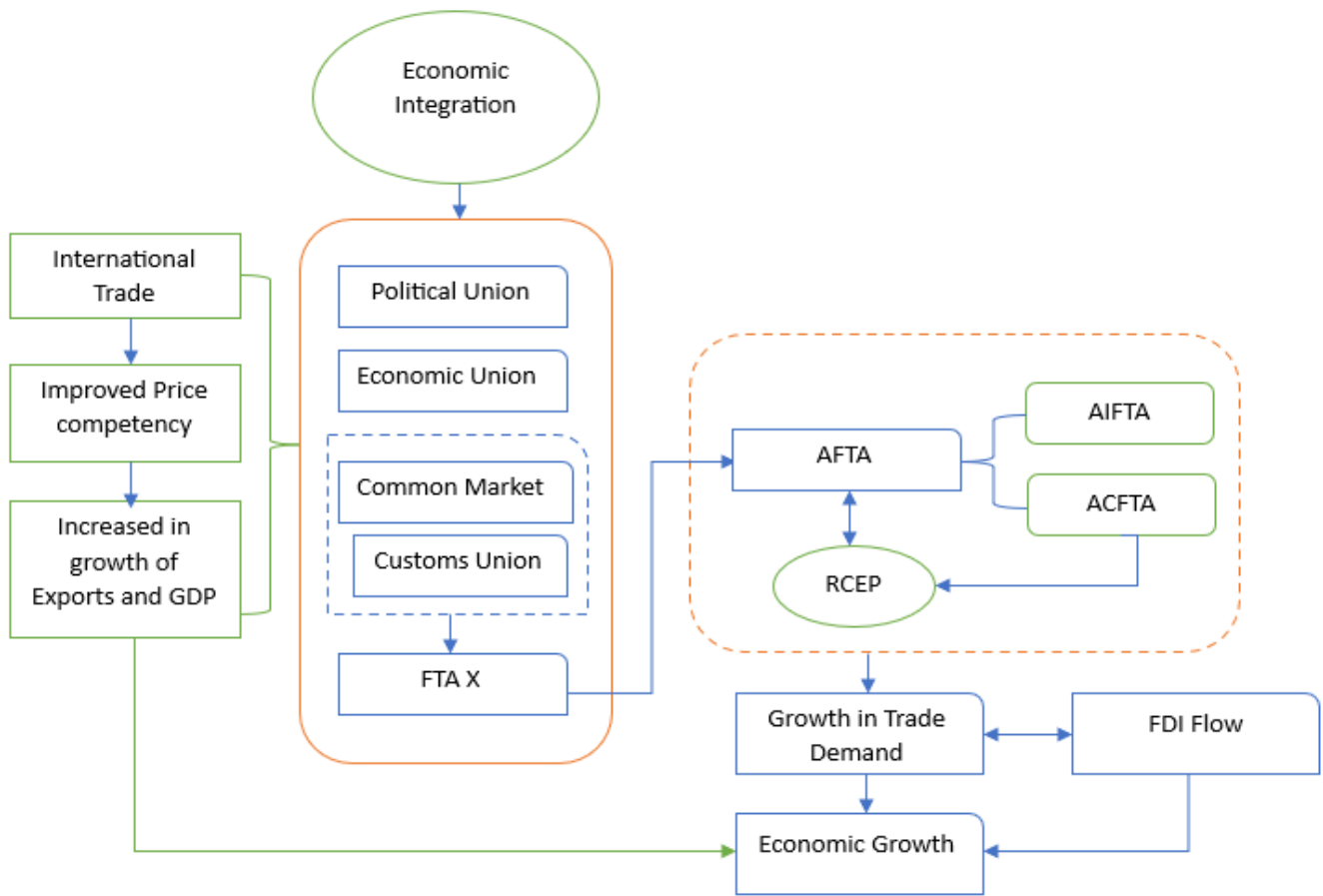


Figure: 2.1 *Conceptual Framework*

2.1.1. Regional Economic Integration and Dynamics of Cross-Border Trade

In this new era, a country can't survive without any connection and linkage with the outside world, and no country can develop its economy without cooperating with other countries; accordingly, the economic sector has been transformed while pitching toward increased innovation and desire for global connectivity. The first thoughtful look at economic integration was made by Balassa Bela in 1961 with the idea of more development; the development is based on wins and losses or win-win situations where most of the work has come after figuring out these kinds of connections so far. It was clear right away that the steady resource reallocation effects of trade creation (TC) and trade diversion (TD) don't matter much for developing countries, also known as less developed countries (LDCs). The theory of economic integration has evolved almost exclusively from discussions of post-Second World War developments; the formulation of all associations has been started here for mutual economic assistance (Balassa, 2011; Brada & Mendez, 1985).

Integration is a crucial rule when production forces are growing. Therefore, in this age, international and regional economic integration is an innovative trend of growth. To conduct economic integration, countries need to pay attention to the opportunities and challenges it brings. This theory of economic integration focuses on the economic impact of integrating national markets and challenges coming from variances in national monetary, fiscal, and other policies. The theory is part of international economics and is regarded as international trade theory. It also looks into how merging national markets influences growth and necessitates the coordination of the economic policy unions. Furthermore, the theory incorporates the elements of location theory, as integration adjusts countries to remove barriers and continue economic activities across borders in the regions and internationally (Balassa, 2011).

The idea was that TC would work better if the countries involved were originally very competitive in production but could also work well together and that a CU would help them trade. These conditions won't be met in most LDCs. Trade would be more likely to grow if the partners did most of the work. Also, most of the effects of integration in the LDCs will be trade diversionary since most of them are trying to become industrialized at a time when they get almost all of their industrial goods from either advanced countries or newly industrializing countries (NICs), which are now economies, also known as NIEs (Ali M. El-Agraa, 1989; Brada & Mendez, 1985).

Nevertheless, it was also realized that one of the main things holding back industry growth in the LDCs is that their local markets need to be more significant. Because of this, the market needs to be more significant to encourage the best plant installations. This is why economic integration and cross-border trade are important (Brada & Mendez, 1985). This research explores the primary motivations for regional integration and cross-border trade among ASEAN, India, and China. The paper highlights genuine integration and cross-border trade theories, as virtually all developed and developing countries have committed to increasing trade openness. Policymakers are focusing on how to achieve the full benefits of integrated countries' agreements, from Free Trade Agreements (FTA) and Bilateral Trade Agreements (BTA), to accomplish significant contributions to international cooperation with long-term resilience (Dayaratna Banda & Whalley, 2005; Rajan & Sen, 2004).

ASEAN, the Association of Southeast Asian Nations, has made significant strides in economic integration near its 60-year history. Despite diverse backgrounds, varying

levels of economic development, and different political systems, ASEAN has made strides in economic integration, which has been marked by initiatives like the ASEAN Economic Community (AEC). The ASEAN Economic Community (AEC) envisions a highly competitive region fully integrated into the global economy (ASEAN Prosperity Initiative, 2022). While critics question the substance of the AEC beyond political rhetoric, ASEAN’s step-by-step approach—from preferential trade agreements to establishing the ASEAN Free Trade Area (AFTA) to the AEC Blueprint 2025 and services liberalization—has laid the foundations for inclusive integration. Challenges remain, but ASEAN’s journey reflects confidence-building and commitment to regional cooperation (Maria et al., 2017). While not aiming to be a customs union, ASEAN’s *"open regionalism"* approach has facilitated economic growth and industrial development, albeit with challenges in addressing development gaps among member states. Despite criticisms, ASEAN's efforts have significantly reduced tariffs, liberalized services, streamlined investment rules, and fostered regional cooperation, contributing positively to economic community-building (Jose & Samudra, 2022; Sen, 2006).

Let’s look at the yearly report on the ASEAN Stats. We find that the new policies, especially the open regionalism approach, have helped the intra-ASEAN trade and have seen significant growth in the exchange of goods and services. During 2023, ASEAN International Merchandise Trade declined moderated to 11.9%, which is an improvement from the contraction of 14.6%. However, the intra-ASEAN performance experienced significant improvement with Brunei Darussalam followed by Vietnam, Singapore, Thailand, and the Philippines. This improvement was followed by the recovery crisis of COVID-19, as shown in Figure 2.1. (ASEAN Secretariat, 2023).



Figure 2. 2. Intra-ASEAN Trade
Source: ASEAN Secretariat and IMF

China’s BRI project is an economic and geopolitical tool. China is playing a hybrid financial model that will substantially affect cross-border trade, especially with ASEAN and India (Chiang, 2019; Gurunathan & Moorthy, 2021). India is playing the role of liberalization policies in fostering cross-border economic ties. India’s Look East Policy aligns as synergized economic fostering to Asia and the world with the initiatives of “Make in India,” which will change the competitiveness of the trade dynamic(Aarti Garg, 2022; Gurunathan & Moorthy, 2021).

India and China played critical roles in the ASEAN Economic and Trade Market, created with their help. The group also took the next step to ensure that efforts to deepen economic integration would continue. The world's economy, technology, and geography have been changing quickly. This has created enormous opportunities for ASEAN, especially as it becomes more integrated and involved in the global international economy(Hong, 2007). The most important thing for ASEAN is the tectonic shift in the world's economies from developed economies to emerging markets, especially China, India, and ASEAN. These markets are becoming the main drivers of global market and economic growth. Table 2.1 shows that 46.8 % of the market is for imports and 41.3% for exports compared to the rest of the countries. McKinsey calls the rise in disposable income caused by a large group of people in emerging markets moving into the middle-income and consuming class "the biggest growth opportunity in the history of capitalism." ASEAN needs to be ready to take advantage of the challenges of being in the middle of the "golden arc of opportunity" that connects India, ASEAN, and China, the world's largest growing consumer market (Kopka & Atsmon, 2012; Maria et al., 2017).

Table 2. 1. Trade Destination ASEAN, India and China

Country/Region	Export		Import	
	Share %-2021	Share %-2022	Share %-2021	Share %-2022
ASIAN	21.7	22.9	23.9	21.6
China	16.4	14.8	20.9	22.9
India	3.1	3.6	2.3	2.3
Total	41.2	41.3	47.1	46.8

Source: ASEAN Secretariat and IMF

Table 2. 2. Trade Destination other countries

Country/Region	Export	Import
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	Share %-2021	Share %-2022	Share %-2021	Share %-2022
United States	14.9	14.8	6.7	6.9
EU-27	8.9	9	7.4	6.3
Japan	6.6	6.8	7.8	7.2
Hong Kong	6.6	5.8	0	0
Korea, Republic of	4	4.1	7.2	7.5
Taiwan	3	3	6.9	6.9
UAE	0	0	2	2.4
Australia	2.5	2.6	2.4	2.6
Others	12.2	12.4	12.5	13.5
Total	58.7	58.5	52.9	53.3

Source: ASEAN Secretariat and IMF

East Asia is expected to have the most significant consumer class in the future. This means that China, India, and ASEAN will be the biggest markets for growth in the future. ASEAN is already one of the world's largest economic zones and regions, and its 'consuming class,' or households with incomes sufficient to make large flexible purchases, is expected to increase from about 67 million in 2010 to about 125 million households by 2025. (Maria et al., 2017). Additionally, the world is going through a digital revolution and globalization. Digital technology and platforms have transformed how businesses operate and greatly expanded the market reach of small and medium-sized enterprises (SMEs) worldwide. This has resulted in greater productivity in various ways, more competition and demand for innovation, and expanded growth opportunities that benefit everyone. These digital rewards are especially significant when there are "analog complements" such as more vital rules, human capital, and good government (Hv et al., 2014; World Bank, 2015).

2.1.2. Regional Comprehensive Economic Partnership FTA Agreement

ASEAN plays an essential role in enhancing regional economic integration by RCE. By meeting external expectations, aligning RCEP with its goals, adapting to changing conditions, and emphasizing ASEAN centrality, the organization successfully contributes to establishing this significant trade agreement. The RCEP solidifies ASEAN's central position within the emerging regional economic architecture, fostering regional cooperation and economic growth. RCEP is one of the most significant free trade agreements, including its targeted country comprising around 30% of the world's GDP (Adila & Suryadipura, 2023).

The Regional Comprehensive Economic Partnership (RCEP) is a large-scale Free Trade Agreement (FTA) comprising the ten member states of the Association of Southeast Asian Nations (ASEAN) - Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam - along with their dialogue partners, namely Australia, China, Japan, Republic of Korea, and New Zealand where India's decided to stay out of RCEP. RCEP, led by ASEAN, promotes regional market integration and strengthens ASEAN's economic ties with its five RCEP free trade agreement (FTA) partners (Australia, China, Japan, Korea, and New Zealand). In addition to its influence on the multilateral trading system, RCEP aims to tackle existing regional challenges, such as the ongoing COVID-19 pandemic crisis. The RCEP narrative offers valuable insights into trade dynamics, economic integration, and the future of trade policy. (Anshari & Ali, 2023; Shimizu, 2021). ASEAN's proactive participation in the formation process of the Regional Comprehensive Economic Partnership (RCEP) has demonstrated the substantial impact of international organizations in promoting regional economic integration (Adila & Suryadipura, 2023).

Nonetheless, the actions of ASEAN's activities have had a positive impact on improving regional economic integration. The RCEP deal is now the most significant free trade agreement, with India implementing a 100% tariff drop for all RCEP members. ASEAN operates as one of the most regional trade accords. The Common Effective Preferential Tariff (CEPT) Scheme was intended to decrease trade obstacles between member countries. India implemented the "Look East Policy" in 1991 to strengthen trade links with ASEAN, which was becoming increasingly important in global trade. The Association of South-East Asian Nations (ASEAN) is one of the most important regional trade agreements. Its goal was to remove trade barriers between its member countries through the Common Effective Preferential Tariff (CEPT) Scheme. India was interested in economic regionalism in ASEAN and its neighbors. Since the early 1990s, India has been putting in much work to become a part of the East Asian regionalism process. India made the "Look East Policy" in 1991 to build strong trade ties with ASEAN because it was becoming more important in world trade. India finally signed the Free Trade Agreement (AIFTA) with ASEAN in 2010 to change the discussion in the economic policies for implication. However, India's growing trade deficit with ASEAN countries and its FTA partners became a significant concern for policymakers. As a result, policymakers in India decided to pull itself out of the agreement. In light of this, India left the Regional Comprehensive Economic Partnership (RCEP), Asia's most significant trade deal. It is an effort by 10 ASEAN countries and their 5 FTA partners to work together on the economy

(Aarti Garg, 2022). Advocates of India's withdrawal expressed concerns regarding trade imbalances with nations with which it had established free trade agreements (FTAs), notably China. India chose not to pursue market access in sectors with a competitive edge, thereby giving up the chance to influence the trade structure of a highly economically active region. The agreement was ultimately finalized by ASEAN and five other nations, except India. Although India has withdrawn, it still has the possibility of becoming a participant in the RCEP agreement in the future (Kumari et al., 2021).

From a strategic standpoint, India's relationship with the ASEAN is crucial, given shifting geopolitical circumstances. Regarding China, India's rising relevance on the global scene raises both possibilities and concerns. While India seeks to engage with ASEAN on security concerns and developing economic connections, China sees India's attempts to bolster its position in the area as a possible strategic threat. India could be able to challenge China in the market of Southeast Asia. China should give developing ties with India and ASEAN top priority. China should also make a great effort to modify its contacts with other nations to complement its new objectives. India's participation in ASEAN serves China's interests in a fragile equilibrium. This demonstrates how complex things are in the area, where geopolitical power, economic integration, and security combine (Hong, 2006).

East Asian economic cooperation and integration are based on two main ideas: being open and including everyone. As a region with many different kinds of people, giving everyone a distinct chance to succeed is essential. China started negotiating a free trade agreement (FTA) with ASEAN as a group in 2001; a formal agreement was reached the following year to begin the negotiating process, which ended in 2010 officially. Among East Asian "ASEAN+1" FTAs, the China–ASEAN Free Trade Agreement (CAFTA) was among the first. It started a complicated network of several guidelines that interacted with the surroundings. By the late 1990s, China began to take the front stage in producing goods for the Asia-Pacific area, particularly for East Asia. China will keep its open policy and actively participate in multilateral and regional agreements. As East Asia's biggest economy, China is vital to the world economy's center (Yunling, 2022). ASEAN began RCEP talks in 2012—China-backed ASEAN's negotiation leadership. China supported EAFTA but changed its mind when ASEAN launched RCEP based on ASEAN+6. This shows that China actively, flexibly, and pragmatically promotes East Asian regional arrangements. The RCEP is essential for China because it helps them play a more significant role in East Asia and the Asia-Pacific, especially in contrast to the politically driven Indo-Pacific initiative. China needs to be a part of the global economy, which

includes the World Trade Organization (WTO) and regional trade deals, such as free trade agreements (FTAs). China made FTAs a big part of its strategy after it joined the WTO. RCEP provides a broad regional base for China and other regions to build their open economic network. (Gurunathan & Moorthy, 2021; Skulska, 2011). Once RCEP is implemented, China's commerce with its free trade partners will account for roughly 35% of all its foreign trade. The agreement will make China's FTA network far more valuable. China's FTA network thus acquired a great depth. Moving faster to implement the FTA plans is crucial for China's new cycle of opening up. Having signed the RCEP Agreement, China now boasts 26 free trade partners and 19 agreements with other nations, optimizing its benefits. (Yunling, 2022). China plays a critical economic role in the region as it participates actively in the Regional Comprehensive Economic Partnership (RCEP). Economic analysts forecast substantial economic benefits will accrue to China due to RCEP, leading to increased trade integration and market access opportunities. RCEP would also be a crucial post-pandemic recovery tool in East Asia due to China's significant contribution towards economic resilience and growth. This initiative changes the economic gravity of ASIA, with China playing the leading role.

