Analyzing the Trade Dynamics: Tajikistan's Potential Membership in the Eurasian Economic Union

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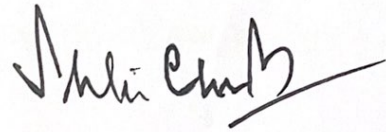
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DECLARATION

I hereby declare that the data presented in this Dissertation report entitled, **"Analyzing the Trade Dynamics: Tajikistan's Potential Membership in the Eurasian Economic Union "** is based on the results of investigations carried out by me in the Economics at the Department of Economics, Goa University/Goa Business School under the supervision of Prof. (Dr.) B.P. Sarath Chandran and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities /Goa Business School will not be responsible for the correctness of observations / experimental or other findings given the dissertation.

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PREFACE

This study is designed to examine the possible outcomes, both the good and the bad, of Tajikistan becoming a member of the EAEU. It will delve into the present situation of Tajikistan's trade affairs, including its principal trading partners, products, and barriers. The paper will explore how EAEU membership could change these dynamics, taking into account the aspects like tariffs, regulations, and market access.

In the end, the objective is to give the policymakers and the stakeholders in Tajikistan an unbiased, evidence-based analysis to stimulate the national debate about the EAEU membership. Trade agreements have the effect on a country's economy, society and geopolitical positioning that is so big that it makes a significant impact on it. Thorough research is needed to draw the most appropriate plan of action.

The research team has used different sources, for example, government statistics, international trade databases, academic literature, and expert interviews. All possible steps have been taken to make sure that the information is accurate, but the complexity and the changing of this matter mean that there is still some ambiguity. Continued monitoring and analysis will be the mainstay of Tajikistan as it goes through its trade future.

I believe that this paper will participate in the important debate about the Tajikistan's economic integration and will help the country to go towards the path of prosperity, equity and interconnection. Trade, if used in the right way, has the potential to be a great tool to lift people's lives and to make communities stronger. Hope this research will be a great help to Tajikistan in the way of maximizing the benefits in the future.

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ABBREVIATIONS USED

Entity	Abbreviation
Eurasian Economic Union	EAEU
World Bank's World Integrated Trade Solution	WITS
United Nations Conference on Trade and Development	UNCTAD
International Labour Organization	ILO
World Trade Organization	WTO
International Monetary Fund	IMF
Eurasian Economic Commission	EEC

<u>ABSTRACT</u>

The research paper explores the complex trade relations that are involved in the Tajikistan's possible joining the Eurasian Economic Union (EAEU). Tajikistan, a country in the Central Asia, is at a crossroads as it thinks about the consequences of joining the EAEU, a regional economic bloc that is headed by Russia. The study in detail studies Tajikistan's current trade situation, including its main trade partners, commodities, and existing trade barriers. Through the examination of the possible effects of EAEU accession on Tajikistan's trade dynamics, which include the tariffs, regulations, and market access, this research offers a detailed analysis for the policymakers and stakeholders in Tajikistan. The research of this study is based on different sources like governmental data, international trade repositories, scholarly works, and expert insights. The research thus tries to provide an evidence-based foundation for the decision-making regarding Tajikistan's possible EAEU membership. Since trade agreements have the potential to affect the economic development, the society and the geopolitical position of a country, a careful evaluation is necessary to determine the future of the country. While Tajikistan is dealing with the intricate aspects of its trade future, this research aims to add to the existing debate on economic integration, thus, providing insights for the country to go to a more prosperous, equitable, and interconnected future. Through the means of responsible trade practices, Tajikistan can be sure to use its trade relationships for the good of its people and the progress of the country.

CHAPTER 1: INTRODUCTION

1.1 Background

Tajikistan, a landlocked country in Central Asia, has long been seeking to strengthen its economic ties with its neighboring countries and integrate into the global economy. The country's economic development has been shaped by its unique geographical location, historical legacy, and the challenges it has faced since gaining independence from the Soviet Union in 1991.

Tajikistan's economy is heavily reliant on agriculture, with cotton and aluminum being its primary exports. However, the country's economic growth has been hampered by various factors, including a lack of diversification, limited access to international markets, high dependence on remittances from migrant workers, and the legacy of the civil war that lasted from 1992 to 1997 (World Bank, 2022). To address these challenges and foster sustainable economic development, the Tajik government has sought to strengthen its integration with regional and global economic structures. One of the recent developments in this regard has been Tajikistan's potential accession to the Eurasian Economic Union (EAEU), a regional economic integration organization established in 2015 by Russia, Belarus, Kazakhstan, Kyrgyzstan, and Armenia (Eurasian Economic Union, 2023). The EAEU aims to promote the free movement of goods, services, capital, and labor among its member states, as well as to coordinate economic policies and foster economic development (Vinokurov, 2017).

Tajikistan's potential membership in the EAEU has generated significant interest and debate among policymakers, economists, and the general public. On the one hand, proponents of Tajikistan's accession argue that it could bring about substantial economic benefits, such as increased trade, investment, and access to larger regional markets (Abdulloev & Boboev, 2020). They believe that Tajikistan's integration into the EAEU could help diversify its economy, improve its competitiveness, and reduce its dependence on remittances and external aid.

On the other hand, critics have raised concerns about the potential costs and challenges associated with joining the EAEU, including the potential loss of sovereignty, the need to align domestic policies with the union's requirements, and the potential impact on the country's existing trade relationships (Khamidov, 2018). They argue that Tajikistan's accession to the EAEU could lead to

increased competition from larger economies, which could harm local industries and small businesses.

1.1.1 Tajikistan's Economic Profile

Tajikistan is a lower-middle-income country with a population of approximately 9.5 million people (World Bank, 2022). The country's economy has experienced periods of growth and volatility since the end of the civil war in 1997. In recent years, Tajikistan has made progress in reducing poverty and improving its macroeconomic stability, but significant challenges remain.

Table 1 presents Tajikistan's key economic indicators from 2018 to 2022. The country's GDP has grown steadily, reaching approximately $8.97 billion in 2022, with a GDP per capita of $962.

However, the economy remains heavily dependent on remittances, which account for nearly 30% of the country's GDP (World Bank, 2022). Inflation has been a persistent challenge, with rates ranging from 5.4% to 9.4% during the period under consideration.

Tajikistan's trade patterns are characterized by a significant trade deficit, with imports far exceeding exports. In 2022, the country's exports amounted to $1.31 billion, while imports reached $4.25 billion, resulting in a trade deficit of $2.94 billion. The main export products are aluminum, cotton, and agricultural products, while the primary imports are machinery, petroleum products, and consumer goods.

In terms of foreign direct investment (FDI), Tajikistan has struggled to attract significant inflows, with FDI accounting for less than 2% of its GDP in recent years. The country's investment climate has been hampered by institutional weaknesses, regulatory challenges, and infrastructure deficiencies (UNCTAD, 2022).

1.1.2 Tajikistan's Economic Relations with the EAEU

Tajikistan's potential accession to the Eurasian Economic Union has been a topic of ongoing discussion and negotiation since the EAEU's establishment in 2015. The country's economic relations with the EAEU member states, particularly Russia, Kazakhstan, and Kyrgyzstan, have been evolving over the years.

Russia is Tajikistan's largest trading partner within the EAEU, accounting for the majority of both exports and imports. Kazakhstan and Kyrgyzstan also play significant roles in Tajikistan's regional trade, with substantial import volumes from these countries.

The potential benefits of Tajikistan's EAEU membership have been a subject of debate among policymakers and economists. Proponents argue that it could lead to increased access to larger regional markets, enhanced trade and investment flows, and better integration into regional value chains. However, critics have expressed concerns about the potential loss of Tajikistan's economic autonomy, the need to align domestic policies with the EAEU's requirements, and the potential impact on the country's existing trade relationships with non-EAEU partners.

Given the potential implications of Tajikistan's accession to the EAEU, it is crucial to examine the prospective economic impact of this decision on the country. This research aims to provide a comprehensive analysis of the potential economic consequences of Tajikistan's EAEU membership, focusing on key areas such as trade, investment, labor mobility, and economic growth.

1.2 Rationale for Tajikistan's Potential EAEU Accession

Tajikistan's potential accession to the Eurasian Economic Union can be understood in the context of the country's broader economic and geopolitical strategies. Several factors have contributed to Tajikistan's interest in joining the EAEU, which include:

Diversifying Trade Relationships

Tajikistan's current trade patterns are heavily skewed towards a few key partners, particularly China and Russia. The country's trade deficit with these countries has raised concerns about its economic dependence and vulnerability to external shocks. Joining the EAEU could provide Tajikistan with an opportunity to diversify its trade relationships, gain access to larger regional markets, and potentially mitigate some of the risks associated with its current trade patterns.

Enhancing Regional Integration

As a landlocked country, Tajikistan has long struggled with the challenges of limited connectivity and access to international markets. Membership in the EAEU could potentially improve

Tajikistan's integration into regional transportation and logistics networks, facilitating the movement of goods, services, and people within the Eurasian Economic Union.

Labor Migration and Remittances

Tajikistan is heavily dependent on remittances from migrant workers, particularly those employed in Russia. Membership in the EEU could potentially improve the legal and regulatory framework for the movement of labor, ensuring better protection and access to employment opportunities for Tajik migrant workers within the union.

Geopolitical Considerations

Tajikistan's potential EEU accession should also be understood in the context of the country's broader geopolitical strategies and its relationships with regional powers, such as Russia, China, and the Central Asian states. Joining the EEU could have implications for Tajikistan's foreign policy orientation and its positioning within the complex geopolitical dynamics of the region.

It is important to note that the potential benefits and drawbacks of Tajikistan's EEU membership are subject to ongoing debate and analysis, and the ultimate decision will depend on a careful evaluation of the economic, political, and social implications for the country.

1.3 Research Objectives and Questions

Research Objectives
1. To analyze the prospective advantages and disadvantages for Tajikistan in becoming a part of the EAEU from an economic standpoint.
2. To evaluate the effects of Tajikistan's membership in the EAEU on trade.

Research Questions

The primary objective of this research is to explore the prospective economic impact for Tajikistan upon its accession to the Eurasian Economic Union. Specifically, the study aims to address the following research questions:
1. What are the potential impacts of Tajikistan's EAEU membership on its trade patterns, including changes in trade volume, composition, and direction?

2. What are the overall macroeconomic effects of Tajikistan's EAEU accession, particularly in terms of economic growth, employment, and income levels?

By addressing these research questions, the study will provide a comprehensive understanding of the potential economic implications of Tajikistan's EAEU membership, which can inform policymakers, stakeholders, and the general public in their decision-making process.

1.4. Significance of the Study

The exploration of Tajikistan's prospective economic impact upon accession to the Eurasian Economic Union is significant for several reasons:

The findings of this study can inform policymakers in Tajikistan and the EAEU member states about the potential economic consequences of Tajikistan's membership, which can guide the negotiation and implementation of the accession process. This knowledge can help policymakers develop appropriate strategies and policies to maximize the benefits and mitigate the potential challenges of Tajikistan's EAEU membership.

1.5 Methodology

To address the research questions and achieve the study's objectives, a mixed-methods approach will be employed, incorporating both quantitative and qualitative research methods.

Quantitative Analysis

The quantitative analysis will involve the following components:

1. Trade Analysis: The study will examine the potential changes in Tajikistan's trade patterns, including trade volume, composition, and direction, upon its accession to the EAEU. This will be done through the use of gravity models, trade flow data, and other econometric techniques.

2. Macroeconomic Analysis: The overall macroeconomic effects of Tajikistan's EAEU accession, such as economic growth, employment, and income levels, will be examined using macroeconomic models, input-output analysis, and other quantitative techniques.

Qualitative Analysis

The qualitative analysis will complement the quantitative approach and provide a more nuanced understanding of the research questions. It will include the following components:

1. Literature Review: The study will conduct a comprehensive review of the existing literature on Tajikistan's economic relations with the EAEU, regional economic integration in Central Asia, and the potential economic implications of Tajikistan's EAEU membership.

2. Policy and Document Analysis: The study will analyze relevant policy documents, government reports, and other official sources to understand the broader context and the policy framework surrounding Tajikistan's potential EAEU membership.

Data Sources

The study will utilize a variety of data sources, including:

1. Trade and Investment Data: Trade data from sources such as the United Nations Comtrade database, the World Bank's World Integrated Trade Solution (WITS), and national statistical agencies in Tajikistan and EAEU member states. FDI data from sources like the United Nations Conference on Trade and Development (UNCTAD) and national investment promotion agencies.

2. Labor Market Data: Labor force and migration data from the International Labour Organization (ILO), the World Bank, and national statistical agencies in Tajikistan and the EAEU region.

3. Macroeconomic Data: GDP, employment, and income data from the World Bank, the International Monetary Fund (IMF), and national statistical agencies in Tajikistan and the EAEU member states.

4. Policy and Legal Documents: Policy documents, government reports, and official statements related to Tajikistan's economic relations with the EAEU and its potential accession process.

Data Analysis Techniques

The data collected will be analyzed using a combination of the following techniques:

1. Descriptive Statistics: Calculating and analyzing basic statistical measures, such as means, standard deviations, and trends, to provide an overview of the key variables and trends.

2. Econometric Modeling: Employing various econometric techniques, such as gravity models, panel data analysis, and input-output analysis, to quantify the potential economic impacts of Tajikistan's EAEU accession.

3. Sensitivity Analysis: Examining the sensitivity of the results to changes in key assumptions and parameters to assess the robustness of the findings.

The integration of quantitative and qualitative methods will enable a comprehensive and nuanced understanding of the prospective economic impact of Tajikistan's accession to the Eurasian Economic Union.

1.6 Scope and Limitations

The scope of this research is focused on the potential economic impact of Tajikistan's accession to the Eurasian Economic Union, with a particular emphasis on the following areas:

1. Trade: The study will examine the potential changes in Tajikistan's trade patterns, including trade volume, composition, and direction, as a result of its EAEU membership.

2. Macroeconomic Effects: The research will explore the overall macroeconomic effects of Tajikistan's EAEU accession, particularly in terms of economic growth, employment, and income levels.

It is important to note that the study will not delve into the political, social, or cultural implications of Tajikistan's EAEU membership, as these aspects are beyond the scope of this research.