As evidenced by empirical studies, East Asian nations and companies worldwide will rely more on RCEP to maintain open and cooperative markets, which is crucial for economic development. East Asian countries strongly express with RCEP that they seek cooperation and deregulation in regional and multilateral trading systems. East Asian nations also insist on adhering to an inclusive philosophy meant to unite nations with somewhat distinct political systems and economic levels. A significant advancement toward East Asia's economic integration is the RCEP free trade region. As commerce increases and business costs drop, the region's general economic state will improve. By providing developing and least developed economies additional financial and technical support, RCEP will let its members catch up on the development gap over time, stimulate coordinated and fair regional growth, and generate a new integrated development pattern for an open regional economy. The RCEP members' economies complement each other rather nicely. Lowering obstacles to trade in commodities, services, and investments, standardizing regulations and standards, and simplifying customs, inspections, and quarantine will boost regional supply, value, and industrial chains. RCEP is predicted to have raised 0.86% of East Asia's GDP by 2035, 18.3% of its exports, 9.63% of its imports, and 1.47% of its investments. East Asia will remain developing and serve as the hub of

growth for the world economy¹ (Adila & Suryadipura, 2023; Shimizu, 2021; Yunling, 2022).

2.1.3. Economic Approaches of China and India in the ASEAN

Context

In this context, the Association of Southeast Asian Nations (ASEAN) is pivotal in promoting regional economic integration and cooperation within Asia. As ASEAN strives to achieve its economic community goals, understanding cross-border trade dynamics and their policy implications becomes crucial. This literature review explores relevant research, theories, and empirical findings related to this multifaceted topic.

In stages and with great care, China has been opening its economy to the rest of the world since 1979. Between 1990 and 2023, China's economy grew at an average rate of 8.92% per year; the highest GDP growth was 14.3% in 1992, and the lowest growth rate was during COVID-19 at 2.20%. China has become a significant economic power in Asia thanks to its massive rise in trade and output over the last 30 years (Liu et al., 2023; Zhai, 2023). China has the most people, the second-largest economy (based on GDP at Purchasing Power Parity, or PPP), the fifth-largest trader of goods (with a 5% share of global trade in goods), the tenth-largest trader of services (with a 2.5% share of global service trade), and the biggest receiver of Foreign Direct Investment (FDI) among developing countries, if not the world as a whole. China joined the World Trade Organization (WTO) in December 2001, which has improved the country's FDI, exports, and overall growth prospects over the next few years and decades. However, concerns remain about the country's overheating, rigid currency, weak and inefficient banking sector, and the long-term viability of its liberal economic policies without significant political reforms (Chia & Sussangkarn, 2006; Chiang, 2019; Rajan & Sen, 2004).

¹ See the evaluation on the impact of RCEP. <http://finance.sina.com.cn/tech/2022-01-05/docikyakumx8362208.shtml>

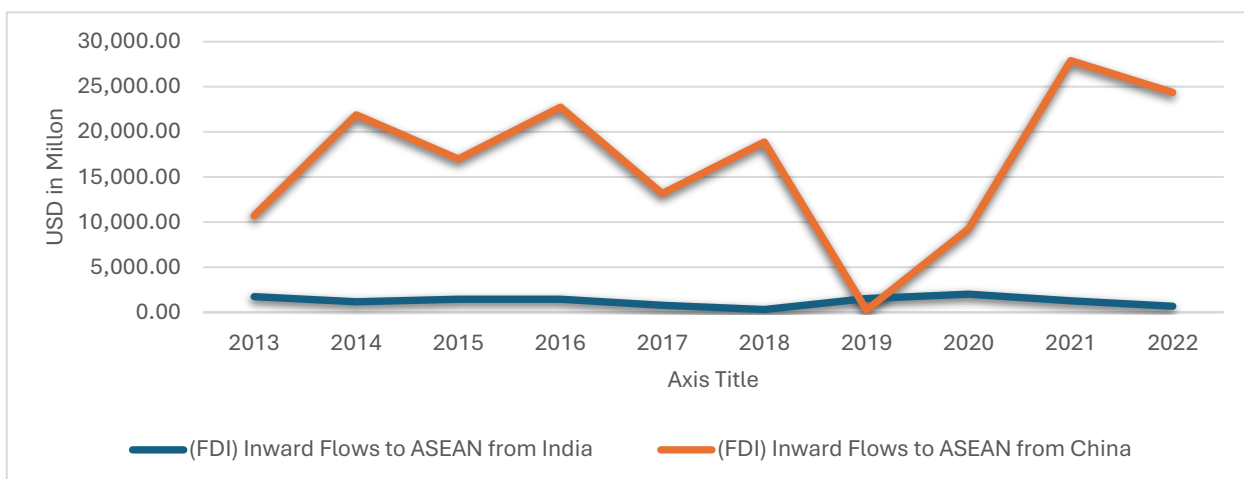


Figure 2. 3. FDI Flow to ASEAN
Source: ASEAN Secretariat and IMF

China is strongly committed to its trade partners in order to enhance economic relations and support post-pandemic recovery. On Nov-2022, China and ASEAN stated that the Version 3.0 China-ASEAN FTA negotiations have begun. The two sides decided the talks would cover trade in goods, investments, the digital economy, and the green economy. The goal is to make the China-ASEAN FTA more open, modern, all-encompassing, and suitable for both sides. As ASEAN’s largest trading partner, China continues to play a significant role in the region’s economic landscape (ASEAN, 2022).

India is also a rising Asian powerhouse. India is the second most populous country in the world, has the fourth highest GDP at PPP, and is attracting FDI, particularly in BPOs. India became the 19th largest service exporter (1.5 % of global exports) a few years after external liberalization². Indian economic reforms began in 1991 and have been implemented in a rather ad hoc and quiet manner (i.e., reform by stealth). The country has one of the world’s fastest annual growth rates and is a compelling macroeconomic story with the potential to sustain high economic growth rates. Some optimistic observers predict India will be the third largest economy in 2003 USD by 2050, behind China and the US (Aarti Garg, 2022; Asher & Sen, 2005; Kato, 2022; Sudan, 2022). However, renowned and reputable private research firms are making such estimates independently, indicating rapidly changing attitudes and extraordinarily bullish expectations of the Indian economy during the last few years. India is the last major country in Asia to undergo a demographic transition, with a bulge in the working population expected by 2020. All major political parties in India support economic reforms, which contributes to bullish long-term growth forecasts. West has embraced India’s prosperity story more enthusiastically than East Asian

² India’s global merchandise export share is only about half that.

neighbors, likely due to perception information gaps and ideological prejudices. Like China, India faces specific issues that could prevent it from reaching its economic potential. In India, budgetary consolidation (especially at the state level), trade and investment openness (gradually and sequentially), infrastructure upgrading, and labor and bankruptcy law reforms are needed (Rajan & Sen, 2004).

Cross-border trade plays a crucial role in the economic integration of ASEAN, China, and India. Developing digital currency, such as the digital RMB, in cross-border e-commerce frameworks like China-ASEAN enhances international financial competition and fosters economic ties. Under the RCEP framework, cross-border e-commerce influences trade scales between China and ASEAN countries, with factors like GDP, internet popularity, and geographical location impacting trade volumes. Additionally, connectivity through e-commerce networks, supported by agreements like RCEP, promotes economic stabilization and provides opportunities for local businesses to expand beyond borders. Furthermore, initiatives like China's agricultural integration with neighboring countries, such as Myanmar, demonstrate efforts to manage food safety, biosecurity, and smuggling issues, contributing to cross-border economic dynamics (Ganai et al., 2023; Hong, 2007).

2.1.3.1. ASEAN - China FTA Agreements

ASEAN-China free trade agreement (ACFTA) and trade connections provide challenges and opportunities for ASEAN economies. On the one hand, these economies face intense competitive pressures from China due to overlapping factor endowments, export markets, and reliance on similar FDI sources. Due to similar FDI sources, export markets, and overlapping factor endowments, these economies are subject to significant competitive pressure from China. However, China's explosive economic expansion presents profitable prospects for tourism, trade, and investment with other nations and exports. This section looks at the general patterns in trade and investment relations between China and ASEAN, talking about how China's economic growth will probably affect ASEAN and taking a closer look at the proposed ACFTA as a way to strengthen trade and investment connections between ASEAN and China (Rajan & Sen, 2004; Skulska, 2011).

Former Chinese Premier Zhu Rongji suggested the ACFTA during the ASEAN-China Summit in November 2001, and it was formally formulated during the ASEAN Summit in November 2002 in Cambodia. The "early harvest" clause, which requires ASEAN and China to lower tariffs on specific products by January 2006, is a crucial

component of the ACFTA. The pact lays out a timeline for tariff elimination, with the CLMV (Cambodia, Laos, Myanmar, and Vietnam) and ASEAN-6 members hoping to be done by 2015 and 2010, respectively. The framework agreement also lists five priority sectors for economic cooperation: investment, information and communication technology, agriculture, human resource development, and Mekong River basin development. Programs for capacity building and technical support are offered to CLMV nations to help them catch up to ASEAN-6 members (Adila & Suryadipura, 2023; Rajan & Sen, 2004; Sen, 2006).

All nations that are members of the regional manufacturing network stand to gain from the ACFTA's anticipated reduction in transaction costs associated with cross-border commerce and efficient procurement of parts and components within the region. Additionally, by providing more organized processes and channels for dispute resolution, it seeks to increase the costs of fighting among the participating nations and promote regional stability. However, depending on each ASEAN member economy's economic makeup and trade composition about China, the effects of the ACFTA will differ. Indonesia and the Philippines are more hesitant to adopt the ACFTA sooner. However, Thailand and Singapore are especially eager to do so as The ASEAN – China Free Trade Area (ACFTA) eliminates tariffs for 94.6% of exports to China originating from Singapore, safeguards market access, and ensures a more predictable operating environment for service suppliers. It expands market access and improves the foreign equity threshold in six of China's services sectors (Chiang, 2019; Zhai, 2023).

On Nov-2022, China and ASEAN stated that the Version 3.0 China-ASEAN FTA negotiations have begun. The two sides decided the talks would cover trade in goods, investments, the digital economy, and the green economy. The goal is to make the China-ASEAN FTA more open, modern, all-encompassing, and suitable for both sides. As ASEAN's largest trading partner, China continues to play a significant role in the region's economic landscape (ASEAN, 2022).

2.1.3.2. ASEAN - India FTA Agreements

Since India adopted its "Look East" strategy in 1991, the trade connection between India and ASEAN has gradually improved. In 1992, India joined ASEAN as a sectoral dialogue partner, concentrating on commerce, investment, tourism, and science and technology. India became a full conversation partner in 1995 and a member of the ASEAN

Regional Forum in 1996. The inaugural ASEAN-India summit in Phnom Penh in November 2002 was a significant turning point (Rajan & Sen, 2004).

The ASEAN-India Free Trade Agreement (FTA) aims to improve trade and economic cooperation. Policymakers in India understand that the comparatively small amount of commerce with ASEAN needs to be increased (Dayaratna Banda & Whalley, 2005). India promised to lower cross-border transaction costs by streamlining customs procedures and bringing its tariff levels into line with ASEAN's by 2007. In 2003, Thailand and the United States struck a framework agreement for a free trade area with an early harvest duty reduction program. Along with participating in sub-regional cooperation projects like the Mekong-Ganga Cooperation and BIMST-EC, India is also negotiating a Comprehensive Economic Cooperation Agreement (CECA) with Singapore. To boost significantly bilateral trade, a Framework Agreement for establishing an ASEAN-India Free Trade Area was signed in 2003. An early harvest program aimed at obtaining preferential tariff reductions was included in the FTA and began in November 2004. The accord establishes timelines for removing tariffs on non-agricultural commodities and the unilateral waiver of tariffs for more recent ASEAN members. It also emphasizes strengthening transportation connections and business cooperation in the Mekong Basin, proposing a road and rail connection between Delhi and Hanoi (Bowles, 1997; Ganai et al., 2023; Hong, 2007).

Many factors affect the dynamics of cross-border trade in the ASEAN, China, and India region. Investments in infrastructure are essential for improving trade connectivity. The New International Land-Sea Trade Corridor (ILSTC) is accelerating the growth of cross-border e-commerce (CBEC) by facilitating trade connections between China and ASEAN nations. As demonstrated by Cross-Border e-commerce (CBE) models, connectivity is essential for the growth of e-commerce since it encourages information flow and logistics. The gravity trade model also emphasizes the importance of trade costs, trade openness, and GDP in describing ASEAN and India's export and import patterns. The region's cross-border trade dynamics are partially successful because of these characteristics taken together (Gurunathan & Moorthy, 2021; Sen, 2006).

In summary, the developing regionalism in Asia has created a chaotic patchwork of economic agreements. While the welfare significance of Asia's new trade arrangements is uncertain, ASEAN may profit from being the de facto center. ASEAN must work hard to uphold unity and develop intra-ASEAN cooperation to capitalize on its center status

fully. ASEAN must prioritize creating an all-in-one and expanded manufacturing base. These efforts, joined with structure investments and connectivity inventiveness, aim to increase cross-border trade and economic integration between ASEAN, India, and China.

2.2. Theoretical Framework

The theoretical literature concerning the economic effects of regional integration has made considerable progress. However, most theoretical and empirical research in this area continues to focus on the integration and dynamic impact of trade (Plummer, 1997). Balassa Bela has defined integration as a theory where economic integration is a quantitative and qualitative analysis where cooperation requires action with the aim of less discrimination. Additionally, it conveys the formation and application of coordinated and standard policies on sufficient scales to ensure that primary economic and welfare objectives are achieved. The economic integration theory will foster the growth of economics. It is believed that several dynamic elements, including large-scale economies on a provider market, decreased trade uncertainty within an area, and quicker technical advancement, will lead to this outcome. In this sense, the growing interest in economic growth has further augmented the focus on potential avenues for economic integration (Balassa, 2011).

Economic integration theory is developed in two stages, each of which tackles the political and economic of its time in the relevant context. The first stage is regarded as a classic theory or static analysis and includes the traditional theories of economic integration that explain the possible benefits of integration, such as Customs Union Theory, Heckscher-Ohlin Theory, Second Best Theory, and Comparative Advantage Theory. The second stage includes the new economic integration theories that are often referred to as dynamic analysis or Dynamic Theory of economic arrangements as they are Common Market Theory, Economic and Monetary Union (EMU) Theory, Optimal Currency Area (OCA) Theory, New Economic Geography and Regional Integration, Dynamic Effects of Economic Integration Theory, and Political Economy of Integration of Theory (Ali M. El-Agraa, 1989; Asher & Sen, 2005; Brada & Mendez, 1985).

2.2.1. The Wave of Economic Integration with the Open/new Regionalism Theory:

For a complete analysis, the policymakers focused on cross-border trade in ASEAN, China, and India to examine how the new regionalism theory will help for better growth. However, the empirical evidence shows that there are several other theories of economic integration that are highly relevant. However, the most useful ones focus on how regional economic integration changes cross-border trade, economic policies, and the flow of goods and factors of production across borders. The actual question that policymakers face is how to achieve the complete benefits of increased openness to trade, FTA, and other agreements as a popular means of liberalization in the face of domestic and international constraints. The adjustment to the current challenges and barriers among nations needs greater economic cooperation. A wave of “new regionalism” theory rapidly created collaboration among trading partners to catch up with the balance.

Regional organizations that seek to promote collaboration and strengthen economic relations among member countries are part of a global trend toward regional economic integration. The distinctiveness of a region plays a significant role in regional economic governance. But then again, regional integration, as used in **regionalism theory**, refers to a range of political, social, and economic initiatives designed to strengthen national unity and integration within a particular region. The establishment of the ASEAN Free Trade Area (AFTA) in 1992 marked the beginning of regionalism in Asia as it was one of the region's first regional trade agreements (RTAs). Following that, there was a noticeable shift towards regionalism following the onset of the ASEAN countries' 1997–1998 economic and financial crisis and the impasse during the 1999 WTO summit in Seattle. According to regionalism theory, nations band together to tackle common issues and seek shared objectives because of things like proximity, economic interdependence, and cultural affinities (Rajan & Sen, 2004, Sen, 2006)³.

The swift expansion of bilateral trade agreements in Asia is frequently attributed to a "**domino effect**,"⁴ which prompts countries that were not part of the BTA to sign these accords defensively in order to avoid being singled out by BTA members (Crawford &

³ Free Trade Agreements (FTA) are like street gangs: you may not like them, but if they are in your neighbourhood, it is safer to be in one"

⁴ Note that Baldwin (1995) used the term “domino regionalism” to refer to a phenomenon whereby the incentives to join an FTA rise as it gets larger.

Laird, 2001). This phenomenon has brought a new dimension to global economic negotiations that are bound to have far-reaching consequences for international trade policy management. This is so as the concerned agreements go well beyond merchandise trade liberalization and encompass liberalization of services trade, besides venturing into several non-trade measures aimed at "deeper integration" among trading partners (Sen, 2006).

Nonetheless, concerns arise regarding regional integration and its impact on non-member countries and the broader global trading system. Regionalism theory suggests that while regional integration can promote economic development and stability within the region, it may also create barriers to trade and investment for non-members, potentially leading to trade diversion and fragmentation of global trade flow. The formation of the Static economic integration theory and Dynamic economic integration theory has helped to find the familiar and union economic market to cover the diversion. As one progresses up the integration ladder, free-trade areas (FTAs) are formed to promote free trade within a specific region while maintaining distinct commercial policies for countries not part of the FTA. Free trade agreements (FTAs) necessitate establishing rules of origin to avoid trade diversion resulting from disparities in tariff schedules among member states. Customs unions expand free trade agreements by implementing a shared external tariff, whereas common markets facilitate the unrestricted flow of goods, services, labor, and capital. Economic unions, the most advanced form of integration, include supplementary measures such as fiscal harmonization, monetary union, and competition policies. However, the complexity of preferential trade arrangements has increased due to the emergence of non-tariff barriers, necessitating more comprehensive integration measures that exceed the mere reduction of tariffs (Plummer, 1997; Sen, 2006).