Regarding the limitations of the study, it is important to acknowledge the following:

1. Data Availability and Reliability: The availability and reliability of the data required for the quantitative analysis may pose challenges, as some economic indicators and statistics in Tajikistan and the EAEU region may be limited or inconsistent.

2. Uncertainty and Complexity: The economic impact of Tajikistan's EAEU accession is subject to various uncertainties and complexities, such as changing global and regional economic conditions, political factors, and the evolving nature of the EAEU itself.

3. Generalizability: The findings of this study may not be fully generalizable to other countries or regions, as the economic and political dynamics of each context can vary significantly.

4. Time Constraints: The study is limited by the time and resources available for the research, which may constrain the depth and breadth of the analysis.

To address these limitations, the research will employ robust data validation and triangulation techniques, as well as sensitivity analyses and scenario-based approaches to account for uncertainties and complexities. Additionally, the study will strive to provide contextual nuance and acknowledge the limitations of the findings in their broader application.

1.7 Conclusion

Tajikistan's potential accession to the Eurasian Economic Union presents both opportunities and challenges for the country's economic development. This research aims to provide a comprehensive analysis of the prospective economic impact of this decision, which can inform policymakers, stakeholders, and the general public in their decision-making process. By examining the potential changes in trade patterns, foreign direct investment, labor mobility, and macroeconomic effects, the study will contribute to the understanding of regional economic integration dynamics and their implications for Tajikistan and the broader Central Asian region.

This thesis is organized into the following chapters:

1. Chapter 1: Introduction
2. Chapter 2: Literature Review
3. Chapter 3: Overview of Relations Between Tajikistan and EAEU
4. Chapter 3: Research methodology
5. Chapter 4: Result and findings
6. Chapter 5: Conclusion and Policy Implications

CHAPTER II: LITERATURE REVIEW

2.1 Introduction

Tajikistan stands at a crucial crossroad in its economic development as it contemplates accession to the Eurasian Economic Union (EAEU). The potential membership in this regional economic bloc has sparked considerable interest among policymakers, economists, and scholars, particularly regarding its implications for trade dynamics. This chapter aims to provide a comprehensive review of the existing literature on the trade implications of Tajikistan's prospective membership in the EAEU.

2.2 Theoretical Framework

The analysis of Tajikistan's potential accession to the Eurasian Economic Union (EAEU) within the context of trade dynamics draws upon various theoretical frameworks and concepts from the field of international economics. These theories provide valuable insights into the potential implications of regional economic integration for Tajikistan's trade patterns and economic development.

Trade Diversion and Trade Creation: One of the central concepts in assessing the impact of Tajikistan's integration into the EAEU is the theory of trade diversion and trade creation. According to this theory, regional economic integration may lead to trade diversion, where member countries prioritize intra-regional trade over trade with non-member countries, potentially resulting in an inefficient allocation of resources. Trade diversion occurs when the formation of a trading bloc leads to the displacement of more efficient external suppliers by less efficient suppliers within the bloc, resulting in a decrease in overall economic welfare. Baldwin, R. (1964) On the other hand, trade creation happens when the formation of a trading bloc leads to the expansion of trade between member countries due to the removal of trade barriers, resulting in increased economic welfare. Baldwin, R. (2012)

Economic Integration Models: Various models of economic integration, such as the stages of economic integration and the gravity model, offer frameworks for understanding the process and effects of regional integration. The stages of economic integration model delineate the incremental steps toward deeper integration, from preferential trade agreements to a full customs union and

common market. Meanwhile, the gravity model provides insights into the determinants of bilateral trade flows, including factors such as geographical proximity, economic size, and trade barriers.

Sovereignty and Policy Harmonization: An important consideration in Tajikistan's potential accession to the EAEU is the tension between sovereignty and policy harmonization. While integration within the EAEU may entail relinquishing some degree of national sovereignty in trade policy, it also offers opportunities for aligning regulations and standards, thereby facilitating trade and enhancing economic efficiency. Understanding the trade-offs between sovereignty and policy harmonization is crucial in evaluating the desirability and feasibility of EAEU membership for Tajikistan.

2.3. Historical Context of Tajikistan-EAEU Relations

Understanding the historical context of Tajikistan's relations with the Eurasian Economic Union (EAEU) and its predecessor organizations is essential for comprehending the dynamics surrounding Tajikistan's potential accession to the union. This section provides a chronological overview of key developments in Tajikistan's engagement with regional economic integration efforts. Tajikistan could benefit from the preservation and expansion of exports and legal protection for labor migration if it decides to join the Eurasian Economic Union . Kuzmina, S. (2015).

Predecessor Organizations: Prior to the establishment of the EAEU, Tajikistan participated in various regional economic cooperation initiatives, including the Commonwealth of Independent States (CIS) and the Eurasian Economic Community (EurAsEC). The Eurasian Economic Community (EurAsEC) which was established in 2000 and included countries like Russia, Belarus, Kazakhstan, Kyrgyzstan, and Uzbekistan . The organization ceased to exist in 2015 when its members decided to join the Eurasian Economic Union (EAEU) . Tajikistan's potential accession to the EAEU could bring benefits such as the preservation and expansion of exports and legal protection for labor migration. Kuzmina, S. (2015). These organizations aimed to promote economic cooperation and integration among former Soviet republics following the dissolution of the Soviet Union in 1991.

Negotiations and Agreements: Tajikistan's formal engagement with the EAEU began with negotiations to establish closer economic ties with the union. In 2012, Tajikistan signed a memorandum of understanding with the Eurasian Economic Commission (EAEC), signaling its intention to explore the possibility of joining the EAEU. Subsequent negotiations and discussions focused on the terms and conditions of Tajikistan's potential accession to the union.

Current Status and Developments: As of today, Tajikistan's accession to the EAEU remains under consideration, with ongoing discussions and deliberations between Tajikistan and the member states of the union. The outcome of these negotiations will have significant implications for Tajikistan's trade relations, economic policies, and regional integration efforts.

2.4. Empirical Evidence

Empirical studies play a pivotal role in unraveling the intricate trade dynamics between Tajikistan and the member states of the Eurasian Economic Union (EAEU). Through rigorous analysis of quantitative data and analytical findings, these studies provide invaluable insights into the tangible realities of trade relationships and the potential implications of Tajikistan's prospective membership in the EAEU. Empirical evidence on the Eurasian Economic Union (EAEU) and Tajikistan's potential accession can be found in various studies analyzing the integration processes in the post-Soviet space and the comparison of EAEU institutions with those of the European Union. The EAEU is considered a comparatively young organization, and its immaturity may lead to unstable systems despite the presence of signed agreements and supranational institutions. Additionally, the fall of Russian-Belarusian trade in 2013, attributed to the incorporation of the Russian Federation into the WTO, highlights the challenges and complexities of regional integration. Kuzmina, S. (2015).

Analysis of Trade Flows and Patterns: Vinokurov (2019) offers a comprehensive examination of trade flows and patterns within the EAEU region, shedding light on the volume, composition, and directionalities of trade between Tajikistan and its EAEU counterparts. Additional studies by Kobiljonov & Rakhmatullaev (2019) and Sanginov (2016) employ gravity model analysis to assess the trade effects of Tajikistan's potential membership in the EAEU, providing nuanced insights into the factors driving trade between Tajikistan and EAEU member states.

Empirical analysis of trade flows and patterns within the Eurasian Economic Union has revealed fluctuations and challenges. For instance, the exchange between members of the Customs Union in 2013 saw a decline of 11.1% compared to 2012, with a significant drop in trade between Russia and Belarus by 14.5% . Kuzmina, S. (2015). These fluctuations highlight the complexities and difficulties faced in maintaining stable trade relationships within the EAEU. Additionally, the high dependence of transition economies on the global market, particularly on the demand for natural resources and primary products, contributes to the fluctuating trade patterns within the EAEU. Podadera Rivera, P., & Garashchuk, A. (2016). The lack of diversification in these economies makes them vulnerable to risks associated with lower global demand in specific industries, further impacting trade flows within the union. Furthermore, the size of the EAEU has been considered too small to become a significant alternative to Russia's relations with other major economies, such as China and the BRICS countries. Pablo Podadera Rivera and Anna Garashchuk. (2016). This limitation underscores the challenges in achieving a robust and sustainable trade environment within the EEU.

Assessment of Tariffs and Non-tariff Barriers: The Eurasian Economic Union (EAEU) aims to establish a common exterior customs tariff and eliminate barriers for free trade among its members . However, empirical analysis has shown fluctuations in trade flows within the EAEU, indicating challenges in maintaining stable trade relationships. Kuzmina, S. (2015). The existence of non-tariff barriers, along with the high dependence of transition economies on the global market, contributes to the fluctuating trade patterns within the union . Furthermore, the integration process within the EAEU involves the gradual elimination of discriminatory measures and the harmonization of economic policies among participating countries. Kuzmina, S. (2015). While the EAEU has made progress in certain areas, the harmonization of economic policies and the establishment of a common currency have not been fully realized in practice. Podadera Rivera, P., & Garashchuk, A. (2016). Overall, the assessment of tariffs and non-tariff barriers within the EAEU highlights the complexities and challenges faced in achieving a fully integrated and stable trade environment within the union.

Policy Implications and Recommendations: The empirical evidence synthesized from these studies carries significant implications for Tajikistan's policymakers and stakeholders. By identifying key determinants of trade and barriers to trade, these studies inform the formulation of

targeted trade policies and strategic interventions aimed at maximizing the benefits of EAEU membership for Tajikistan's economy. Recommendations may encompass measures to mitigate trade barriers, streamline trade facilitation mechanisms, and strategize economic diversification efforts to leverage the opportunities presented by regional economic integration.

Policy implications and recommendations stemming from the empirical analysis of the Eurasian Economic Union (EAEU) include the need for enhanced efforts to address non-tariff barriers and promote trade facilitation measures within the union . Additionally, there is a necessity for further harmonization of economic policies among EAEU member states to ensure a more stable and integrated trade environment . Furthermore, it is crucial for the EAEU to focus on diversifying the economies of its member states to reduce their dependence on global markets and enhance their resilience to external shocks . Strengthening institutional mechanisms and enhancing cooperation in areas such as infrastructure development and environmental protection can also contribute to the sustainable growth and development of the EAEU. Kuzmina, S. (2015).

CHAPTER III: OVERVIEW OF RELATIONS BETWEEN TAJIKISTAN AND THE EURASIAN ECONOMIC UNION (EAEU)

3.1. Introduction

The Eurasian Economic Union (EAEU) is a regional integration initiative that includes countries in the Eurasian region. It was formed to promote economic cooperation and integration among its member states. The EAEU was established on January 1, 2015, with the signing of the Treaty on the Eurasian Economic Union by its founding member states: Belarus, Kazakhstan, and Russia. The union aims to create a common economic space that fosters sustainable development, enhances competitiveness, and improves the welfare of its citizens.

The EAEU operates based on principles of supranational governance and has institutions and mechanisms established to facilitate decision-making, implementation, and enforcement of common policies and regulations. Key institutions of the EAEU include the Eurasian Economic Commission (EEC), the Supreme Eurasian Economic Council (SEEC), and the Eurasian Intergovernmental Council (EIC).

One of the most important features of the EAEU is its commitment to deepening economic integration through the gradual harmonization of regulatory frameworks, standards, and policies across member states. This includes initiatives to create a common market for goods, services, capital, and labor, as well as to coordinate macroeconomic policies and foster industrial cooperation.

Since its establishment, the EAEU has seen gradual expansion, with additional countries expressing interest in joining the union. Armenia and Kyrgyzstan have acceded to the EAEU, further consolidating the union's presence in the region. The prospect of future expansion underscores the EAEU's role as a prominent regional integration bloc with the potential to influence economic dynamics across Eurasia.

In conclusion, the Eurasian Economic Union (EAEU) represents a significant initiative in regional economic integration aimed at fostering cooperation, integration, and development among its

member states. With a commitment to deepening economic ties and harmonizing policies, the EAEU stands as a significant force in shaping the economic landscape of Eurasia and beyond.

3.2. Historical Background of Tajikistan-EAEU Relations

The relationship between Tajikistan and the Eurasian Economic Union (EAEU) has a rich history, which can be traced back to the geopolitical and economic transformations that have occurred in Central Asia since the Soviet Union's collapse. Being one of the former Soviet republics, Tajikistan has been on a complex journey of nation-building and economic transformation since the early 1990s. During this period, Tajikistan faced numerous challenges, including political instability, armed conflict, and economic dislocation. However, despite all these challenges, Tajikistan has been working tirelessly to establish stable economic relationships with neighboring countries and explore avenues for regional cooperation to support its nascent economy

In the early post-Soviet period, Tajikistan became a member of the Commonwealth of Independent States (CIS), a loose association of former Soviet republics aimed at promoting economic and political cooperation, which provided a platform for dialogue and cooperation among member states. However, Tajikistan soon realized the challenges of transitioning from a centrally planned economy to a market-oriented system.

During this period, Tajikistan became a member of the Commonwealth of Independent States (CIS), a loose association of former Soviet republics aimed at promoting economic and political cooperation. While the CIS provided a platform for dialogue and cooperation among member states, it also underscored the challenges of transitioning from a centrally planned economy to a market-oriented system.

3.3. Engagement with Regional Economic Organizations:

In the 2000s, Tajikistan's engagement with regional economic organizations deepened with its participation in the Eurasian Economic Community (EurAsEC), a regional integration bloc comprising several former Soviet republics. As a member of EurAsEC, Tajikistan collaborated with other member states on initiatives aimed at promoting trade, investment, and economic cooperation within the Eurasian region.

The establishment of the Eurasian Economic Union (EAEU) in 2015 marked a significant milestone in Tajikistan's engagement with regional economic integration efforts. The EAEU sought to deepen economic ties among its member states through the creation of a common market and the harmonization of regulatory frameworks.

Tajikistan's path to accession to the EAEU began with discussions and negotiations to explore the possibility of joining the union. In 2012, Tajikistan signed a memorandum of understanding with the Eurasian Economic Commission (EEC), signaling its intent to deepen economic ties with EAEU member states and explore the benefits of integration. Subsequent negotiations and deliberations focused on the terms and conditions of Tajikistan's potential accession to the EAEU.