Within the framework of regional integration, questions about its effect on non-member nations and the larger global trading system surface. According to regionalism theory, several rules have been followed to overcome these difficulties since regional integration may create obstacles to trade and investment for non-members, diverting trade and fragmenting global trade flows even while it can promote economic development and stability inside the region.

Rules of origin (ROOs), a key characteristic of regional economic integration arrangements, become specifically complicated within the context of regionalism theory. Different ROOs within different integration agreements can cause conflicts and challenges

for businesses operating across several regions⁵. This complication may delay the efficiency of regional integration initiatives and pose problems and difficulties in accomplishing larger economic integration goals. (Rajan & Sen, 2004; Sen, 2006). Furthermore, geopolitical factors and power dynamics among associate countries can influence regional integration efforts. Regionalism theory highlights the role of leading powers within a region in shaping the plan, agenda, and outcomes of incorporation creativities and initiatives. Negotiating favorable terms inside regional integration consensuses can present difficulties for less developed nations. Therefore, this explains differences and inequality among member states. Notwithstanding these challenges, regional integration initiatives directed by regionalism theory aim to promote regional cooperation, foster economic growth, and enhance regional political stability. Regional integration helps to create stronger regional identities and institutions by expanding economic linkages and supporting shared values and norms, furthering the member nations' collective interests.

Apart from ROO, there is the Inconsistency in FTA Requirements; when a country is a part of more than one FTA, investors may need to learn which rules, responsibilities, and incentives apply to which partner. Even worse, being a part of more than one trade deal could lead to "obligations made in one that contradict those made by others." There are also scarce negotiating resources and general applicability of FTAs or building blocks or stumbling blocks, which have raised concerns and rules to be followed (Rajan & Sen, 2004).

As a result, within regionalism theory, regional integration represents a complex process shaped by political, economic, and social dynamics. While it offers new windows of opportunities for cooperation and development, regional integration hard work must navigate complex challenges and attention to understand their full potential and constructive contribution to global economic governance. As we wonder, the question comes to mind: how does economic integration between ASEAN, China, and India influence the level of performance in cross-border trade? Economic integration has a considerable impact on the performance of cross-border trade between ASEAN, China, and India. ASEAN has strengthened its regional economic partnership, specifically promoting

⁵ This power asymmetry may also explain the non-standardization of ROOs among Singapore's FTAs. See Perroni and Whalley (1994) who formally show how large countries have dominated negotiations with FTAs with smaller countries (i.e. the former has the bargaining power in FTAs).

trade liberalization and enhancing logistical performance. These efforts have positively affected export values (Bowles, 1997; Ganai et al., 2023; Jose & Samudra, 2022).

China's export-led growth strategy has propelled its trade openness and economic success, with a notable increase in export-GDP ratios over the years, and manufacturing exports are highly responsive to demand shocks. However, the effects of bilateral exchange rate changes vary across product groups (Kato, 2022). In contrast, India faces challenges with trade imbalances and a growing bilateral trade gap with China, necessitating the removal of trade barriers and the promotion of technology-intensive exports to address these issues. Regional integration initiatives like the Regional Comprehensive Economic Partnership (RCEP), alongside other partnerships and closeness, have shown mixed impacts on trade flows and economic indicators, highlighting the complexities of economic integration efforts (Anshari & Ali, 2023).

To conclude, according to Bela Balassa, economic integration is a process in which countries engage in common policies aimed at reducing disparities among them to attain significant economic development and social welfare objectives. Key elements include economies of scale, lower trading risk, and technology-led growth. The process of integration transitions from traditional forms, such as Customs Union Theory and Comparative Advantage Theory, to modern forms, like the Common Market Theory of Economic and Monetary Union Theory. The new era of regionalism, especially in regions like ASEAN, China, and India, highlights the importance of cross-border trade and cooperation, thus affecting trade policies, economic stability, and the movement of goods and services. Despite challenges from within and outside, regional integration initiatives such as the ASEAN Free Trade Area promote economic development and stability through regional closeness, financial interdependence, and cultural similarities. At the same time, they address potential future hindrances for non-members to ensure the global trading system remains robust.

2.3. Previous Researches

Previous research has identified that this region is strengthening regional economic integration while embracing extensive policy reform. This argued that ASEAN with China and India would continue to benefit from AFTA, FTA, and further "deepening" measures through the effects on reinforcing macroeconomic stability, encouraging investment flows, fostering technology transfer, reducing intra-regional transactions costs to doing business,

and supporting policy reform in the region. The region will also benefit from the regional integration program in Southeast Asia as summary of the studies are as below Table 2.3.

Table 2. 3. Previous Research Summaries

No	Authors	Title	Data	Method	Findings
1	Vidya C T Farhad Taghizadeh-Hesary	DOES INFRASTRUCTURE FACILITATE TRADE CONNECTIVITY ? EVIDENCE FROM ASEAN	The data is from the period 1990–2018 and accessed bilateral data from the WITS World Bank database.	the paper analysed the nexus between trade connectivity and infrastructure by applying the panel fixed effects method and Poisson pseudo-maximum likelihood. Moreover, the robustness of the results is tested by estimating a two-stage least squares.	The main results of trade network analysis include high trade density and interconnectedness among ASEAN, India, China, and Japan. There are specific “trade intensive paths” among the few countries in the group. It highlights the “export hubs” or leading “suppliers of intermediate goods” in the region.
2	Rahul SEN	New Regionalism" in Asia: A Comparative Analysis of Emerging Regional and Bilateral Trading Agreements involving ASEAN, China and India	Data sources: WTO, World Bank, ASEAN Secretariate, Government sites,	new regionalism in Asia, and comparative analysis of the ongoing bilateral and regional initiatives involving ASEAN, China and India.	The ASEAN Free Trade Area (AFTA) strategy maintains ASEAN trade arrangements with minimal changes. The ASEAN Hub Regional Trade Agreement (RTA) overlaps, uniting nations through ASEAN. China-Japan-Korea RTA is a competing strategy involving these major Asian economies. The wide ASEAN+3 RTA includes ASEAN, China, Japan, and South Korea. Research shows no perfect Pareto-improving RTA in these settings, but the ASEAN+3 RTA is sustainable and effective. It fosters positive gains with more evenly distributed benefits, promising regional economic integration.
3	Hino Samuel Jose Hree Dharma Santhi Putri Samudra	Towards a New ASEAN Regionalism: Navigating the Outlook on Indo-Pacific in Post-RCEP Beyond 2020	Previous studies, WTO, ASEAN Stats, Agreements	This article employs qualitative methods that draw data from secondary sources such as literature, relevant official documents, decision-makers' public statements, and internet-based research.	ASEAN is facing a dilemma between preserving the non-interference principle and honing the strategic benefit from outside significant powers. It chose to sacrifice centrality to side with RCEP due to strategic consideration. Thus it violates the ASEAN ways over potential beneficial external partners under the RCEP agreement.

4	Nguyen Anh Thu Vu Van Trung Le Thi Thanh Xuan	Assessing the Impact of ASEAN+3 Free Trade Agreements on ASEAN's Trade Flows: A Gravity Model Approach	This is panel dataset for BTA between 10 ASEAN & ASEAN's top 22 trading partners, from 2000 to 2013. Data source, UN Comtrade database, WB, IMF...	this paper develops the gravity equation to investigate effects of ASEAN+3 FTAs on bilateral export flows between 10 ASEAN countries and their 22 main trading partners.	The calculated results demonstrate that GDP, importer GDP per capita, and income gap promote bilateral trade. The empirical data also show that distance proxies as trade-restrictive factors strongly affect bilateral trade. Distance negatively impacts commerce in this study, supporting the gravity model's main hypothesis. Reducing and eliminating tariff barriers in AFTA also created significant trade.
5	Amita Batra	Asian Economic Integration: ASEAN+3+1 or ASEAN+1s?	Data is been collected from WTO, World Bank, UN, ASEAN +4 Official sites, UN Contrade. Its from 1995-2003	This paper is a comparative systematic assessment of these alternative regional arrangements in terms of efficiency or optimal sequencing of regional economic integration in ASIA.	This analysis shows that ASEAN alignment was effective for all plus four economies. This paper explains the economic case for an ASEAN+4 trading union in Asia, including ASEAN economies, China, Japan, Korea, and India. India's growing importance as a market for ASEAN+3 and its intensifying trade links with ASEAN+3 justify its inclusion in this trade union.
6	Ramkishen S. Rajan and Rahul Sen	The New Wave of FTAs in Asia: with particular reference to ASEAN, China and India	Government website, World bank, WTO, ASEAN site	The methodology employed for this analysis is a qualitative analysis of new FTAs. New regionalism and ROO.	SEAN -- which appears to be fast becoming the "hub" or centre of FTA activity -- and its expanding economic linkages with China and India, the two most populous and dynamic economies in the world
7	Angelina Gurnathan* & Ravichandran Moorthy	CHINA AND THE INDO-PACIFIC IN INDIA-ASEAN TIES: PROSPECTS FOR ASEAN	Government website, World bank, WTO, ASEAN site	The methodology employed for this analysis is a qualitative analysis of primary data obtained from official publications of government websites and portals	
8	Nguyen Trung Ki	Gravity Model by Panel Data Approach An Empirical Application with Implications for	Government website, World bank, WTO, ASEAN site,	This paper examines the determinants of export flows of countries in the ASEAN Free Trade Area (AFTA) through estimations of panel	This paper show that export flows increased proportionately with GDP; and that the formation of AFTA has resulted in significant trade creation among its members. Finally, the paper suggests that trade

		the ASEAN Free Trade Area		data using a gravity model.	facilitation policy can play an important role in setting the stage for AFTA's transition to a Free Trade Area.
9	E. M. Ekanayake Amit Mukherjee Bala Veeramachaneni	Trade Blocks and the Gravity Model: A Study of Economic Integration among Asian Developing Countries	Government website, World bank, WTO, IMF, CPEI and other literatures	This paper analyzes the trade creation and trade diversion effects of the regional trade agreements (RTAs) in Asia and their effects on intra-regional trade flows using annual trade data for the period 1980-2009, using gravity model.	The findings of this study are, for the most part, consistent with findings of previous studies on the Asian trade flows. The coefficients of real GDP, population, and distance had expected signs and magnitudes in all models estimated
10	Shofiya Adila Dadan Suryadipura S.Ip., M.Ipol.	ASEAN's Role In The Regional Comprehensive Economic Integration ASEAN's Role In The RCEP Formation To Enhance Regional Partnership Formation To Enhance Regional Economic Integration	ASEAN Stats ASEAN Year Report Government sites. WB, WTO	This is a Qualitative - Descriptive analysis over the RCEP agreement.	establishing the RCEP agreement, ASEAN has also played a role as a free trade agreement hub and consolidated the existing ASEAN+1 free trade agreement. SEAN's active involvement in the RCEP formation process has proved that international organisation has a significant role in enhancing regional economic integration
11	Santos Silva Tenreyro Silvana	The Log of Gravity	Log of Gravity equation	Panel data Regression OLS with Gravity Equation	The results are compared with those generated by OLS, nonlinear least squares, and tobit estimations

Source: Author source

2.4. Research Gap

Even though there is a significant amount of literature on regional economic integration in ASEAN, China, and India, there is still a noticeable lack of research in conducting thorough impact assessments of integration policies and their effects on cross-border trade dynamics and economic growth to compare and understand the long run position. On the other hand, the existing studies show that RCEP (Regional Comprehensive Economic Partnership) has become the major multilateral trade agreement, but there still needs to be clear empirical studies that look at how ASEAN avoids the domination and external power over their regional market. Therefore, this Research will focus on one hand at evaluating the effectiveness of various integration initiatives, such as free trade agreements or infrastructure development projects, in promoting cross-border trade

dynamics and economic growth within the region as a comparison look. More knowledge is needed regarding the difficulties and advantages related to the institutional frameworks and efforts to align regulations across various economies in the ASEAN, China, and India regions. This gap in research is significant when it comes to facilitating international trade and promoting economic integration.

There may be a limited amount of research on the long-term effects of ASEAN, China, and India's economic integration on things like the environment, social inclusion, and wealth distribution. This study could look into how well policies for integration support long-term goals for development, reduce income inequality, and help reduce poverty in the region. In order to achieve inclusive growth, it is essential to check if the benefits of RCEP are shared relatively among different areas and sectors. With the increasing importance of the digital economy and e-commerce, there may be a gap in research examining the role of digital technologies in facilitating cross-border trade and economic integration within ASEAN, China, and India. Research could explore the opportunities and challenges associated with digital trade, data governance, and cybersecurity in the context of regional economic integration efforts.

Chapter 3

Research Methodology:

This chapter explores the fundamentals of research methods, data collection, and data analysis techniques. Thus, collecting accurate and pertinent data is essential for any empirical analysis, and we investigate various methods and considerations for effective data collection. Gravity modeling and panel data analysis allow us to capture different aspects of the relationship between trade flows and regional economic integration. The gravity model helps explain the determinants of trade flows, while panel data analysis allows for examining how these relationships evolve over time and across different countries.

The core reason for adopting this method of research approach in this study is the multidimensional and intricate nature of the research questions. The quantitative approaches alone may not cover the broader picture of these dynamics, whereas the qualitative approaches need more generalizability. Through the integration of qualitative analysis and qualitative insights, we can move beyond the limitations of each approach and fully utilize their inherent advantages. As a result, this chapter will explain the research method process, the econometric model and literature review summary, and the data collection method used in this study. Figure 3.1 presents a clear picture of the research process.

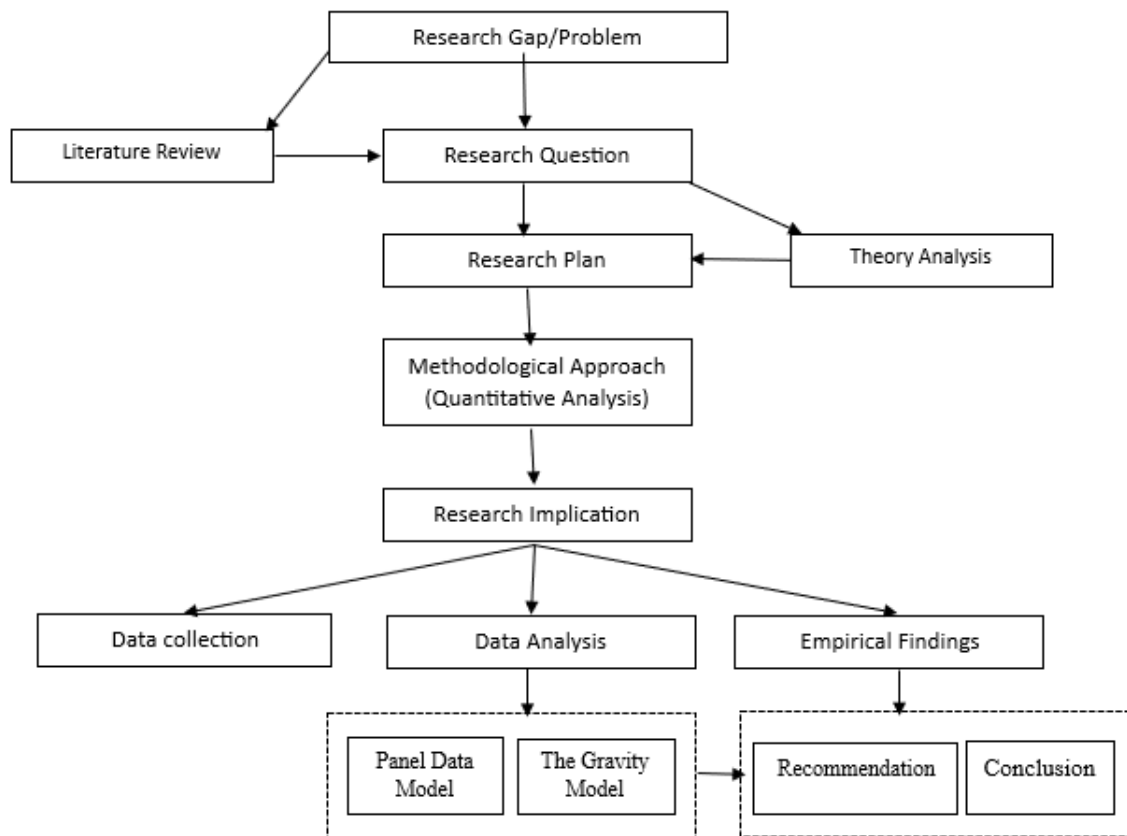


Figure 3. 1. Research Process
Source: Authors Computation

3.1. Data Collection Method

The dataset that was used for the analysis includes 12 nations over the two-decade period from 1999 to 2023. China, India, and ASEAN members Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam are among the nations covered in the study. Data on a range of factors, such as Trade, GDP, Population, FDI, Economic Size, Distance, Geopolitical index, Policy Index, and FTA, Dev_Status and remote, were obtained from credible sources, including IMF, UN Comtrade, the World Bank, the ASEAN Organization, the WTO, the UN, CIPE, and the government official websites and reputable literatures. .

For the analysis, the annual data in the dataset made it easier to create a dynamic trade model highlighting China and India's trade with ASEAN countries. In particular, the dataset contains data on:

- Trade Flows, FDI, GDP, population, economic size and other indexes of all ASEAN members, as well as that of India and China
- Distance figures for all ASEAN countries, including India and China
- FTA and Dev_status are as dummy variables.

This study ensures a comprehensive and rigorous analysis by incorporating existing research on the region's economic integration and trade flows. Moreover, the selected variables for inclusion in the investigation have been identified prior by other scholars (Akhter & Ghani, 2010; Anh Thu et al., 2015; Chakravarty & Chakrabarty, 2014; Zhai, 2023)

3.2. Data Description

This section explains the data description, which includes the nature of variables, codes, measurement units, and data sources.