However, Tajikistan's path to EAEU accession has not been without challenges. While membership in the EAEU offers potential benefits such as expanded market access, increased trade, and enhanced economic cooperation, it also presents challenges related to regulatory harmonization, trade barriers, and adjustment costs. In addition, Tajikistan's accession to the EAEU is situated within the broader geopolitical context of Central Asia, where competing regional integration initiatives and geopolitical interests intersect. Therefore, navigating these complexities requires careful consideration of Tajikistan's economic priorities, strategic objectives, and long-term development goals.

3.4. Challenges and Opportunities:

Tajikistan's path to EAEU accession has been characterized by both challenges and opportunities. While membership in the EAEU offers potential benefits such as expanded market access, increased trade, and enhanced economic cooperation, it also presents challenges related to regulatory harmonization, trade barriers, and adjustment costs.

Moreover, Tajikistan's accession to the EAEU is situated within the broader geopolitical context of Central Asia, where competing regional integration initiatives and geopolitical interests intersect. Navigating these complexities requires careful consideration of Tajikistan's economic priorities, strategic objectives, and long-term development goals.

In conclusion, the historical background of Tajikistan-EAEU relations reflects the complexities and nuances of regional economic integration in Central Asia. From its participation in pre-EAEU regional initiatives to its current path towards accession, Tajikistan's engagement with the EAEU underscores its efforts to navigate the evolving dynamics of regional cooperation while advancing its economic interests and aspirations.

Traders and analysts have a variety of tools at their disposal to help them analyze market conditions and identify trends. These tools are called trading indicators and can be in the form of metrics or gauges. By using these indicators, traders and analysts can make informed decisions when it comes to buying or selling financial assets. These indicators can be constructed using prices, trading volume, or a combination of both.

3.5. Trade profiles

The Eurasian Economic Union (EAEU), which includes a market of about 180 million people with a total GDP PPP of around $5 trillion. In 2021, the EAEU's foreign trade volume amounted to 844 billion dollars, the main export destinations were the EU countries, APEC nations, China, and the Netherlands. The development of trade in food products and agricultural raw materials has been remarkable, especially from countries like Kyrgyzstan, Russia and Armenia.

Exports to the countries outside the EAEU went up by 44%. In 2021, the trade surplus was 1% due to the increased exports from Belarus, Russia, Kazakhstan, and Armenia. Favorable prices were seen, with a price conditions index of 136%. The establishment of the Eurasian Customs Union in 2010 has brought about a significant increase in trade between member states with mutual trade reaching $68 billion in 2012.

The purpose of the EAEU is to decrease commodity prices, provide better returns on new technologies, foster healthy competition, decrease food prices, increase employment, and strengthen production capacity. Serving as a bridge between the European Union and the New Silk Road economic belt, Belarus and Kazakhstan are in a favorable position in the union.

In general, the EAEU countries have had an increase in volumes of trade, have been able to promote economic cooperation and work towards establishing a common market for goods,

services, capital, and labor. The union is an important player in the energy, raw materials, arms industry and agricultural production sectors in the region, thus it contributes to economic development and integration.

Table No 1: Exports, Imports and Total Trade of EAEU countries (US million)

	Year	2016	2017	2018	2019	2020	2021
Armenia	Export	1643.89	2004.58	2175.21	2404.55	2185.19	2779.71
	Import	3212.63	3892.27	4803.26	5062.23	4449.15	5320.44
	Total	4856.52	5896.85	6978.47	7466.78	6634.33	8100.15
Belarus	Export	23537.35	29239.99	33726.14	32955.12	29179.44	39889.02
	Import	27609.88	34234.85	38408.91	39476.68	32767.43	41810.69
	Total	51147.24	63474.84	72135.05	72431.80	61946.87	81699.71
Kazakhstan	Export	36775.32	48502.74	61108.29	58065.25	47514.20	60321.02
	Import	25174.78	29599.36	33347.35	39708.84	38928.45	41415.40
	Total	61950.10	78102.10	94455.65	97774.09	86442.65	101736.42
The Kyrgyz Republic	Export	1423.03	1757.46	1835.18	1986.11	1863.53	2752.16
	Import	3844.47	4487.29	5291.95	4988.95	3386.67	5580.19
	Total	5267.50	6244.76	7127.13	6975.06	5250.20	8332.35
Russian Federation	Export	301780.44	379206.61	451494.83	426720.33	337103.97	492313.79
	Import	207440.50	259966.68	240225.76	247161.34	231664.19	293497.13
	Total	509220.95	639173.29	691720.58	673881.68	568768.16	785810.92

Source: Calculated from UN COMTRAD Data 2016-2021

The Eurasian Economic Union (EAEU) has been actively developing trade agreements with many countries and blocs in order to enhance its economic partnerships and facilitate trade integration. Here is a comprehensive overview of the EAEU's trade agreements:The EAEU has signed trade agreements with Vietnam, Iran, China, Serbia, and Singapore. These agreements are designed to eliminate tariffs, simplify trade, and to establish economic cooperation between the EAEU and its partners. As of now, the EAEU is negotiating trade deals with Egypt, India, Indonesia, Iran, and Israel. These agreements are in different stages of negotiation and are projected to enlarge the reach of the EAEU. The EAEU's trade agreements are tactically designed with provisions concerning digital trade and transformation. This is an expression of the Union's ambition to use digital means to facilitate regional trade and economic integration. The EAEU's trade agreements are notified to the WTO under GATT Article XXIV for goods and GATS Article V for services. By March 2024, the EAEU has 366 regional trade agreements which are in effect, including the

customs unions and the economic integration agreements. The implementation of the preferential trade agreement between EAEU and Iran that commenced in October 2019 is predicted to increase mutual trade. The agreement is expected to boost EAEU exports to Iran by 9. According to the estimates, 7% of the EAEU exports to Iran and up to 4% of Iranian exports to the EAEU will be affected. Such treaty reveals EAEU's determination to expand its economic influence and to promote deeper integration with its partners. To sum up, EAEU's trade agreements not only prove the organization's willingness to deepen its economic cooperation but also to promote trade integration. The union, while bargaining and implementing new arrangements, is also focused on creating an environment that is conducive to trade and investment which ultimately leads to the economic growth and development of its member states and partner countries.

3.5.1. Russian Federation

Russia, a prominent player in the global economy, boasts a robust trade profile in 2022. With a GDP of $2,215,294 million USD and a GDP per capita of $12,731 USD (2020-2022), the country demonstrates economic strength. Excluding intra-EAEU trade, Russia exhibits a healthy trade-to-GDP ratio of 23.5%, with trade per capita reaching $2,986 USD. This strong trade performance is further bolstered by a positive current account balance of 10.3% of GDP (excluding intra-EAEU trade).

Russia's dominance lies in merchandise trade, where it exported a staggering $588,328 million USD in 2022. The nation's wealth of natural resources is evident in its top exports, with petroleum oils (crude and refined) leading the pack, followed by coal and precious metals like gold. On the import side, Russia relies on manufactured goods like machinery and parts for vehicles, reflecting its ongoing industrial development.

Despite its resource focus, Russia maintains a diversified trade portfolio. Agricultural exports reached $26,748 million USD in 2022, while non-agricultural exports amounted to a significant $392,222 million USD. Although trade in services plays a less prominent role, Russia exported $58,571 million USD in commercial services in 2022, with transport and travel leading the way.

3.5.2. Kazakhstan

Kazakhstan, a strategically located nation in Central Asia, thrives as a prominent player in global trade. Boasting a GDP of $225,784 million USD in 2022 and a GDP per capita of $10,220 USD (2020-2022), Kazakhstan demonstrates a healthy economy. Trade contributes significantly, with a trade-to-GDP ratio of 31.1% (excluding intra-EU trade) and trade per capita reaching $3,175 USD.

Kazakhstan's strength lies in its resource wealth. In 2022, the nation exported a staggering $46,920 million USD worth of crude petroleum oil, solidifying its position as a major energy exporter. However, Kazakhstan doesn't rely solely on its natural resources. A significant agricultural sector contributes to exports, with wheat and wheat flour leading the way at $5,580 million USD in 2022. This showcases Kazakhstan's ability to diversify its export portfolio.

Looking at imports, Kazakhstan relies on manufactured goods like machinery and vehicles to fuel its ongoing industrial development. Interestingly, a substantial portion of imports comes from fellow Eurasian Economic Union (EAEU) members, reflecting strong regional trade ties.

While merchandise trade dominates Kazakhstan's commercial activity, trade in services is also making strides. In 2022, the nation exported $7,694 million USD in commercial services, with transportation leading the pack at $4,674 million USD. This strategic location at the crossroads of Europe and Asia makes Kazakhstan a vital transportation hub.

Despite its economic achievements, Kazakhstan faces challenges. The nation's dependence on commodity exports makes it vulnerable to fluctuations in global energy prices. To ensure long-term stability, continued diversification into non-resource sectors and investments in infrastructure will be crucial.

3.5.3 Kyrgyz Republic

Kyrgyzstan, a landlocked nation nestled in Central Asia, showcases a unique trade profile. While boasting a smaller GDP compared to Kazakhstan (GDP: $11,052 million USD in 2022), Kyrgyzstan actively participates in international commerce. Here's a breakdown of its trade characteristics:

Trade plays a significant role in Kyrgyzstan's economy, accounting for over half of its GDP (excluding intra-EU trade) in 2020-2022. This highlights the nation's dependence on international

markets. Interestingly, Kyrgyzstan runs a trade deficit, with exports reaching $2,187 million USD in 2022 and imports exceeding $9,629 million USD. This suggests a focus on exporting goods to generate revenue for necessary imports.

Despite its mountainous terrain, Kyrgyzstan boasts a robust agricultural sector. Dried leguminous vegetables, live sheep and goats, and cotton are some of the leading exports, showcasing the importance of agriculture in the nation's trade strategy.

Machinery, vehicles, and other manufactured goods dominate Kyrgyzstan's import profile. This reflects the country's reliance on external sources to fulfill its industrial needs.

A significant portion of Kyrgyzstan's trade activity occurs with fellow members of the Eurasian Economic Union (EAEU), signifying strong regional economic ties. While merchandise trade dominates, commercial services like transportation are gaining traction, indicating a potential area for future growth.

3.5.4. Belarus

Belarus, a nation positioned at the crossroads of Europe and Asia, thrives as a strategic hub in global trade. Despite a GDP of $73,120 million USD in 2022, Belarus punches above its weight in international commerce. Here's a breakdown of its dynamic trade profile:

Trade fuels the Belarusian economy, accounting for a remarkable 63.3% of its GDP (excluding intra-EU trade) in 2020-2022. This highlights the nation's deep integration into the global trading system. Exceeding its GDP per capita ($7,221 USD) with a robust trade-to-GDP ratio, Belarus demonstrates a thriving import and export sector, actively participating in global markets. Belarus leverages its fertile lands to become a major exporter of food products. Cheese, dairy products, and meat are some of the leading exports, showcasing the strength of the agricultural sector (20.3% of total exports in 2021). Beyond agriculture, Belarus boasts a well-developed manufacturing base. Wood products, furniture, and machinery are some of its key exports (38.6% of total exports in 2021), reflecting a diversified export portfolio. Belarus's geographical position as a bridge between Eastern Europe and Asia is evident in its trading partners. Russia remains a significant partner, accounting for 35% of exports and 28.6% of imports in 2021. The European Union also plays a

crucial role, representing 13.6% of exports and 14.2% of imports in 2021. While merchandise trade dominates, commercial services like transportation are gaining traction (accounting for 40.4% of commercial service exports in 2022). Belarus's strategic location makes it a vital transportation hub.

Despite its trade prowess, Belarus faces considerations like dependence on Russia and a need for further export diversification. Geopolitical tensions are another factor to navigate. However, with its robust industrial and agricultural sectors, coupled with a strategic location, Belarus is well-positioned to overcome these challenges and solidify its position as a prominent player in Eurasian trade.

3.5.5 Armenia

Armenia, a nation nestled in the South Caucasus region, demonstrates a remarkable openness to global commerce. While boasting a GDP of $19,503 million USD in 2022, Armenia punches above its weight in international trade, with trade accounting for a significant 43.1% of its GDP (excluding intra-EU trade) in 2020-2022.

Armenia's trade profile showcases a unique mix of exports. The nation leverages its fertile lands to export agricultural products like tomatoes and fresh herbs (constituting 20.8% of total exports in 2022). However, Armenia also boasts a well-developed mining sector, reflected in its exports of copper ores and concentrates (38.2% of total exports in 2022).

Russia remains Armenia's most significant trading partner, accounting for 44.6% of exports and 30.4% of imports in 2022. The European Union also plays a crucial role, representing 14.6% of exports and 16.7% of imports in 2022. This highlights Armenia's strategic location as a bridge between Europe and Asia.

 Armenia relies on imports to fulfill its domestic needs, particularly for manufactured goods like motor cars and machinery (60% of total imports in 2022). This highlights the importance of a robust import sector for Armenia's economy. While merchandise trade dominates, commercial services like transportation are gaining traction. Armenia's geographical position makes it a potential transportation hub, and this sector holds promise for future growth.

Despite its trade achievements, Armenia faces challenges like a landlocked location and a significant trade deficit. However, the nation's strategic location, diversified export base, and growing service sector offer promising opportunities for future economic development, particularly with a focus on infrastructure projects that could further integrate Armenia into regional trade routes.

CHAPTER IV RESEARCH METHODOLOGY

4.1 Introduction

This section focuses on the research methodology employed to analyze the trade dynamics of Tajikistan's potential membership in the Eurasian Economic Union (EAEU). We begin by outlining the research questions guiding this investigation. Following this, the chosen research approach (Gravity model. SMART Simulation) will be detailed, along with an explanation for its suitability in addressing these questions. The data collection methods, such as surveys, interviews, or trade data analysis, will be presented with a clear explanation of how participants or data sources were selected. Transparency and replicability of the research findings will be ensured through a discussion of the data analysis methods used. Finally, the chapter will address considerations regarding ethical research practices and potential limitations inherent to the chosen methodology. By providing a clear roadmap of the research methods, this chapter will equip the reader to understand the approach taken to analyze the impact of EEU membership on Tajikistan's trade dynamics.