Table 3. 1. Variables Attributes

Variables	Description	Unit	Source
Dependent Variable			
Trade	Trade flow between country	GDP current US\$	Data WB
Independent Variables			
FDI	Foreign Direct Investment flows	current US\$	Data WB
GDP	Natural logarithms of the GDP	current US\$	Data WB
Economic_Size	Represent the economic size and development level of the country	current US\$	Data WB
GDP Distance			
Population	Geographic population of China, ASEAN and India		Data WB
Distance/ Remote	Geographical distance	KM	CIPE
Geopolitical	Political Stability and Cooperation	Trade (% of GDP)	WDI
Policy	Specific trade policies or regulatory measures affecting trade	Trade (% of GDP)	WDI
Dummy Variables			
Dev_Status	Development level of the country	1,0	ASEAN Stats
FTA	Indicating the presence of a Free Trade Agreement	1,0	ASEAN Stats

This dataset defines several variables, each representing a specific description. Trade is dependent variables, and FDI, GDP, Distance, Population, Geopolitical Index, Policy Index, and economic size, remote, GDP_distnace are the independent variables.

FTA and Dev_status are the Dummy variable indicating the presence of a Free Trade Agreement, Developing and under developed countries and between countries (1 if yes, 0 if no).

Trade is bilateral between countries i and j at time, GDP is real gross domestic product of country i and j). Distance or remote, in kilometers, is the ground distance between two countries. The GDP should show a favorable predicted indication. It demonstrates how much larger economies would trade as compared to underdeveloped and poor nations. Moreover, it is projected that trade would decline as distance between partners rises. The growing distance will increase the transportation and information expenses, therefore affecting the trade among the partner nations. The higher trade cost would make the items costly and so lower the trading level (Adila & Suryadipura, 2023). Studies in empirical literature have included dummy factors for involvement in different preference configurations. A positive coefficient of dummy variable for preferential arrangement means that both of the participants of the preferred arrangement would trade more among themselves. This is the influence of regional arrangement on trade creation. Conversely, a negative coefficient indicates that the members are migrating from low-cost sources to the high-cost sources, so they have loss in their trade. This is the result of trade diversion influence (Akhter & Ghani, 2010).

3.3. Model Estimation

The gravity model is a widely used tool to estimate the trade flows between member countries and regions. Newton's law of Universal Gravitation leads one to derive the gravity model. The gravity theories hold that the amount of trade between two countries directly depends on their relative sizes—typically the economic size as shown by GDP—and inversely on the distance between them—as a surrogate for transportation costs. Gravity notions were first applied in economic relationships by Tinbergen (1962) and Poyhonen (1963) (Sarin, 2018; Zhai, 2023). Still, academics have added more to the basic form to highlight other factors influencing bilateral commerce. The standard gravity model does not provide the theoretical foundations; however, it has improved. Our study uses the extended form of the gravity model with panel data analysis that includes some important variables such as Trade, GDP, Economic size, Population FDI and others.

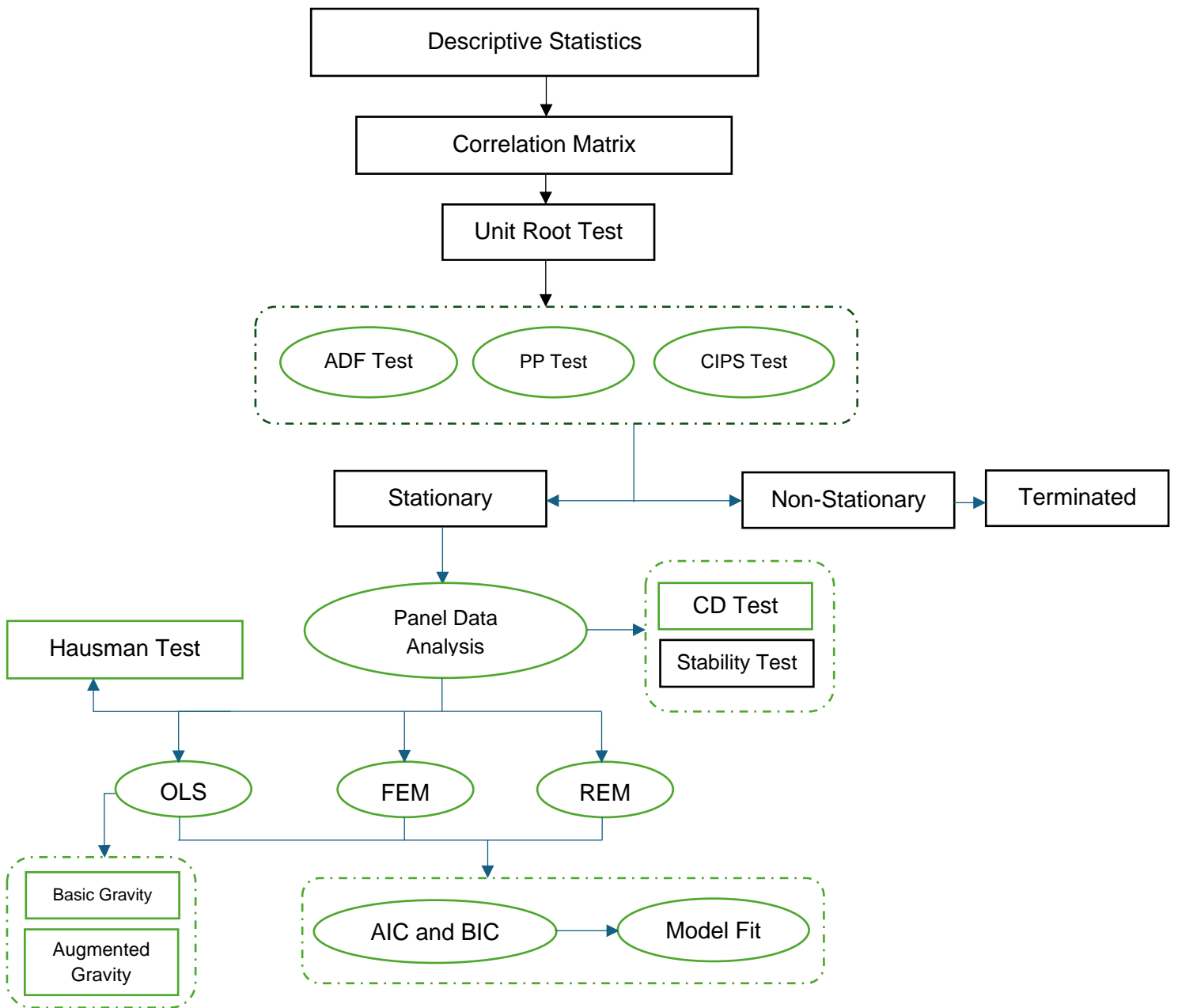


Figure 3. 2. Model Estimation
Source: Authors Computation

3.4. Model Description

3.4.1. The Gravity Model

Gravity model One often used instrument to project trade flows between members of different countries is the gravity model. Originally applied by Tinbergen (1962), the idea is predicated on Newton's law of gravity. It connects the bilateral trade flows with GDP, distance, border, and other elements influencing the trade patterns. According to the conventional gravity model, trade between members of nations is inversely related to the distance—a proxy for information cost and transportation cost—and proportional to the national wealth since these costs are lowered as geographical distances drop. Included in the gravity model are other factors including country size, population size, FDI, Dev_status, infrastructure, etc. Though it has evolved with time, the conventional gravity model lacks the theoretical underpinnings. This model has theoretical basis from works on Bergstrand (1990), Frankel (1999), Anderson and Wincoop (2003), and Helpman (2006) (Bergstrand, 1985; Santos Silva & Teneyro, 2006).

3.4.1.1. Basic Gravity

Based on Newtonian physics, the gravity equation has become an important tool for understanding and predicting different types of cross-border flows, such as international trade and regional trade. This empirical model is often used to look at how two-way trade works. It says that the amount of trade between two entities is directly related to their economic sizes, usually measured by GDP, and inversely related to the distance between them, representing the cost of transportation. Even though gravity models have been shown to fit real-world data well in the past, they haven't always been good at making predictions because they didn't have strong theoretical foundations (Bergstrand, 1985; Brada & Mendez, 1985; Chakravarty & Chakrabarty, 2014). The basic Traditional gravity model equation is:

$$trade_{ij} = C * \frac{GDP_i * GDP_j}{Dist} \dots\dots\dots 1$$

Nevertheless, progress in theory over the years has supported the ability of gravity models to predict the future, giving us a better understanding of how they work. Anderson's groundbreaking work 1979 created a general equilibrium model and a reduced-form gravity equation. This work paved the way for further theoretical research. In 1985, Helpman and Krugman added sectoral dynamics to this framework to distinguish between industries with

constant returns and those with increasing returns. (Bergstrand, 1985) (1985, 1989) improved the microeconomic foundations of the gravity equation using different assumptions, showing how it can be used in various situations.

Deardoff (Cremaschi & Dascal, 1998) also showed that extreme cases of the Heckscher-Ohlin model can be used to make gravity models. This enlightens the theoretical underpinnings of the model in trade theory. These theoretical gains have made the empirical trade literature more confident that the gravity equation can be used as a multivariate tool to determine regional trade agreements' impact on trade between two countries.

3.4.1.2. Augmented Gravity

Gravity models have been applied to establish the essence of preferential trade liberalization. Central presentations of these works are attributed to Aitken (1973) and Endoh (1999, 2000), to name a few. More important is that these models show how regional economic integration works. Dummy variables were first applied by Aitken (1973) to examine the impacts of trade within a region. Since then, studies like that by Andreson have tried to improve these methods to ease the distinction between the processes of trade creation and trade diversion. (Bergstrand, 1985; Bergstrand et al., 2013; Chakravarty & Chakrabarty, 2014; Zhai, 2023)

We will now take a closer look at the problem of econometric specification. Usually, cross-section estimation methods are used to determine how much a country A exports to a country B. for instance basic model only include GDP and economic size as argument but More complicated models might contain other explanatory variables, such us GDP_distance, FTA, Dev_status, FDI, Population, Policy Index, geopolitical index where the equation can be like this:

$$\begin{aligned} \text{LNtrade}_{ij} = & \beta_0 + \beta_1 \ln \text{RealGDP}_{ij} + \beta_2 \ln \text{Pop}_{ij} + \beta_3 \ln \text{economicsize}_{ij} + \\ & \beta_4 \ln \text{FDI}_{ij} + \beta_6 \ln \text{remote}_{ij} + \beta_7 \ln \text{GDP_Distance}_{ij} + \beta_8 \text{policy}_{ij} + \\ & \beta_8 \text{Geopolitical}_{ij} + \mu_{ij} \dots \dots \dots 2 \end{aligned}$$

$$\begin{aligned} \text{LNtrade}_{ij} = & \beta_0 + \beta_1 \ln \text{RealGDP}_{ij} + \beta_2 \ln \text{Pop}_{ij} + \beta_3 \ln \text{economicsize}_{ij} + \\ & \beta_4 \ln \text{FDI}_{ij} + \beta_6 \ln \text{remote}_{ij} + \beta_7 \ln \text{GDP_Distance}_{ij} + \beta_8 \text{policy}_{ij} + \\ & \beta_8 \text{Geopolitical}_{ij} + \beta_{10} \text{FTA}_{ij} + \beta_{11} \text{Dev_status}_{ij} + \mu_{ij} \dots \dots \dots 3 \end{aligned}$$

It may come as a surprise, however, given the details of our study, that an estimator's consistency—rather than just its efficiency—can be impacted by the heteroskedasticity pattern and, in fact, the form of all higher-order moments of the conditional distribution of the error component (Santos Silva & Tenreyro, 2006).

But even today, after such improvements in both theoretical and empirical work, there remains a considerable amount of unfinished business in how well gravity models can predict what is happening in international trade. It is well known that this model has been very suitable for the real world. It has some theoretical work to make it even better in predicting the future and of even better use while making policy and strategic plans in regional economic integration. To sum up, panel data analysis is a potent way to determine how complicated cross-border trade is. It has the potential to help policy-makers as well as researchers understand and navigate the complications that arise from the webbed global trade relations (Bergstrand, 1985; Bergstrand et al., 2013)

The Equation 2 represents the bare bones of the Gravity Model and other variables useful for panel data analysis, notably FDI flows, trade policies, regional factors, and the size of the economy. It also has fixed effects to control for unknown differences between countries and between times. This all-around method lets us look deeper into the elements affecting trade between ASEAN, China, and India.

3.4.2. Panel Data Model Analysis

Applying panel data analysis is one way to understand how cross-border trade changes over time in multiple countries. This has unique impacts per country and unforeseen differences like any other process. The panel data framework gives more useful information than single-equation models. It is becoming more popular because it lets researchers look at the same problem at different locations and make regular observations over a set amount of time. The panel data model has been used with a number of different estimation methods (Sarin, 2018). The standard OLS estimator deals with something other than the heterogeneous issue of time and space involved in the panel data analysis. To observe it appropriately, we need to include the effects of econometrics to control them. To take into account the heterogeneous impact of errors in our two-way error component model, FEM and REM are available. Factors that affect trade flows and trade behavior can be learned when we use fixed effects models, random effects models, and panel data models. And how trade policies affect them. Panel data allows us to simultaneously analyze

data across both time and multiple entities (countries, regions). It accounts for individual heterogeneity (fixed effects) and time trends (time effects) (Gujarati, 2021).

Classical gravity models traditionally had only limited functionality because they solely used cross-sectional data and a single set of equations estimating trade flows between two countries at a given time. Panel data analysis is a relatively new development that has induced a paradigm shift by providing a more comprehensive understanding of how trade evolves in numerous sites over time. This technique gained momentum and remarkably became popular due to its ability to enrich our knowledge about the evolution of trade patterns and their impact over time (Santos Silva & Tenreyro, 2006; Zhai, 2023).

Therefore, here we will two sperate equation as ASEAN and India as well as ASEAN and China. We will understand how the trade flow is india and china from ASEAN context.

Equation for ASEAN-India

$$LNtrade_{ij} = \beta_0 + \beta_1 lnRealGDP_{ij} + \beta_2 lnPop_{ij} + \beta_3 lneconomicsize_{ij} + \beta_4 lnFDI_{ij} + \beta_6 lnremote_{ij} + \beta_7 lnGDP_Distance_{ij} + \beta_8 policy_{ij} + \beta_8 Geopolitical_{ij} + \beta_{10} FTA_{ij} + \beta_{11} Dev_status_{ij} + \mu_{ij} \dots \dots \dots 4$$

Equation for ASEAN-China

$$LNtrade_{ij} = \beta_0 + \beta_1 lnRealGDP_{ij} + \beta_2 lnPop_{ij} + \beta_3 lneconomicsize_{ij} + \beta_4 lnFDI_{ij} + \beta_6 lnremote_{ij} + \beta_7 lnGDP_Distance_{ij} + \beta_8 policy_{ij} + \beta_8 Geopolitical_{ij} + \beta_{10} FTA_{ij} + \beta_{11} Dev_status_{ij} + \mu_{ij} \dots \dots \dots 5$$

3.4.2.1. Fixed Effect Model (FEM) and Random Effect Model (REM)

In the panel data framework, the Fixed Effect Model and the Random Effect Model are two prominent estimation methods. To examine which of these effects are correct, we use the Husman Test.

The Fixed Effect Model allows the intercepts to differ across units; this has the advantage of catching the individuality of each unit. Under the Random Effect Model, the intercepts are assumed to be randomly drawn from the general population. The former has

more degrees of freedom. The Fixed Effect Model was chosen because it can see both time-varying and fixed variables when considering the potential for trade between country pairs. The Fixed Effect Model is better at picking up time-invariant effects. The Random effect model is implemented as the Random Effect Model explains trade between countries using both time-varying and fixed variables (Anderson, 1979; Zhai, 2023). Nonetheless, the FIXED model captures the unvarying effects considerably better.

Fixed Effect Model (FEM)

$$Y_{it} = \beta_{1t} + \beta_1 * X_{2it} + \beta_3 * X_{3it} + u \dots \dots \dots 5$$

Random Effect Model (REM)

$$\beta_{1i} = \beta_1 + \varepsilon_i, i = 1,2,3 \dots \dots \dots 6$$

Substituting Equation (6) into (5), the model can be written as:

$$Y_{it} = \beta_{1t} + \beta_1 * X_{2it} + \beta_3 * X_{3it} + \varepsilon_i + u \dots \dots \dots 7$$

The FEM is generally thought to be a good way to estimate gravity equations. However, it can't look at time-invariant effects, which are sometimes just as important as effects that change over time. Researchers have often focused on the REM to predict potential trade between two countries. This method requires that the factors that explain the relationship between i and ε_i are not affected by i and ε_i at any point in time (t) or cross-section (i, j) [Egger 2002] (Sarin, 2018).

3.4.3. Selection of Panel Data Test

3.4.3.1. Descriptive Test

Descriptive statistics give a synopsis of the data set together with understanding of the central tendency, dispersion, and distribution shape (Yellapu, 2018). Typical responses include:

- Mean: The normal value.
- Median: The middle value of data arranged otherwise.
- Standard deviation: The indicator of data distribution about the mean.
- Range: The variations between the minimum and maximum values.