4.2. Trade indicators

Trade indicators are tools or metrics used by traders and analysts to analyse market conditions, identify trends, and make informed decisions about buying or selling financial assets. These indicators can be based on price, volume, or a combination of both. Some common trade indicators used in this study are trade Openness, export propensity, normalised trade balance, import share and regional market share

4.2.1. Trade openness

Trade openness - refers to the extent to which a country's economy depends on international trade for economic activity, growth and development. It reflects how much a country is connected to the global economy and depends on imports and exports to meet its economic needs. Trade dependence can be assessed using various measures and metrics, such as the ratio of trade (exports plus imports) to gross domestic product (GDP), the share of exports or imports in gross domestic product, or dependence on certain trading partners or sectors. shows the sum of total exports

(ΣX) and imports (ΣM) of goods as part of the gross domestic product (GDP) of country j, both expressed in current values. The value ranges from 0 to ∞..Trade dependence refers to the degree to which a country's economy relies on international trade for its economic activity, growth, and development. It indicates how connected a country is to the global economy and how much it depends on imports and exports to meet its economic needs. There are various measures to assess trade dependence, such as the ratio of trade (exports plus imports) to gross domestic product (GDP), the share of exports or imports in gross domestic product, or dependence on certain trading partners or sectors. The value of trade dependence is represented by the sum of total exports (ΣX) and imports (ΣM) of goods as a part of the gross domestic product (GDP) of a country, both expressed in current values. The value can range from 0 to ∞.

Trade openness index = $\Sigma Xds + \Sigma Msd / GDPd$ x 100

- Where d is the country under study,
- s is the set of all other countries,
- X is total bilateral exports,
- M is total bilateral imports and
- GDP is gross domestic product (of country d)

4.2.2. Export propensity

The index provides a general idea about how much domestic producers depend on foreign markets. Export readiness is an important economic indicator that shows a country's willingness to sell its goods and services to other countries. It indicates the probability that a country will participate in international trade. This indicator takes into account various factors that influence a country's export behavior, such as financial stability, growth rates, and exchange rates. Trade policies, including tariffs and quotas, also play a crucial role in this regard. Additionally, the quality of infrastructure and technological development has a significant impact on the competitiveness of exports. The country's resources and market demand also influence the export trends. Government policies like export promotion programs further shape this indicator. By analyzing these factors, economists and policymakers can better understand a country's export capacity and devise strategies to strengthen its international trade competitiveness.

Export Propensity = $\Sigma s\ Xds / GDPd$ x 100

- Where d is the country under study,

- s is the set of all other countries,
- X is total bilateral exports

GDP is gross domestic product (of country d).

4.2.3. Normalized trade balance

The normalized trade balance indicator is an essential metric that provides a comprehensive understanding of a country's trade performance by analyzing the relationship between exports and imports in relation to the total trade volume. In this text, we will delve into a detailed interpretation of the normalized trade balance for each EAEU country. We will express the reasons behind the trade balances, explain how they impact the economies, and explore when these trends may have emerged.

Normalised Trade Balance = $\Sigma sw\ Xsw - \Sigma ws\ Mws\ /\Sigma sw\ Xsw + \Sigma wsMw$

- Where s is the set of countries in the source
- w is the set of countries in the world
- X is the bilateral total export flow
- M is the bilateral total import flow in the end period

4.2.4. Regional market share

The statistic of regional market share provides us with information on the significance of the members of a trade bloc in the trade that occurs within the bloc. It is a variation of the export share. The regional market share is defined as the proportion of total exports of a given member or members of a trading bloc to other bloc members, in the total intra-regional exports of the bloc. Regional market share is a metric used to assess how much of a specific market is controlled by a particular company, product or service within a defined geographical region. This is a crucial metric used to evaluate the competitive position and performance of businesses within a given area.

Regional Market Share = $\Sigma sbXsb\ /\ \Sigma dbXdb \times 100$

- Where s is the set of source countries under study
- b and d are the set of members of the trade bloc under study (the destinations)

● X is the bilateral flow of exports from the source to the destination.

4.3 Gravity Model

The gravity model is a commonly used method in international trade studies. It is popular because it is easy to understand, fits the available data well, and can be estimated econometrically with ease. Over time, the model has been expanded to include other variables that may impact trade flows, such as dummy variables for a shared language, borders, or historical ties between countries. The gravity model is also used for policy analysis, such as assessing the effects of trade agreements or currency unions on trade flows.

The gravity approach focuses on locational factors rather than comparative advantage. These models connect trade flows between two countries to factors such as the importer's demand, exporter's supply, and trade costs. GDP and GDP per capita are used as substitutes for the importer's demand and the exporter's supply. Trade costs, such as transport and transaction costs, are measured by the distance between countries. The gravity model is similar to Newton's law, which relates the gravity between two objects to their masses and the distance between them. According to the gravity approach, bilateral trade between two countries is directly related to their incomes (GDP, GNP) and inversely related to the distance between them. Linnemann (1966) added more variables and went further toward a theoretical justification in terms of Walrasian general equilibrium system to examine international trade flow.

4.4. Panel Data

Panel data gravity models extend the gravity model framework to analyze trade dynamics over time and across multiple countries. By incorporating both cross-sectional and time-series variation, panel data gravity models offer a robust framework for examining the evolving trade relationships within FTAs. In a panel dataset, the number of repeated measurements on the same variables on the same population or sample can be as small as two. A panel data is easily conceptualized as a three-dimensional structure for each variable: the vertical dimension as time and the horizontal dimension as multiple observations for each variable.

Compare to cross-sectional data, panel data features several advantages, sample size increases and as a result standard deviations become smaller and estimates more significant. The main benefit of panel data is that it allows examining the effect of RTAs not only for a single country pair or in a given year but through a combination of the two while still accounting for the unobserved country pair specific differences. In a study including three different regions of the World, the factors affecting bilateral trade is likely to be very different. Using panel data however provides a solid foundation for trustworthy estimates of the effect of RTAs.

4.4.1 Data Sample and Country Classification

Secondary panel data has been used for the study and has been collected from credible international organizations. The bilateral exports import data is collected from the United Nations trade matrix (UNCTADstat) and world integrated solutions (WITS) but this study used the data maintained by United Nations trade matrix, because there were less zero values in the data set.

Data on country specific variables is obtained from Google Maps. Such as, data on bilateral distance, which integrates the internal distances based on area and uses one important or official capital city to calculate international distance. Data pertaining to GDP, GDPPC, and Population of the country is also collected from WB statistical database and WITS statistical online database. The data required for the gravity model is collected from 25 countries representing most of the first 20 major trading partners for the EAEU member states from different geographical regions of the world. This includes Armenia, Australia, Belarus, Brazil, Canada, China, France, Germany, India, Japan, Kazakhstan, Kyrgyz Republic, Republic of Korea, Netherlands, Russian Federation, Saudi Arabia, Singapore, Spain, Switzerland, Tajikistan, Turkiye, United Arab Emirates, United Kingdom, United States and Uzbekistan. The 25 countries in the sample determine (25 x 24) =600 country pairs. This size of the sample together with 7 years from 2016 to 2022 result in (25 x24 x7) =4200 observations.