3.4.3.2. Correlation Matrix

A correlation matrix is a table displaying between sets of variables correlation coefficients. Every matrix cell stands for the two-variable correlation. The values range -1 to 1, therefore reflecting the direction and intensity of the linear relationship (Janse et al., 2021):

- 1: Positive connection.
- -1: Negative correlation.
- 0: No connection or Correlation

3.4.3.3. Unit Root Test (Stationary Test)

This is critical to determine the sequence of integration for every variable since testing for cointegration needs that all variables be integrated of order one; so, the panel unit root test should be performed to achieve the objective (Al-mulali et al. 2015). Recent literature recommends several panel root tests, which have been primarily employed in the studies. Stationarity is a fundamental concept that refers to a process with constant statistical properties over time. Statistical traits like mean, variance, and autocorrelation that don't change over time are also present in stationary time series. Non-stationary time series, on the other hand, have trends, cycles, and different regular patterns that change over time. This makes it hard to model and predict their behavior (Gujarati, 2021). To ensure that the results of a time series analysis are correct, it is essential to do stationarity tests on the data before using any models or analysis methods. It is known that the Phillips-Perron (PP), Augmented Dickey-Fuller (ADF), and Cross-sectional Augmented Implied Spuriousness (CIPS) tests can check if something is stable.

The ADF (Augmented Dickey-Fuller), the PP test (Phillips-Perron) and the CIPS Cross-sectionally Augmented Im-Pesaran-Shin) are vital for determining whether the panel data variables are stationary or not (Im et al., 2003). They aim to check if there is a presence of a unit root that denotes non-stationarity against its alternative hypothesis of stationarity. The ADF test adds lagged difference terms to account for higher order correlation; In contrast, the PP test corrects for any serial correlation and heteroskedasticity in the errors; the CIPS test extends the Im-Pesaran-Shin by introducing cross-sectional dependence.

3.4.3.4. Hausman Test

The Durbin–Wu–Hausman test (the Hausman specification test) is a statistical hypothesis test in econometrics. The test evaluates the consistency of an estimator when compared to an alternative, less efficient estimator, which is already known to be consistent. It helps one evaluate if a statistical model corresponds to the data.

3.4.3.5. Cross Dependence (CD) Test

This study’s econometric procedure starts with a cross-dependence (CD) test. The recognition of CD is the initial step in all kinds of panel data empirical analysis, and it should be employed before carrying out panel unit root tests (Rauf et al., 2018; Dong et al., 2019; Shuai et al., 2019). However, the main objective of the CD test is to avoid the means from correlation computation. The null hypotheses assume the presence of sectional independence in the panel, whereas the presence of CD indicates that the null hypothesis is rejected (Gujarati, 2021; Yellapu, 2018).

3.4.3.6. Robustness Checks

Robustness checks verify that the regression analysis results are reliable and not sensitive to changes in the model or data sample. This test aims to Verify whether the conclusions hold under different assumptions or variations. And also Address potential concerns about model specification, outliers, or omitted variables. The standard Roboust checks are:

- **Bootstrap Resampling:** One common method is bootstrap resampling, which involves repeatedly sampling from the data and re-estimating the model to check the stability of the coefficients.
- **Subsample Analysis:** Another approach is to analyze different subsamples to ensure consistent results across different data segments.

3.4.3.7. Model Fit Evaluation

Model fit evaluation involves assessing how well the regression model explains the variation in the dependent variable.

➤ **R-squared and Adjusted R-squared:** These metrics indicate the proportion of the variance in the dependent variable that is explained by the independent variables. Adjusted R-squared adjusts for the number of predictors in the model.

➤ **AIC (Akaike Information Criterion) and BIC (Bayesian Information Criterion):** These criteria provide a means to compare models, balancing goodness of fit with model complexity. Lower values indicate better model fit.

Chapter 4

Results and Discussion

In this chapter, we present the findings from our Gravity Model with panel data analysis, examining the determinants of trade flow among the selected countries. Utilizing data from 1999 to 2023, our model employs the Panel Least Squares method, incorporating variables such as GDP, Population, remote, foreign direct investment, exports, imports, economic size, distance, policy, geopolitical factors, and free trade agreements (FTAs). The results, reveal that exports, imports, economic size, policy, geopolitical factors, and the ASEAN-India FTA significantly influence trade flows, as evidenced by their statistically significant coefficients. Conversely, GDP, FDI, distance, and the ASEAN-China FTA exhibit little impacts. The model demonstrates a high explanatory power with an R-squared value of 0.94, indicating that the independent variables account for 90.42% of the variability in trade flow and 97% for India. Despite the robust fit, the Durbin-Watson statistic highlights the presence of positive autocorrelation, suggesting potential areas for further refinement. These results underscore the complex interplay of economic and geopolitical factors in shaping international trade patterns, providing valuable insights for policymakers and stakeholders.

4.1. Results

4.1.1. Descriptive Statistics Analysis

The summary statistics in this section relate to a collection of descriptive metrics that encapsulate the salient characteristics of a dataset, including its mean, median, standard deviation, skewness, and kurtosis. When analyzing managed number data and presenting it, descriptive statistics—also known as deductive statistics or simple statistics—comprise averaging, compiling, linking, and delivering a brief and understandable image of a condition at a symptom (Polit & Beck, 2016). Moreover, these metrics are crucial to study since they offer a succinct synopsis of the data and enable researchers to make significant inferences about their findings. (Santos Silva & Tenreyro, 2006; Zhai, 2023).

In Table 3.1. demonstrated general statistics for the chosen variables, and LNTRADE represents trade volume between regions. LNREALGDP is the natural

logarithm of real GDP, implying economic productivity. The demographic population is revealed by LNPOP, the population's natural logarithm. The natural logarithm of foreign direct investment (LNFDI) measures investment inflows. LNECONOMICSIZE is the natural logarithm of GDP and other economic parameters. Remoteness indicates geographical and logistical distance. The policy environment includes trade policies and regulations. Trade and investment are affected by geopolitics. GDP_DISTANCE measures trading partner economic distance. FTA and DEV_STATUS are binary variables that indicate free trade agreements and country development. These factors form a complete framework for analyzing ASEAN, India, and China trade and economic linkages.

Table 4.1.1. Descriptive Summary of Statistics for ASEAN and India

Sample:	1999 2023										
Observation	250										
	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob	Sum	Sum Sq. Dev.
LNTRADE	7.718	8.218	10.395	1.067	1.978	-1.248	4.177	79.330	0.000	1,929.616	974.587
LNREALGPD	28.062	28.253	29.033	26.852	0.665	-0.432	1.853	21.458	0.000	7,015.376	110.258
LNPOP	20.988	20.996	21.258	20.763	0.109	-0.020	2.394	3.865	0.145	5,247.064	2.958
LNFDI	21.668	21.911	25.982	15.319	1.947	-0.373	2.786	6.267	0.044	5,417.114	943.777
LNECONOMIC SIZE	26.179	26.518	29.097	22.921	1.568	-0.337	1.933	16.587	0.000	6,544.770	612.302
GEOPOLITICAL POLICY	0.202	0.202	4.226	-7.604	1.590	-1.629	8.809	462.053	0.000	50.464	629.557
REMOTE	126.180	99.060	425.363	32.667	89.712	1.686	5.310	174.071	0.000	31,545.060	2,003,992
GDP_DISTANCE	2.391	2.396	3.116	1.589	0.382	-0.084	2.280	5.700	0.058	597.664	36.342
FTA	7.468	7.172	11.363	2.435	1.927	0.243	2.295	7.634	0.022	1,867.016	924.239
DEV_STATUS	0.728	1.000	1.000	0.000	0.446	-1.025	2.050	53.153	0.000	182.000	49.504
DEV_STATUS	0.672	1.000	1.000	0.000	0.470	-0.733	1.537	44.669	0.000	168.000	55.104

Source: Author Computation

Table 4.1.2. Descriptive Summary of Statistics for ASEAN and China

Observation	250										
Sample	1999-2023										
	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob	Sum	Sum Sq. Dev.
LNTRADE	7.625	8.447	11.056	1.788	2.532	-0.639	2.205	23.626	0.000	1,906.37	1,595.953
LNREALGDP	29.348	29.653	30.515	27.721	0.944	-0.396	1.677	24.747	0.000	7,337.06	221.703
LNPOP	21.062	21.058	21.247	20.949	0.063	0.750	3.610	27.320	0.000	5,265.47	0.988
LNFDI	21.668	21.911	25.982	15.319	1.947	-0.373	2.786	6.267	0.044	5,417.11	943.777
LNECONOMIC SIZE	26.179	26.518	29.097	22.921	1.568	-0.337	1.933	16.587	0.000	6,544.77	612.302
GEOPOLIT CAL	0.202	0.202	4.226	-7.604	1.590	-1.629	8.809	462.053	0.000	50.46	629.557
POLICY	126.180	99.060	425.363	32.667	89.712	1.686	5.310	174.071	0.000	31,545.06	2,003,992
REMOTE	3.248	3.299	4.268	1.720	0.604	-0.288	2.061	12.642	0.002	811.92	90.845
GDP_	8.256	8.370	11.235	4.127	1.444	-0.112	2.581	2.348	0.309	2,064.05	519.222
DISTANCE											
FTA	0.728	1.000	1.000	0.000	0.446	-1.025	2.050	53.153	0.000	182.00	49.504
DEV_STATUS	0.672	1.000	1.000	0.000	0.470	-0.733	1.537	44.669	0.000	168.00	55.104

Source: Author Computation

The descriptive statistics for ASEAN and India, as well as ASEAN and China in Tables 4.1.1 and 4.1.2, provide a comprehensive view of economic indicators and dynamics in these regions, as the mean and median provide information about the variable's central or typical values, whereas the range (maximum and minimum) reflects its variability/spread. The trade (LNTRADE), both areas have somewhat high levels. The mean for ASEAN and India is 7.718; the median is 8.218, implying rather high trade volumes. With a skewness of -1.249 and a standard deviation of 1.978, the distribution is somewhat left-skewed. With a standard deviation of 2.532 and a less left-skewed distribution (skewness of -0.639), ASEAN and China show more variety, even having a similar mean of 7.625. Our study aligns with Chaisse and Gugler's study, emphasizing the fluctuating nature of trade volumes in ASEAN, China, and India. The typical trade volume is relatively high but varies significantly, especially between ASEAN-India and ASEAN-China pairs, as evidenced by average LNTRADE figures. Additionally, the standard deviations of 1.978 for ASEAN-India and 2.532 for ASEAN-China reinforce the argument about differences in trade intensity, which supports the notion that regional economic integration has resulted in considerable yet unequal growth in trade among these continents (Alvstam et al., 2015).

Meanwhile, regarding real GDP, China has a higher mean and more considerable variability than India and ASEAN. China has a higher mean 29.348 and more variability (standard deviation of 0.944) than India and ASEAN about real GDP (LNREALGDP), thereby indicating more economic swings. Both times the skewness is somewhat negative; China at -0.399 and India at -0.432. With a lesser standard deviation of 0.665 and a mean of 28.062, India shows less GDP fluctuation. These results align up with the approach described in (Greene, 2018) Econometrics book, which clarifies how higher standard deviation reflects higher unpredictability in economic indicators.

Population (LNPOP) data shows less fluctuation in both regions than in ASEAN. With a skewness of -0.029, India specifically has a mean of 20.988 and a median of 20.996, therefore indicating a balanced distribution. China's mean is slightly higher at 21.062, with a median of 21.058, and has a small right-skew (skewness of 0.750). This points to far more volatile and slightly higher population figures for China. Thus, population statistics are comparable. The finding matches the statistical ideas presented in (Gujarati, 2021) Basic Econometrics, therefore clarifying the meaning of mean, median, and skewness."

When it comes to FDI foreign direct investment, both ASEAN and India have the same mean and median values 21.668 and 21.911, respectively, with limited fluctuation (standard deviation of 1.947) and a slightly left-skewed distribution (skewness of -0.373), which is consistent with ASEAN and China. Although foreign direct investment figures are similar across areas. This result is supported by econometrics model in details. (Alvstam et al., 2015; Greene, 2018; Gujarati, 2021)

Both regions have similar economic size (LNECONOMICSIZE) values, with a mean of 26.179 and a median of 26.518, showing a somewhat left-skewed distribution. The geographical remoteness (REMOTE) metrics suggest that ASEAN and India have a mean of 2.391 and a median of 2.396, indicating reduced variability and more or less symmetry. In comparison, ASEAN and China have a higher mean of 3.248 and a median of 3.299, making them more variable yet somewhat left-skewed. The GDP distance (GDP_DISTANCE) varies significantly by region. The mean in ASEAN and India is 7.468, and the median is 7.172, with a tiny positive skew. On the other hand, ASEAN and China have a substantially lower mean of 3.248 and a standard deviation of 0.604, resulting in a slightly left-skewed distribution. The results of this supported by various studies (Greene, 2018, p. 20; Santos Silva & Tenreyro, 2006)

The Policy (POLICY) data reveal high diversity in both regions, with a mean of 126.180 and a median of 99.060. Its variation has a high standard deviation of 89.712 and a right-skewed distribution skewness = 1.686. Additionally, the geopolitical variable (GEOPOLITICAL) has a mean and median of 0.202. Its standard deviation is 1.590, which yields a skewness of -1.629 and a kurtosis of 8.809, indicating a significantly left-skewed distribution. These variances and the positive and negative trends of various political and geopolitical issues highlight regional disparities and their impact on economies and trade relations. Understanding these discrepancies is critical for developing successful policies and reacting to the geopolitical context. Lastly, the bidirectional variables Free Trade Agreements (FTA) and Development Status (DEV_STATUS) have asymmetrical distributions, with FTA having a mean value of 0.728 and a median of 1.000 for ASEAN and India, identical to ASEAN and China. (Ekanayake et al., 2010; Santos Silva & Tenreyro, 2006)

On the other hand, we know that the median measures central tendency, which is less sensitive to outliers than the mean, and it represents the values that distinguish the upper half of data from the lower half. Furthermore, the skewness and kurtosis reveal the distribution's form. A positive skewness implies a propensity toward the right, whereas a negative skewness indicates skewed data to the left. Kurtosis is a measure of how peaked or flat a distribution is in comparison to a normal distribution. Low kurtosis suggests that the distribution is more balanced, with more dispersed data and extreme values. High kurtosis means a sharper peak, more data clustering around the mean, and fewer extreme values. Kurtosis also helps economists comprehend the form of a variable's distribution and its stability or risk. Kurtosis' normal distribution is represented with a value of three. However, numbers above three indicate that the tails have higher weight, implying that more extreme values exist in the data. Values less than three suggest that the tails are given less weight, indicating that the data contains fewer extreme values than possible. This study used the Jarque-Bera test to determine whether the data was expected. If the p-value is less than 0.05, the data are not distributed normally. In this scenario, data with a high Jarque-Bera statistic but a low probability, as shown in Tables 4.1.1 and 4.1.2, are not normally distributed. The total and sum of squares of deviations from the mean provide further information about the data's distribution.

4.1.2. Correlation Matrix

The correlation matrix coefficients between variables are explained in Tables 4.2.1 and 4.2.2 for ASEAN India and ASEAN China. The correlation matrix discovers data patterns and trends by examining variable relationships. We need correlation matrices to determine the degree and direction of variable correlations in this investigation. However, this knowledge helps build hypotheses, explore variable correlations, and pick regression model variables (Janse et al., 2021). Economics requires correlation tests to quantify variable relationships for forecasting and decision-making. Statistical analysis helps economists determine relationship strength and direction, promoting evidence-based decisions (Gujarati, 2021). We tested the relationships between the variables and directions using the correlation test for ASEAN India and ASEAN China. The correlation matrix of linear relationship strengths between the variables LNtrade, LNPop, LNRealGDP, LNEconomicsize, LNFDI, Policy, Remote, Geopolitical, Dev_Status, FTA is shown in Table 4.2.1. for ASEAN India and Table 4.2.2. for ASEAN China. The table's coefficient correlation range is shown as follows: a perfect positive correlation is represented by a coefficient of 1, a perfect negative correlation by a coefficient of -1, and no correlation between the variables is indicated by a coefficient of 0.

The correlation matrix shows pairwise correlation coefficients between each pair of variables. For ASEAN-India, trade volumes (LNTRADE) have a strong positive correlation with foreign direct investment (LNFDI) at 0.62, and as well as the economic size at 0.18, indicating that higher trade volumes are associated with increased investment and greater economic size. Trade volumes also positively correlate with GDP (LNREALGDP) at 0.42, and population (LNPOP) at 0.54, suggesting that more significant and more populous economies experience higher trade volumes and especially, the correlation between trade volumes and policy factors (POLICY) is moderate 0.23, indicating some degree of relationship. On another hand, ASEAN-China shows a similar positive correlation between trade volumes and foreign direct investment 0.78 economic size at 0.66, with larger economic strengths. For instance, trade volumes and GDP have positive correlation 0.11 lower than ASEAN India. Additionally, ASEAN-China demonstrates a stronger correlation between trade volumes and population 0.29 than ASEAN-India, indicating more pronounced trade dynamics in China. While both regions exhibit high variability in trade, China's data show more significant fluctuations and less negative skewness compared to India. This reflects that China's trade dynamics are characterized by higher volatility and broader economic impacts. Overall, these

correlations highlight the interconnectedness of trade, investment, and economic performance in both ASEAN-India and ASEAN-China contexts, emphasizing the complex relationships driving regional economic interactions. Over all, the finding of this study, the correlation matrices highlight significant interconnection on trade, investment, and economic performance is same other pervious litterateurs (Greene, 2018; Santos Silva & Tenreyro, 2006; Zhai, 2023)

Table 4.2.1. Correlation Matrix for ASEAN and India

	LNTR ADE	LNREA LGPD	LNPOP	LNFDI	LNECON OMICSIZ E	GEO POLI TCAL	POLI CY	REMO TE	GDP_ DIST ANCE	FT A	DEV_ST ATUS
LNTRADE	1.00										
LNREALGDP	0.42	1.00									
LNPOP	0.54	0.86	1.00								
LNFDI	0.62	0.51	0.50	1.00							
LNECONOMICS IZE	0.18	0.34	0.20	0.52	1.00						
GEPOLITICAL	-0.19	0.10	-0.21	-0.06	0.11	1.00					
POLICY	0.23	0.06	-0.16	0.40	0.03	0.32	1.00				
REMOTE	0.41	0.67	0.72	0.49	0.09	-0.15	-0.08	1.00			
GDP_DISTANCE	0.14	0.30	0.11	0.43	0.02	0.18	0.47	0.47	1.00		
FTA	0.28	0.56	0.53	0.32	0.17	-0.05	-0.01	0.36	0.12	1.00	
DEV_STATUS	0.44	0.53	0.57	0.43	0.05	0.15	0.09	0.53	0.30	0.59	1.00

Source: Author Computation

Table 4.2.2. Correlation Matrix for ASEAN and China

	LNTR ADE	LNREAL GDP	LNPO P	LNFD I	LNECON OMICSIZ E	GEPOL ITCAL	POLI CY	REM OTE	GDP_DIST ANCE	FTA	DEV_S TATUS
LNTRADE	1.00										
LNREALGDP	0.11	1.00									
LNPOP	0.29	0.64	1.00								
LNFDI	0.78	0.47	0.46	1.00							
LNECONOMICS IZE	0.66	0.31	0.08	0.52	1.00						
GEPOLITICAL	-0.20	0.09	-0.40	-0.06	0.11	1.00					
POLICY	0.31	-0.01	-0.27	0.40	0.03	0.32	1.00				
REMOTE	0.23	0.89	0.64	0.58	0.23	0.10	0.16	1.00			
GDP_DISTANCE	-0.07	0.49	0.00	0.33	0.01	0.44	0.49	0.53	1.00		
FTA	0.13	0.58	0.42	0.32	0.17	-0.05	-0.01	0.55	0.26	1.00	
DEV_STATUS	0.23	0.54	0.51	0.43	0.05	-0.15	0.09	0.56	0.29	0.59	1.00

Source: Author Computation

4.1.3. Stationarity Test (Unit Root test)

Stationarity is a fundamental concept that refers to a process with constant statistical properties over time. Statistical traits like mean, variance, and autocorrelation that don't change over time are also present in stationary time series. Non-stationary time series, on the other hand, have trends, cycles, and different regular patterns that change over time. This makes it hard to model and predict their behavior (Greene, 2018; Gujarati, 2021; Santos Silva & Tenreyro, 2006; Zhai, 2023). To ensure that the results of a time series analysis are correct, it is essential to do stationarity tests on the data before using any models or analysis methods. It is known that the Phillips-Perron (PP), Augmented Dickey-Fuller (ADF), and Cross-sectional Augmented Implied Spuriousness (CIPS) tests can check if something is stable.

The ADF (Augmented Dickey-Fuller), the PP test (Phillips-Perron) and the CIPS Cross-sectionally Augmented Im-Pesaran-Shin) are vital for determining whether the panel data variables are stationary or not (Im et al., 2003). They aim to check if there is a presence of a unit root that denotes non-stationarity against its alternative hypothesis of stationarity. The ADF test adds lagged difference terms to account for higher order correlation; In contrast, the PP test corrects for any serial correlation and heteroskedasticity in the errors; the CIPS test extends the Im-Pesaran-Shin by introducing cross-sectional dependence. In both analyses on ASEAN-India and ASEAN-China, most variables were non-stationary at the level. Still, they became stationary after the first differencing since significant p-values were obtained. This emphasizes differencing the data to get reliable and valid regression results in subsequent econometric analyses, which requires stationarity.

Table 4.3.1. Unit Root Test for ASEAN and India

	<u>ADF</u>				<u>PP</u>				<u>CIPS</u>			
	<u>Level</u>		<u>1st Difference</u>		<u>Level</u>		<u>1st Difference</u>		<u>Level</u>		<u>1st Difference</u>	
	<u>Statistic</u>	<u>Prob.**</u>	<u>Statistic</u>	<u>Prob.**</u>	<u>Statistic</u>	<u>Prob.**</u>	<u>Statistic</u>	<u>Prob.**</u>	<u>Statistic</u>	<u>Prob.**</u>	<u>Statistic</u>	<u>Prob.**</u>
LNTrade	20.43	0.43	107.41***	0.00	36.41**	0.01	163.4***	0.00	-0.2	0.39	-8.6***	0.00
LNReal GDP	16.66	0.67	70.50***	0.00	10.31	0.96	121.9***	0.00	-0.5	0.30	-5.8***	0.00
LNPop	23.05	0.28	4.810	0.998	267.5***	0.00	1.561	1.00	-1.3*	0.08	2.269	0.98
LNEconom icSize	10.18	0.96	81.08***	0.00	32.00**	0.04	111.7***	0.00	2.05	0.97	-6.5***	0.00
LNFDI	17.86	0.59	121.1***	0.00	34.97**	0.02	573.8***	0.00	-0.1	0.45	-9.6***	0.00
Remote Policy	6.829	0.99	103.7***	0.00	4.947	0.99	214.1***	0.00	1.52	0.93	-8.4***	0.00
Goepolitical	26.39	0.15	119.1***	0.00	27.83	0.11	204.5***	0.00	-1.0	0.14	-9.5***	0.00
GDP_Distance	22.06	0.33	87.90***	0.00	30.17*	0.06	212.72***	0.00	-0.7	0.22	-7.3***	0.00
	13.16	0.87	97.01***	0.00	16.87	0.66	158.47***	0.00	0.49	0.68	-7.8***	0.00

Notes: (*) Significant at 10%; (**) Significant at 5%; (***) Significant at 1%

Source: Author Computation

Table 4.3.2. Unit Root Test for ASEAN and China

	ADF				PP				CIPS			
	Level		1st Difference		Level		1st Difference		Level		1st Difference	
	Statistic	Prob.**	Statistic	Prob.**	Statistic	Prob.**	Statistic	Prob.**	Statistic	Prob.**	Statistic	Prob.**
LNTrade	21.07	0.393	97.99***	0.00	60.9***	0.000	451.08***	0.00	-0.46	0.32	-7.8***	0.00
LNReal GDP	26.82	0.1402	19.54	0.48	29.14*	0.0849	45.56***	0.00	-1.83	0.03	-0.91	0.18
LNPpop	4.698	0.9998	0.697	1.00	61.76***	0.000	0.126	1.00	2.299	0.98	5.73	1.00
LNEconomicSize	17.86	0.5966	81.08***	0.00	34.97**	0.02	111.7***	0.00	-0.11	0.45	-6.5***	0.00
LNFDI	10.18	0.9648	121.1***	0.00	32.00**	0.04	573.8***	0.00	2.052	0.97	-9.6***	0.00
Remote	16.86	0.6621	10.78	0.95	17.77	0.60	18.58	0.54	-0.53	0.29	0.52	0.70
Policy	26.39	0.1532	119.1***	0.00	27.83	0.11	204.5***	0.00	-1.03	0.14	-9.5***	0.00
Geopolitical	22.06	0.3372	87.90***	0.00	30.17	0.06	212.7***	0.00	-0.74	0.22	-7.3***	0.00
GDP_Distance	20.98	0.398	87.27***	0.00	17.83	0.59	122.9***	0.00	-0.41	0.33	-6.8***	0.00

Notes: (*) Significant at 10%; (**) Significant at 5%; (***) Significant at 1%

Source: Author Computation

The unit root test outcomes for ASEAN-India and ASEAN-China have been summarized in Tables 4.3.1 and 4.3.2, respectively, which have employed ADF, PP, and CIPS tests to assess the stationarity of these variables. At all significance levels 1%, 5%, and 10%, none of the variables are stationary at the level of ADF, PP, or CIPS tests in an area like ASEAN-India. LNTrade, LNRealGDP, LNPpop, LNEconomicSize, LNFDI, Remote, Policy, Geopolitical, and GDP_Distance do not reject the null hypothesis of a unit root, implying non-stationarity at a 0.05 level. In contrast, when using first order difference—that is, testing for significance at an alpha of either 0.01, 0.05, or 0.1 level—these variables become stable after first differencing. These factors disprove the null hypothesis in this aspect. This implies that in order to ensure stationarity, differencing must be performed before applying the gravity model analysis.

The ASEAN-China results likewise show non-stationarity at the level of most variables, according to the ADF PP CIPS test regressions. Most of the time, LNTrade; LNRealGDP; LNPpop; LNEconomic Size; LNFDI; Remote; Policy; Geographic; and GDP_Distance all showed non-stationarity. Furthermore, changing values during differencing may produce consistent outcomes. Zero values should also be considered for identification, as they can result in acceptable distinction. The first observations of stationary modifications were made by ASEAN-India. Again, the high concentration influence could have made them appear non-stationary in this sector when compared to other sections, such as small samples. In conclusion, it can be observed that generally, there

is non-stationarity among both ASEAN-India and ASEAN-China variables, but after first differencing, they all become stationary, thus confirming that in order for any econometric analysis, there is a need to differentiate the data to make sure it is free from statistical time series properties known as Stationarity.

4.1.4. Panel Data Result

The chosen standard OLS predicts that overseas ties will play a significant role. This means that having a common overseas history almost doubles the trade between the two countries (Gujarati, 2021). The standard OLS estimator doesn't work with our panel data analysis because the time and place are different for all observations. When estimating, it is important to consider both the direction of the export effects (α_j) and the time effects (α_t). Including these effects in the economic model is logical to control for them, as most are influenced and cannot be observed directly (Santos Silva & Tenreyro, 2006). The results of the test are in Tables 4.7.1 and 4.7.2.

Two main types of models can account for the different effects of errors in our two-way error component model: the fixed effects model (FEM) and the random effects model (REM). The Hausman test is used to determine if the REM specification is appropriate. It is important to note that FEM does not allow for the estimation of time-invariant factors. In contrast, REM can handle these explanatory variables but produces inconsistent estimators because it does not account for the correlation between errors and explanatory variables. An optimal solution would be a method that utilizes the advantageous features of REM and corrects for a plausible correlation of errors with the explanatory variables (Ekanayake et al., 2010; Greene, 2018; Santos Silva & Tenreyro, 2006).

Hausman tests were employed to identify the best regression model. Table 4.4 shows the results for ASEAN, China, and India. Consequently, the final random effects model is selected, and the regression model is presented and discussed.

Table 4.4 Hausman Test for ASEAN India and China

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	10	1.0000

Source: Author Computation

The standardized residuals analysis further validates the model. The histogram of standardized residuals shows zero-centered symmetry, indicating that the residuals are well-behaved. Descriptive statistics reveal that the residuals' mean and median are nearly zero, suggesting the model is effective in predicting outcomes. Skewness and kurtosis coefficients are consistent with a normal distribution, and the Jarque-Bera test does not reject the null hypothesis of normality as in Figures 4.1 and 4.2.

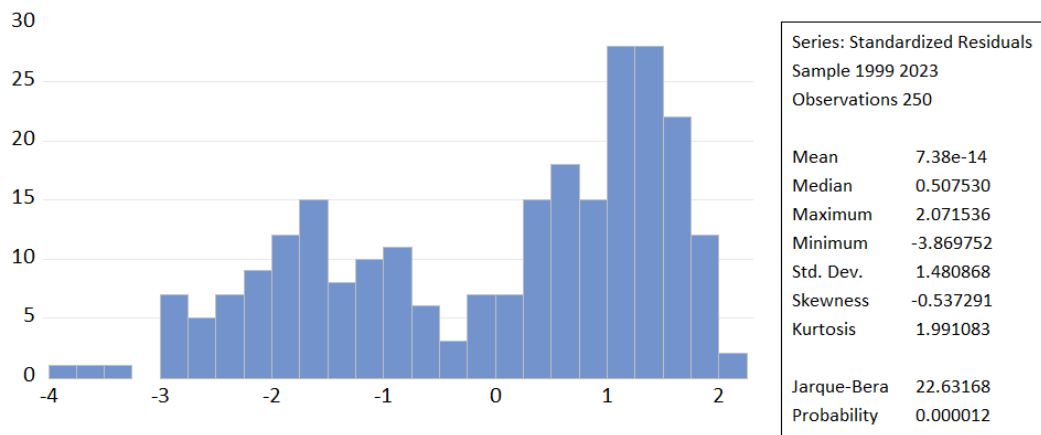


Figure 4.1 Normality Test – ASEAN China
Source: Author Computation

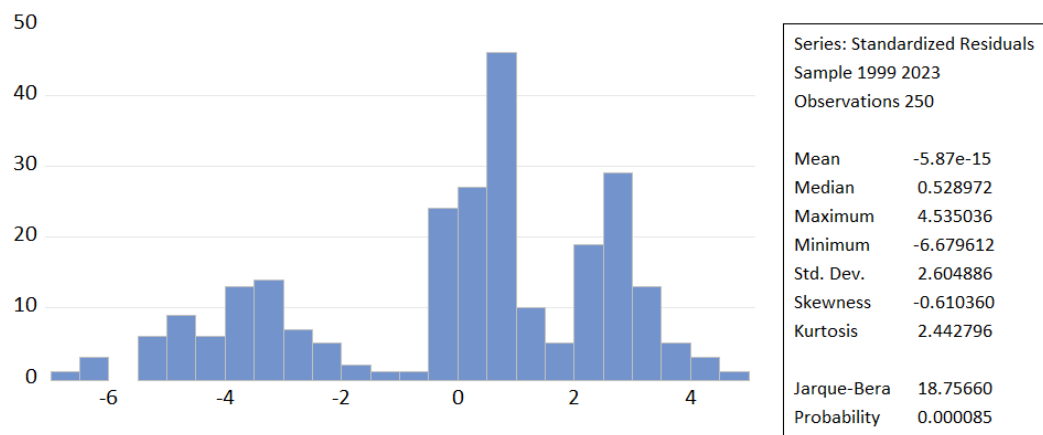


Figure 4.2 Normality Test – ASEAN India
Source: Author Computation

Table 4.5. Residual Cross-Section Dependence Test ASEAN China and ASEAN India

Residual Cross-Section Dependence Test				
Total panel observations: 250				
Test	China		India	
	Statistic	Prob.	Statistic	Prob.
Breusch-Pagan LM	133.94	0.000	234.364	0.000
Pesaran scaled LM	9.37	0.000	19.961	0.000
Pesaran CD	3.89	0.00	1.210	0.226

Table 4.6. Ramsey RESET Test ASEAN China and ASEAN India

Ramsey RESET Test	China		India	
	Value	Prob.	Value	Prob.
t-statistic	3.008	0.003	2.670	0.008
F-statistic	9.048	0.003	7.131	0.008
Likelihood ratio	9.048	0.003	7.131	0.008

Source: Author Computation

The examination of panel data estimates indicates that CD is presently the focus of academic attention in international economics. We ran multiple experiments and found that disregarding CD would make the findings incorrect (Greene, 2018; Gujarati, 2021; Santos Silva & Tenreyro, 2006). Table 4.7.1. and Table 4.7.2. shows the results of the Breusch-Pagan LM and Bias Corrected LM tests. Both statistics refute cross-sectoral independence and demonstrate the existence of CD. This shows that measuring the intensity of the shocks is the key objective, keeping in view that the trade volumes and scope (number of commodities traded) in one country can spread to other countries. OLS regression results for ASEAN-India and ASEAN-China reveal the significant determinants of trade agreements between these regions. Population variables represent the size of the countries and are expected to have positive signs(Ekanayake et al., 2010). Both ASEAN-India and ASEAN-China cross border trades are significantly affected by population size (LNPOP). As in the case of ASEAN-China, a one percent increase in population size results in a 17.16% increase in trade. Conversely, this relationship is negative for ASEAN-India, meaning that ASEAN population growth aids trade with China but could have a more complex or less direct relationship with India. As Population (LNPOP) in the ASEAN-India context does not significantly affect trade with a coefficient of 9.377 and a p-value of 0.000. Larger countries are better able to absorb imports than smaller countries. They are better able to experience economies of scale, thus developing a comparative advantage in their export industries compared to smaller countries(Sarin, 2018).

The real GDP is included to capture the variables related to the degree of economic progress. It also accounts for the importing nation's purchasing power and the exporting nation's productivity. The GDP is predicted to be in the positive range. It demonstrates that larger economies trade more than poorer and less developed economies(Akhter & Ghani, 2010; Ekanayake et al., 2010). As a result, the real GDP (LNREALGDP) displays conflicting effects. The real GDP (LNREALGDP) has a positive and substantial impact on trade for ASEAN-India. This implies that higher economies typically participate more in

trade as a 1% increase in real GDP is linked with a 0.71% rise in trade. As a result, this knowledge is based on a few additional fundamental characteristics influencing the movement of goods across nations. ASEAN-China that real GDP (LNREALGDP) significantly increases trade. This shows the close link between economic size and trade since a 1% rise in real GDP translates into a 1.40% rise in trade. Since the coefficient is both positive and statistically significant, it may be concluded that an increase in real GDP corresponds to an increase in bilateral trade. That indicates that for every 1% growth in real GDP, there is an average increase in international shipments of roughly 0.5 percent worldwide.

Therefore, economic size (LNECONOMICSIZE) continues to be a crucial factor in ASEAN trade with China and India. With a p-value of 0.000 and a positive correlation of 0.883, economic size (LNECONOMICIZE) shows that higher trade is linked with larger economic size in China, and trading with India has comparable positive benefits. With a p-value of 0.316 and a negative coefficient of -0.087, economic size (LNECONOMICIZE) indicates that a bigger economic size may be connected with lowered trade in this model. A 1% increase in economic size results in a 0.087% decrease in trade in India.

ASEAN India with a coefficient of 0.434 and a p-value of 0.000, foreign direct investment (LNFDI) likewise favorably influences trade. This underlines the need of investment flows in increasing trade volumes since it suggests that a 1% growth in FDI generates a 0.43% increase in trade. With a coefficient of 0.006 and a p-value of 0.000, policy variables (POLICY) demonstrate a significant positive impact; so, supportive trade policies result in a 0.60% rise in trade. with a p-value of 0.553 and a coefficient of 0.262, remoteness (REMOTE) indicates little effect on trade.

As ASEAN China with a coefficient of 0.564 and a p-value of 0.000, Foreign Direct Investment (LNFDI) improves trade by 0.56% rise in investment. With a coefficient of 0.007 and a p-value of 0.000 Policy (POLICY) shows a positive effect showing that favorable trade policies boost trade volumes. With a coefficient of 0.530 and a p-value of 0.033, remoteness (REMOTE) indicates that, although in a modest manner, more geographic distance still favorably influences commerce. Thus, it is essential to emphasize the necessity of favorable trade settings for fostering economic exchange.

It is expected that the distance variable's coefficient will be negative. This is a stand-in for factors that make it harder for countries to conduct trade, such as market access, transportation costs, and times (Ekanayake et al., 2010; Zhai, 2023). As a result, a 1%

increase in GDP-weighted distance results in a 0.13% decrease in exports to China, indicating that a large economic distance reduces export volumes from these countries, respectively. The same is true when looking at the Indian market, where it would be beneficial to highlight this research's findings concerning the two countries stated above, supporting its claim that greater geographical remoteness negatively impacts trading operations. However, there are circumstances in which these characteristics harm the development of bilateral commercial partnerships. These scenarios include distances calculated regarding the respective national production of the commodities and services produced in these economies. As studies shows, somehow reducing both national consumption levels at the same time negatively impacts them inside particular durations from previous years to the present era (Greene, 2018; Sarin, 2018; Zhai, 2023). To illustrate the significant impact of conducting trade across large distances, a 1% increase in GDP distance would result in a corresponding 0.043% loss in trade relations as in India.

As it has been developed, status (DEV_STATUS) has no considerable impact on bilateral trade within the frameworks, suggesting that other factors primarily determine trade inputs. Likewise, these geopolitical stability indices (GEOPOLITICAL) have little effect on bilateral trade, indicating that economic parameters are the primary drivers of trade dynamics. In ASEAN with China, the coefficient is -0.158. This negative but insignificant coefficient suggests that geopolitical stability does not substantially impact bilateral trade between ASEAN and China. This negative but insignificant coefficient suggests that free trade agreements do not significantly influence bilateral trade between ASEAN and India in this context. Nonetheless, remoteness (REMOTE) does not significantly influence bilateral exchange, indicating that other economic and policy inputs are more important determinants of international trade flows.

As result the finding on panel data within ASEAN, China, and India, one gains important understanding of the dynamics of trade, therefore verifying the hypothesis on economic integration and its impact on trade. OLS regression results show that trade is significantly influenced by population size; ASEAN-China gains an amazing 17.16% increase in trade for every 1% increase in population, while this is different in ASEAN-India where the relationship is more complicated or less direct. In both cases Real GDP influences trade volume since ASEAN-China gains 1.40% in trade per 1% rise in GDP while ASEAN-India gains 0.71%. Another driver of global commerce is foreign direct investment (FDI), which rises 1% and generates extra 0.43% for ASEAN-India and 0.56% for ASEAN-China correspondingly. Trade between China and economic size benefits from

their positive relationship; trade between India and economic size suffers from their negative one. Trade can be improved with supporting policies; so, favorable policies connected to a 0.60% increase in trade respectively are absolutely important. Moreover, distance has varied results; it affects commerce with China unfavorably but somewhat favorably for India. Geopolitical considerations and free trade agreements (FTAs) have different effects; although FTAs greatly increase trade with China, they have less impact on bilateral trade between India and ASEAN countries.

Table 4.7.1. Regression results from three models- ASEAN and India

Variable	OLS		FEM		REM	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
LNREALGPD	0.706*	0.074	3.343***	0.000	2.381***	0.001
LNPOP	9.377***	0.000	1.851	0.646	-0.635	0.890
LNFDI	0.434***	0.000	-0.016	0.814	0.002	0.983
LNECONOMICSIZE	-0.087	0.316	-1.982***	0.000	-0.835***	0.002
GEOPOLITICAL	-0.073	0.288	0.102**	0.024	0.058	0.331
POLICY	0.006***	0.000	-0.013***	0.000	-0.011***	0.000
REMOTE	0.262*	0.553	-3.429***	0.002	-2.033*	0.084
GDP_DISTANCE	-0.190*	0.010	0.341***	0.002	0.208	0.116
FTA	-0.191	0.477	0.066	0.655	0.134	0.506
DEV_STATUS	0.456*	0.091	0.074	0.635	0.060	0.777
C	-176.49***	0.000	-65.461	0.349	-19.366	0.810

Notes: () Significant at 10%; (**) Significant at 5%; (***) Significant at 1%*

Source: Author Computation

Table 4.7.2. Regression results from three models- ASEAN and China

	OLS		FEM		REM	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
LNREALGDP	1.397***	0.000	1.121***	0.002	0.291	0.450
LNPOP	11.689***	0.000	-1.383	0.796	7.955*	0.073
LNFDI	0.564***	0.000	0.038	0.398	0.119**	0.038
LNECONOMICSIZE	0.883***	0.000	0.163	0.437	0.708***	0.000
GEOPOLITICAL	-0.158***	0.001	0.008	0.793	-0.038	0.323
POLICY	0.007***	0.000	0.006***	0.000	0.006***	0.000
REMOTE	0.530**	0.033	-1.519**	0.015	-0.258	0.690
GDP_DISTANCE	-0.242***	0.000	-0.024	0.663	-0.129**	0.055
FTA	-0.016	0.923	0.316***	0.001	0.360***	0.006
DEV_STATUS	0.41**	0.012	-0.305***	0.003	-0.267*	0.055
C	-233.8***	0.000	3.116	0.977	-171.481*	0.059

Notes: () Significant at 10%; (**) Significant at 5%; (***) Significant at 1%*

Source: Author Computation

Putting the findings into perspective, it can be summarized that, in line with the proposed hypotheses, the determinants of cross border trade among ASEAN, China, and India include population size, economic size, FDI, and supportive trade policies. These results reflect the complex interplay of various factors influencing trade and highlight how

economic cooperation and integration are important for promoting regional trading links (Akhter & Ghani, 2010; Santos Silva & Tenreyro, 2006; Trung Kien, 2009).

4.1.5. The Traditional Gravity Result

The traditional gravity model is improved with the augmented gravity model, which integrates additional economic and policy variables to serve as an all-inclusive guide for factors affecting trade between ASEAN, China, and India. The rationale for this inclusion is based on the fact that these variables have far-reaching implications for prices, which eventually determine trade flows. This section provides an overview of the findings from the augmented gravity model and compares them with panel data tests, such as Fixed Effects (FE) and Random Effects (RE) models. Furthermore, as a result of having both cross-sectional and time-series data, the analysis done through panel data is richer in terms of factors that change over time along with specific characteristics, like personal situations and cultural beliefs, among other things. The fundamental concept of an augmented gravity model is that it includes other potential influences beyond just distance, such as exports, imports, foreign direct investment (FDI), and various political or historical aspects (Bergstrand et al., 2013; Santos Silva & Tenreyro, 2006; Sarin, 2018).

4.1.5.1. Basic Gravity Model and Augmented Gravity Model

The primary gravity model results show the first insights into the trade dynamics and economic integrations between ASEAN, China, and India by focusing on economic size and remoteness. This model looks at how trade flows are primarily driven by the economic sizes of the trading partners and their geographical distances.

Table 4.8. (Basic Gravity Equation) indicates that real GDP (LNREALGDP) has a significant positive effect on trade for both ASEAN-China 1.22 and ASEAN-India 0.795, with both effects being highly significant $p = 0.00$. The remoteness variable (REMOTE) also shows a positive and significant impact on trade, suggesting that greater geographic distance increases trade volumes, possibly due to specific regional factors. The model's goodness of fit is better for ASEAN-India Adjusted R-squared = 0.198, than for ASEAN-China Adjusted R-squared = 0.09, suggests that though the model captures some trade dynamics, there is still more to be done in terms of its functionality.

Table 4.8. Basic Gravity Equation 1 Test ASEAN -China and ASEAN India

Variable	ASEAN -China		ASEAN -India	
	Coefficient	Prob.	Coefficient	Prob.
LNREALGDP	1.22***	0.00	0.795***	0.00
REMOTE	2.66***	0.00	1.173***	0.00

C	34.72***	0.00	17.38***	0.00
Akaike info criterion	4.62		3.994	
Schwarz criterion	4.66		4.036	
Adjusted R-squared	0.09		0.198	

Notes: () Significant at 10%; (**) Significant at 5%; (***) Significant at 1%*

Source: Author Computation

Following the discussion on augmented gravity equation with additional variables like population size (LNPOP), foreign direct investment (LNFDI), economic size (LNECONOMICSIZE), geopolitical stability (GEOPOLITICAL), and policy factors (POLICY) in Table 4.7. As for ASEAN-China, its trade is still positively driven by real GDP 1.33 as well as population size 11.97, FDI 0.59, and economic size 0.86. However, the geopolitical factor -0.18 and GDP-weighted distance -0.24 significantly affect trade negatively. This implies that these additional variables provide better explanations of the trade patterns between ASEAN and China since the models adjusted R-squared significantly improves to 0.88. which are used to measure how well the model fits, indicate that only a small part of trade variation will be explained by the model.

Table 4.9. Augmented Gravity Equation 2 Test ASEAN- China and ASEAN India

Variable	ASEAN China		ASEAN India	
	Coefficient	Prob.	Coefficient	Prob.
LNREALGDP	1.33***	0.00	0.738***	0.05
REMOTE	0.55***	0.0	0.330	0.45
LNPOP	11.97***	0.00	9.999***	0.00
LNFDI	0.59***	0.00	0.447***	0.00
LNECONOMICSIZE	0.86***	0.00	-0.103	0.23
GEOPOLITICAL	-0.18***	0.00	-0.081	0.23
POLICY	0.01***	0.00	0.006***	0.00
GDP_DISTANCE	-0.24***	0.00	-0.178**	0.01
C	-241.39***	0.00	-188.62***	0.00
Akaike info criterion	2.60		3.525	
Schwarz criterion	2.72		3.652	
Adjusted R-squared	0.88		0.510	

Notes: () Significant at 10%; (**) Significant at 5%; (***) Significant at 1%*

Source: Author Computation

For ASEAN-India, however, there are positive influences of population on trade 9.999 as well as foreign direct investment 0.447 but with a lower GDP effect 0.738. Their coefficients which are not significant suggest that their influence on trade is not great in

terms of economic size or geopolitical stability. Despite being less robust than ASEAN-China's model Adjusted R-squared = 0.510, it still fares better than the basic one; thus, indicating how adding more variables improves its explanatory power although they become less important in an Indian context compared to China. This finding follows other previous studies with more complicated models providing better insights, especially for China, the study emphasizes the important part economic and demographic elements play in driving ASEAN's trade with China and India (Chakravarty & Chakrabarty, 2014; Sarin, 2018; Zhai, 2023).

4.1.5.2. Extended Augmented Gravity Model

The analysis of the augmented gravity model for ASEAN's trade relationships with India and China offers a nuanced understanding of the trade dynamics between these regions. Expanded one's model, added variables show that continual exports and imports increase trade while policy and remoteness have negative implications. The high adjusted R-squared value of the augmented model indicates that it suits the dynamics of trade in the regions very well and is, hence, stable.

Examining the tables helps one to grasp the factors affecting commerce between ASEAN, China, and India in whole. With coefficients of 1.22 for ASEAN-China and 0.795 for ASEAN-India, both quite significant, the basic gravity model results show that real GDP (LNREALGDP) favorably influences trade. This suggests that trade rises as economic size improve, therefore supporting the significance of GDP in trade dynamics. Both times the remoteness variable (REMOTE) has a beneficial impact; but it is more noticeable in ASEAN-China 2.66 than in ASEAN-India 1.173. This suggests that, depending on the area, trade is influenced in different ways by geographical distance.

The augmented gravity model presents more complex image by adding extra factors. With coefficients of 11.97 for population size (LNPOP) and 0.59 for FDI (LNFDI), ASEAN-China finds that both factors have somewhat favorable effects on trade. With negative coefficients, implying that greater economic size and geopolitical tensions might impede commerce, economic size (LNECONOMICIZE) and geopolitical variables (GEOPOLITICAL) also play major roles. By comparison, ASEAN-India shows various dynamics in this relationship by having non-significant economic scale or geopolitical considerations.

The extended augmented gravity model Table 4.10. simplifies these results even further. Real GDP and population size have consistent importance in both areas; for ASEAN-India, real GDP has a negative coefficient, suggesting a complex relation. Trade is still benefiting from FDI; supporting policies (POLICY) are major drivers of trade increase in both countries. For ASEAN-China, the effect of economic size on commerce is still noteworthy; for ASEAN-India, this is not so clear. The negative correlations for GDP distance draw attention to the difficulties trading over larger distances—especially with China. The lack of relevance for FTA in both models implies that in this situation free trade agreements might not have a major influence on cross border trade.

Table 4.10 Extended Augmented Gravity Equation 3 Test ASEAN China, and India

Variable	ASEAN China		ASEAN India	
	Coefficient	Prob.	Coefficient	Prob.
LNREALGDP	-1.40***	0.00	10.706*	0.074
REMOTE	0.53**	0.03	0.262	0.553
LNPOP	11.69***	0.00	9.377***	0.000
LNFDI	0.56***	0.00	0.434***	0.000
LNECONOMICSIZE	0.88***	0.00	-0.087	0.316
GEOPOLITICAL	-0.16***	0.00	-0.073	0.288
POLICY	0.01***	0.00	0.006***	0.000
GDP_DISTANCE	-0.24***	0.00	-0.190*	0.010
FTA	-0.02	0.92	-0.191	0.477
DEV_STATUS	0.42***	0.01	0.456*	0.091
C	-233.81***	0.00	-176.497***	0.000
Akaike info criterion	2.58		3.529	
Schwarz criterion	2.74		3.684	
Adjusted R-squared	0.88		0.511	

Notes: () Significant at 10%; (**) Significant at 5%; (***) Significant at 1%*
Source: Author Computation

All things considered, the study highlights how significantly trade flows between ASEAN, China, and India are shaped by economic elements including GDP, population size, and FDI. Although trade is influenced by geographic and geopolitical elements as well, their effects differ depending on the area, therefore stressing the difficulty of these relations. The results imply that improving trade inside these areas depends on customized trade and financial policies (Akhter & Ghani, 2010; Ekanayake et al., 2010; Sarin, 2018; Trung Kien, 2009; Zhai, 2023).

Between 1999 and 2023, the robustness test for the trade flows between ASEAN-China and ASEAN-India shows that four main factors define trade between the two countries. Trade is highly influenced in terms of ASEAN-China by population size or

LNPOP, foreign direct investment or LNFDI, and economic size or LNECONOMICIZE. On the other hand, two elements notably geopolitics or GEOPOLITICS and GDP distance or GDP_DISTANCE have a negative influence on commodity exchanges; the latter is more important than the former. According to the model, less goods traded with China the higher the economic distance rises.

Trade in ASEAN-India is also positively influenced by population, FDI and economic size, but LNREALGDP is not significant. However, geopolitical factors negatively influence trade but not as much as in the case of China. Intriguingly, India's remoteness (REMOTE) promotes trade, suggesting some unique trading routes or partnerships. The results indicate that population, investment and economic size are crucial determinants of trade while geopolitical tensions and economic distances are its barriers. In terms of trade dynamics perspective, the ASEAN-China model explains more variations in trade than the ASEAN-India model indicating that regional variations exist as explained in Table4.11.

Table 4.11. Robustness test ASEAN India and ASEAN China

Method: Robust Least Squares				
Sample: 1999 2023				
Included observations:	250			
Variable	ASEAN India		ASEAN China	
	Coefficient	Prob.	Coefficient	Prob.
LNREALGPD	0.040	0.824	-1.134 ***	0.000
LNPOP	5.720***	0.000	12.186***	0.000
LNFDI	0.145***	0.001	0.523***	0.000
LNECONOMICSIZE	0.109***	0.006	0.863***	0.000
GEOPOLITICAL	-0.112***	0.000	-0.162- ***	0.000
POLICY	0.007***	0.000	0.009***	0.000
REMOTE	0.742***	0.000	0.355	0.125
GDP_DISTANCE	-0.355-***	0.000	-0.281***	0.000
FTA	-0.024	0.842	-0.124	0.425
DEV_STATUS	0.012	0.922	0.486***	0.002
C	-118.933***	0.000	-249.746-***	0.000
Akaike info criterion	388.968		302.999	
Schwarz criterion	435.881		344.337	
Adjusted R-squared	0.497		0.683	

Notes: () Significant at 10%; (**) Significant at 5%; (***) Significant at 1%*
Source: Author Computation

The Akaike Information Criterion (AIC) and Schwarz Criterion (SC) values for the robustness test indicate the model fit and complexity for the ASEAN-China and ASEAN-India trade analysis. The lower AIC and SC values for ASEAN-China 302.999 and 344.337

respectively than those of ASEAN-India 388.968 and 435.881 suggest that the ASEAN-China model offers a better tradeoff between goodness of fit and complexity when comparing to ASEAN-India model. Moreover, this is further highlighted by R-squared adjusted values as well, where 68.3% of trade fluctuation is explained by the ASEAN-China model in contrast to 49.7% explained by ASEAN-India. It means that the area of study for ASEAN-China more completely grasps the major determinants of trade whose dynamics tend to be stronger and also more uniform than those existing between ASEAN and India. To summarize, the findings of the augmented gravity model indicate that trade volumes, remoteness, and geopolitical considerations are important determinants of trade flows between China and ASEAN and between ASEAN and India. Imports and exports always drive trade, but geopolitical tensions and geographic distance effects differ based on the trading partner. These results emphasize how crucial it is to consider certain regional and economic conditions when examining the dynamics of international commerce (Alvstam et al., 2015; Greene, 2018; Santos Silva & Tenreyro, 2006).

4.2. Finding of Discussion

Supported by descriptive statistics, panel data analysis, stationarity tests, and correlation matrices, the study of trade patterns among ASEAN, China, and India provides a whole picture of their economic interactions. This thorough approach's interesting patterns and correlations underscore the complex complexity of the international trade between these sites.

The initial study of descriptive statistics lays a basic knowledge of trade volumes and economic indicators between ASEAN, China, and India. Trade between ASEAN and China varies more than between ASEAN and India; hence, trade volumes could be more stable. The ASEAN-China trade volume average is 7.625 with a standard deviation of 2.532; the ASEAN-India trade volume average is 7.718 with a standard deviation of 1.978. This disparity points to more unpredictable trade with China, most likely resulting from its more extensive and more dynamic economy. Population data are relatively stable, and FDI figures are consistent, reinforcing comparability across regions (Greene, 2018; Santos Silva & Tenreyro, 2006). The correlation matrix underscores strong positive relationships between trade volumes and economic indicators such as GDP, FDI, and economic size, particularly in the ASEAN-China context. This suggests that larger economies with significant FDI inflows tend to experience higher trade volumes, while the impact of policy factors on trade is more moderate.

Moreover, the guarantee of econometric analysis's accuracy depends on stationarity testing and the unit root tests (ADF, PP, CIPS) reveal non-stationarity in most variables at the level, requiring differencing for reliable econometric analysis. According to the results, whereas at beginning levels, the variables remain non-stationary, many variables become stationary via differencing. Initially showing non-stationarity, variables like LNRealGDP and LNFDI for ASEAN-India became stationary during differencing. Correct analysis and estimate of models depend on this conversion (Greene, 2018; Gujarati, 2021; Zhai, 2023, 2023).

The critical review of the panel data analysis reveals the limits of traditional OLS methods, which assume constant time and location conditions over observations. This approach is inadequate for this study, so a more sophisticated approach, including consideration of time effects and export consequences, is needed. The Fixed Effects Model (FEM) and Random Effects Model (REM) are applied to manage several error components; the Hausman test guides the choice of REM (Ekanayake et al., 2010, 2010; Greene, 2018).

The analysis produces major findings on the factors affecting trade between ASEAN, China and India. There is a great positive impact of population size on the ASEAN-China trade, in which an increase of 1% in population size leads to a rise of 17.16% in trade showing strong link. On the other hand, for ASEAN-India trade, its impact is less direct and less significant (Ekanayake et al., 2010; Sarin, 2018). Similarly, Real GDP shows strong relation to trade to ASEAN-China, where 1 % increase in GDP goes with 1.40 % increment in trade. However, there is weak relation for ASEAN-India as it records only 0.71% rise in trade amidst similar growth rate of GDP (Akhter & Ghani, 2010; Ekanayake et al., 2010). Foreign Direct Investment (FDI) positively affects trade in both contexts; this means that an increase of 1 % in FDI will lead to a rise of 0.43% and 0.56 % respectively for India-ASEAN and China-ASEAN trades. Mixed effects are seen from economic size; it has positive correlation with trade for ASEAN-China but has a negative correlation for ASEAN-India—which means that if there is an increase of 1% in economic size it could result to decrease by 0.087% in terms of volume (Akhter & Ghani, 2010; Sarin, 2018). Lastly looking at supportive trade policies, in both regions they enhance the level of trading which is noted by an increase of 0.60% in these trades such as in ASEAN-India where as there are some favorable policies as well for trade with China as evidenced by this circular. The geographical distance has negative effects on Trade. For instance, a 1 % rise in GDP weighted distance will cause a 0.13 % decrease in trade with China and a 0.043 % decrease with India (Akhter & Ghani, 2010; Zhai, 2023). Finally, it is established that

there is very little effect of geopolitical stability as well as Free Trade Agreements (FTAs) on trade since they have adverse yet insignificant effects on ASEAN-China trade while FTAs have less influence on ASEAN-India trade (Sarin, 2018; Trung Kien, 2009)

Supportive trade policies help improve bilateral trade between India and China. The fact that trade policies encourage economic exchange results in more trade volumes emphasizes the need for appealing trade environments. Trade policy emphasizes the need for enabling structures to promote economic cooperation. Geographic remoteness negatively affects trade; more considerable distances produce less trade volumes with China and India. Trade connections with India drop 0.043%, and exports to China drop 0.13% for every 1% increase in GDP-weighted distance. This outcome fits the theory that physical remoteness limits market accessibility and increases transportation costs, impeding commerce. Two-way trade is not much influenced by geopolitical stability or development state. The lack of significance shown in the coefficients related to development status and geopolitical stability suggests that trade policy and economic factors have a greater impact on forming the dynamics of trade. This shows that trade liberalization is important for strengthening relationships between countries like China (Trung Kien, 2009).

As the impulse analysis shows, the traditional gravity model includes new economic and policy variables, which provides a complete framework for studying trade between ASEAN, China, and India. The basic gravity model emphasizes how geography, distance, and economic magnitude affect commerce flow. With a positive significance value of 0.795, the GDP coefficient for ASEAN-India indicates that more significant trade volumes are linked to greater economic sizes. Remoteness coefficient is 1.173 similarly helps commerce; it indicates that trade increases with economic size independent of geography. On the other hand, the negative intercept of -17.39 implies that unobserved elements could negatively impact trade. Based on the Basic gravity model, the scenario for ASEAN-China is more complex. Its GDP coefficient of -3.391 shows that trade and economic size have inversely different relationships. Different trading systems or economic scales could be the reason for this unexpected result. Conversely, the remoteness variable shows a significant positive effect (coefficient of 2.656), implying that regional agreements or established trade routes lessen the effect of geographical distance. The positive intercept of 34.7178 suggests some other positive contributing elements.

In contrast, the ASEAN-India model, even after factoring in various additions, remains less explanatory with an adjusted R-squared of 0.51. From this, it can be inferred that in comparison to China the significance of economic size and geopolitical considerations is minimal in Indian context. Trade is shown through analysis to be influenced by geographical as well as geopolitical factors in an intra-regional context but however, it varies from one area to another thus showing their intricacy. The extended augmented gravity model further clarifies these findings showing that both real GDP and population size matter consistently within ASEAN–China and ASEAN–India trade dynamics respectively. It also points out that while FDI remains an important trade driver; economic magnitude alongside geopolitical stability is more significant between ASEAN-China. The model fit results amply demonstrate the strength of the improved models. The ASEAN-India model fits the data well with a revised R-squared of 0.972 and values for the Akaike Information Criteria (AIC) and Schwarz Criteria (SC) of 0.668 and 0.781, respectively. The updated R-squared for ASEAN-China is 0.857845; associated AIC and SC values are 2.776289 and 2.898976, respectively. The model has considerable explanatory power even if its fit is somewhat worse than ASEAN-India's (Ekanayake et al., 2010; Greene, 2018; Santos Silva & Tenreyro, 2006; Trung Kien, 2009; Zhai, 2023).

To conclude, the study provides critical insights into regional economic integration and cross-border trade dynamics in Asia, mainly among ASEAN, China, and India. It has been observed that economic integration significantly increases trade volumes, especially between ASEAN and China, which is greatly influenced by the size of the population as well as economic growth. An increase in population by 1% results to an increase in trade with China by 17.16% while a 1% increase in GDP correspond to 1.40% increase in trade. On the other hand, the effects of these variables on ASEAN-India trade are less evident because there exist weaker relationships between their economic size and growth. Foreign direct investment (FDI) positively influences both forms of trade, that is, a 1% rise in FDI leads to an increase of 0.43% for India's imports while China's imports go up by 0.56%. However, ASEAN-China-trade is positively correlated with economic size whereas it negatively relates to ASEAN-India trade.

Moreover, trade agreements as well as geopolitical factors yield mixed results. Supportive trade policies result to increased volumes of trade for both ASEAN-China or ASEAN-India countries even though geopolitical stability and free trade agreements have limited impacts in this regard. The above findings suggest that trade agreements are effective enough to enhancing economic interactions while also emphasizing the need for

customized measures and regional considerations to deal with the most intricate aspects of business across nations.

Chapter 5

CONCLUSION AND RECOMMENDATIONS

In this last chapter, we provided a summary of the fundamental discoveries and learnings from the whole study, along with recommendations for policy based on the findings. We recap the study findings and review the main goals and research issues covered in the previous sections. We also discussed the issues during the research process and identified areas that still require investigation. While the information provided by our study is valuable, it is important to understand its limits and potential areas for improvement. Finally, we discuss research directions that will help us advance our understanding of the subject and enable us to make significant contributions to the area. You will thoroughly understand the study's consequences, recommendations for policy, study limitations, and potential directions for future research at the end of this chapter.

5.1. Summary and Conclusion

Comprehensively analyzing trade patterns between ASEAN, China, and India provides insight into their economic relationships and policies. Descriptive data in trade volumes varies; ASEAN-China trade exhibits more considerable volatility than ASEAN-India. Greater mean trade volume and standard deviation for China show this volatility and a more dynamic and chaotic trading environment. Real GDP figures show a mean far higher than those of India and ASEAN, suggesting a larger and more volatile economic base that affects trade dynamics and, hence, underlines China's economic dominance.

To begin with, this study examines the effects of regional economic integration and current cross border trade dynamics within ASEAN, China and India. According to the findings, trade dynamics among ASEAN nations, China and India are strongly influenced by regional economic integration. The efforts at the integration are established through the large volumes of trade generated by economic size, population and foreign direct investments (FDIs). For instance, a 1% increase in population size between ASEAN and China is associated with an increase in commerce by 17.16% which indicates strong positive relationship thus demonstrating that there is much to be gained from more comprehensive economic integration. On ASEAN-India trade though this effect is less direct and less significant suggesting that more clearly are integration effects on some cross-country partnerships than on others. The other GDP also is quite significant with

trade between ASEAN and China increasing 1.40% for every 1% boost in GDP while with India it goes up by 0.71%. This rough effect highlights different levels of economic cohesiveness and their respective meanings in various regional contexts.

Moreover, FDI, size, and growth as well as economic stability are major components of the economic attractiveness and trade. Increasing trade volumes are positively correlated with increasing economies such as China. A 1% increase in the economy causes high increase in trade with ASEAN-China, while it negatively impacts ASEAN-India where 0.087% decrease in trade is recorded interpreting to a 1% increase in economy size. It shows that an increase in the scale of trade facilitates more trading opportunities with China though its effects could vary from one country to another or may not be desirable entirely as seen from India experience. The GDP growth rates also influence international trade such that there is a positive correlation between higher GDP and more trade flows. Thus, a 1% increase in GDP raises trade with India by 0.71% while there's a 1.40% rise when it comes to China. On the other hand, it is noted that when foreign direct investment (FDI) rises 1%, trade of ASEAN-India will grow by 0.43% and trade of ASEAN-China will go up by 0.56%. Therefore, this paper emphasizes on how important trade flows and economic attractiveness are derived from FDI and economic development.

Finally, trade agreements and geopolitical issues differently influence long-lasting economic growth, interdependence and resilience. The findings indicate that promoting trade policies increase particularly the volume of trade both in ASEAN-China and ASEAN-India; whereas in ASEAN-India promising policies contribute to a 0.60% increase in trade, there is a similar positive impact for ASEAN-China as well. This shows clearly how well these agreements can foster better trading relationships and enhance economic growth. However, this occurrence has little relevance with respect to geopolitics stability nor free trade agreements (FTAs). In terms of ASEAN-China, geopolitics stability is negatively related yet insignificant; for ASEAN-India there is no significant relationship between FTAs and trade at all. These results suggest that despite the potentiality of trade agreements in promoting economic development and commerce; it cannot be concluded that geopolitics or FTAs have significant influence over cross-border commerce. Thus, there could be a save need for tailored policies with which to address regional and geopolitical concerns.

These study issues and objectives largely concern the present situation of trade across borders, the consequences of economic unification, and how FDI flows depending

on the size of an economy. The results underline the significance of countries in the same area working together and forming international alliances if they are to be long-lasting. They also stress the need for comprehensive policy frameworks to address difficult problems. The studies greatly simplify the economic processes controlling trade patterns and regional integration. It gives politicians, scholars, and other interested parties new ideas. It shows that, since cooperation is more important than rivalry, the area has an opportunity for financial expansion and growth. This forms the foundation for creating policies and plans to encourage long-term economic integration and cross-border trade.

5.2. Policy Recommendation

Based on the findings of this study, The following policy recommendations are developed to address the complex trade dynamics between ASEAN, China, and India and strengthen regional economic integration based on the results and assumptions of the study:

1. **Strengthen and extend free trade agreements (FTAs):** The study revealed that trade volumes, particularly with China, are much influenced by FTAs. This makes it rather crucial to widen and deepen present FTAs. This covers more areas, removes non-tariff obstacles impeding commerce, and establishes deals. Customizing accords to fit India's particular trade imbalances and industry requirements will help them much more. Better FTAs will facilitate more trade and assist to maintain the local economy steady

2. **Invest in connectivity in infrastructure:** The more open a country, the greater its involvement in trade. The study underlines the need to enhance infrastructure to reduce. Trade obstacles brought about by location. Investing in transportation and logistics infrastructure—such as port development, expansion of rail lines, and ease of internet connection—is vital. Priority should be given to cooperative cross-border infrastructure projects that fill gaps and facilitate company business across borders.

3. **Promote economic diversification and innovation** since commerce is believed to be affected by economic size and growth. Therefore, pay attention to these aspects. Policies should support companies with plenty of space to expand and facilitate the beginning of new sectors. This approach will reduce the risks of unstable trade balances and economies, improving trade flow and strengthening the economy.

4. **Handle Geopolitical and Policy Issues:** The study shows how geopolitical concerns and trade policies influence trade patterns. One could address these problems using multilateral forums and construction for regional communication. Effective

communication and good coordination of policy projects will help settle problems and provide a safer environment for trade and business.

5. Enhance regional integration using additional cooperation through joint projects and regional groups, improving the area's economic cooperation. Supported should be cooperative projects in research, development, and skill building among people to enhance policy execution and strengthen economic links. Working together among regional groups will help to improve trade across borders and economic integration.

Policymakers and industry stakeholders can work together to stabilize, and following these ideas will help ASEAN, China, and India handle significant issues, boost trade, and advance local economic integration. These policies will help fulfill the study's objectives by addressing elements influencing trade, promoting economic development, and strengthening regional cooperation.

5.3. Limitation of study

This study recognizes numerous limitations that have been applied to support awareness of the results and their consequences. First of all, even if the secondary data sources used are somewhat thorough, there are probable limits regarding the consistency and accuracy of data. The data might need to fully reflect the trade trends or the economic ties between China, India, and ASEAN. Moreover, it is crucial to underline those econometric models and variables that established the limits of this study activity, thereby excluding other elements influencing trade and economic integration. For instance, although the study includes such significant inputs as the amount of trade, inflow of foreign direct investments, and size of economies, other crucial elements like an increase in e-commerce activities or nontariff obstacles could be underused. Furthermore, focusing on overall regional data could cause the hiding of significant differences between specific nations or sub-regions. This aggregate may overlook important local economic factors and trade policies affecting more general regional knowledge and trends. Besides, mistakes in model formulation reflect another area for improvement. Ignored variable bias or misspecification still exist possibilities that could have a knock-on effect on the robustness of results even if the Fixed Effects Model (FEM) and Random Effects Model (REM) are applied to fit effects specific to time and nations.

This cross-sectional view of the study reveals to us how trade flows at specific times and the extent of economic integration that can be attained at that moment.

Longitudinal studies would enable more dynamic perspectives on how these interactions evolve with new global economies and policy changes occurring elsewhere while maintaining some similarities over others. At last, although this study provides important information about regional trade dynamics and policy impacts, it may not cover more general political and financial uncertainty that might affect future trade relations between ASEAN nations, China, like Europe, and India since they are too diverse for them to be taken into consideration.

This limitation highlights the need for ongoing research to improve econometric models, include extra variables, and investigate trade dynamics on a more local level. Incorporating real-time data, longitudinal analysis, and a wider spectrum of variables might help future studies better grasp regional economic integration and trade dynamics.

5.4. Future Direction

Every research is supposed to be beneficial and highlight a fresh phase of the discoveries. Initiated by regional economic integration projects like those between ASEAN, China, and India, Asia's economic scene is changing dramatically. Through the prism of cross-border trade and the responsibilities of major players, the study aims to evaluate multi-regional integration and economic growth as well as the difficulties in formulating a creative, all-encompassing policy for the approaching economic magnitude. The study advances a better knowledge of geopolitical variables volume over the bilateral trade flows and market access for the ASEAN inside India and China by encouraging communication on economic integration, geopolitics, and trade dynamics inside the areas. The paper offers a thorough assessment of the trade dynamics among ASEAN, China, and India, therefore greatly advancing the body of knowledge on regional economic integration. It looks at how these areas have become as strategic allies by combining historical, geopolitical, and financial angles. Using cutting-edge econometric models and including variables including trade volumes, FDI flows, and economic size, the study provides subtle analysis of the complexity of trade linkages and economic integration. The paper fills in current knowledge on the effects of trade policy, infrastructure problems, and geopolitical elements on regional trade. Furthermore, underlined is how Free Trade Agreements help to reduce competition and promote long-term cooperation. The results give academics, legislators, and interested parties a strong basis to improve regional collaboration, create sensible trade policies, and forward sustainable economic development. Stronger social and

public level social and economic ties between surrounding regions or those with a shared border increase their likelihood of commerce.

All things considered, this study enhances the body of knowledge by providing a thorough, multifarious analysis of the economic interconnections between ASEAN, China, and India, thereby stressing the need of complex and sophisticated analytical methodologies to properly grasp regional economic integration.

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