GDP is measured at current prices (millions of US dollars), Population of all countries is measured in millions. Bilateral distance is measured, in kilometers, as distance between two capital cities of the trading partners. The bilateral exports import data is measured at thousands of dollars.

4.5. The Model

In the estimation method used in this study, three equations are to be estimated:

➢ **Basic gravity model.**

$$lnTTij = \alpha + \beta1lnGDPi + \beta2lnGDPj + \beta3lnGDPPi + \beta4nGDPPj + \beta5lnDistance + \varepsilon ij$$

➢ **Augmented gravity model**.

$$lnTTij = \alpha + \beta1lnGDPi + \beta2lnGDPj + + \beta3lnGDPPi + \beta4nGDPPj + \beta5lnDistance + \beta6EAEUdum + \beta7Com\ Border + \varepsilon ij$$

Where:

Ln(TT)ij = Log of Total trade between country i and j for a year
Ln GDPi = log of GDP of country i
Ln GDPj = log of GDP of country j
Ln PCGDPi = log of per capita income of country i
Ln PCGDPj = log of per capita income of country j
Ln Distnace = log of geographical distance between country i and j
EAEU member = dummy representing common membership to EAEU
Cont Border = dummy if countries share common border

In this study, we will estimate equations using different techniques. The dependent variable we will focus on is merchandise trade, which refers to the total value of exports and imports in US dollars between pairs of countries. We will use the logarithmic form of this variable. To estimate our extended model, we will use three versions of the gravity equation with different dependent variables. Specifically, we will use the natural logarithm of bilateral trade in one equation and the natural logarithms of exports and imports in two other equations as dependent variables.

CHAPTER V: DATA ANALYSIS AND INTERPRETATION

5.1. Trade indicators
5.1.1. Trade openness

Trade openness is a reflection of a country's unique economic characteristics, geographic location, and strategic initiatives to promote international trade and economic growth. Despite differences in size, resources, and economic structures, all countries are integrated to varying degrees into the global economy through trade competitiveness. Armenia, Belarus, Kazakhstan, the Kyrgyz Republic, Russia, and Tajikistan have all demonstrated significant trade openness, indicating their active participation in international trade and efforts to exploit world market opportunities. Despite challenges such as border geography or geopolitical factors, these countries have pursued trade liberalization policies, diversified export portfolios, and entered into regional and international trade agreements to enhance their economic competitiveness.

Table No: 2 Trade openness

Country	Export	Import	GDP	Trade openness
Armenia	2779.71	5320.44	13880.00	58.36
Belarus	39889.02	41810.69	69670.00	117.27
Kazakhstan	60321.02	41415.40	197110.00	51.61
Kyrgyz Republic	2752.16	5580.19	9250.00	90.08
Russian Federation	492313.79	293497.13	1840000.00	42.71
Tajikistan	1476.80	4201.22	8940.00	63.51

Source: Calculated from UN COMTRAD Data

Armenia

Armenia, a country located in the South Caucasus region of Eurasia, has a trade openness level of 58.36%, which indicates its active involvement in international trade. Despite its relatively small size and poverty, the country has been making significant contributions to its economy through both exports and imports. Trade plays a crucial role in Armenia's economy, accounting for slightly more than half of its gross national product. Armenia's trade openness reflects its efforts to integrate into global and regional markets, particularly in sectors such as agriculture,

manufacturing, and technology. The country has been striving to diversify its economy through trade, and its commitment to economic development is evident in its trade policies. The Armenian government has been taking steps to promote trade and investment in the country. It has signed several free trade agreements with countries such as Russia, Iran, and Georgia, which have helped to expand Armenia's market access and increase its trade volume. The government has also established various institutions and programs to support trade, including the Export Promotion Agency of Armenia, which provides assistance to Armenian exporters. Armenia's trade openness underscores its determination to enhance its economic growth and development through trade. The country recognizes the importance of global and regional integration in achieving economic diversification and sustainability. It is committed to taking further measures to promote trade and investment, and to strengthen its position in the global market.

.Belarus

Belarus has a remarkable level of integration into the global economy through trade, with a trade openness of 117.27%. Despite being a landlocked country in Eastern Europe. Belarus has built a robust export-oriented economy, particularly in the sectors of mechanical engineering, manufacturing, and chemicals. Belarus' mechanical engineering industry is highly developed, producing an array of products, including tractors, trucks, and other heavy machinery. The manufacturing sector is also key, with a focus on producing goods such as textiles, wood and paper products, and food and beverages. Additionally, the chemicals industry is a significant contributor to Belarus' economy, producing fertilizers, plastics, and synthetic fibers. Belarus' trade openness is a reflection of its strategic location, which makes it a transit hub between Europe and Asia. The country's strong industrial base is also a crucial factor, as it enables it to produce a wide range of goods at a competitive cost. Belarus is also an active participant in many international trade agreements and partnerships, such as the Eurasian Economic Union, the Commonwealth of Independent States, and the World Trade Organization. Through these agreements, Belarus has increased its market access and improved its competitiveness globally. In summary, Belarus has developed a strong export-oriented economy in multiple sectors, including mechanical engineering, manufacturing, and chemicals. Its strategic location and active participation in various international trade agreements and partnerships have made it a hub for trade, contributing to its impressive trade openness score.

Kazakhstan

Kazakhstan has a moderate level of trade openness at 51.61%, suggesting that the country is reasonably integrated into the global economy through trade. This level of openness can be attributed to numerous factors, such as the abundance of natural resources that are exported, membership in regional trade agreements, and the rise of emerging industries. As the world's largest landlocked country, Kazakhstan has made a concerted effort to diversify its economy beyond just oil and gas. The country has focused on developing sectors such as mining, agriculture, and services. A country's trade openness reflects its ability to take advantage of strategic locations, natural resources, and infrastructure development to facilitate international trade.

Kazakhstan

The trade openness of Kazakhstan is moderate, which means that the country is moderately integrated into the global economy through trade, with a score of 51.61%. This trade openness can be attributed to various factors, including the abundance of natural resources available for export, such as oil, gas, and minerals, as well as the country's adherence to regional trade agreements. Kazakhstan's efforts to develop emerging industries have also contributed to its level of trade openness. As the largest landlocked country in the world, Kazakhstan has faced challenges in facilitating international trade, but has made significant strides in diversifying its economy beyond its traditional reliance on oil and gas. The country is now focused on developing sectors such as mining, agriculture, and services, which have the potential to generate significant economic growth. Kazakhstan's strategic location has also played a role in its trade openness. The country is situated at the crossroads of Asia and Europe, which offers it significant opportunities to leverage its position as a transit hub for regional trade. The country's infrastructure development, including its transportation networks, has also been instrumental in facilitating international trade. Overall, Kazakhstan's trade openness is a reflection of its ability to leverage its strategic locations, natural resources, and infrastructure development to facilitate international trade. The country's efforts to diversify its economy beyond its traditional reliance on oil and gas have also contributed to its level of trade openness.

Kyrgyz Republic

The Kyrgyz Republic has a trade openness rate of 90.08%, which is among the highest in Central Asia. This indicates that the country's economic activity is heavily dependent on international trade. The country's primary exports include gold, textiles, and agricultural products, and its main trading partners are China, Russia, and Kazakhstan. Despite its small size and mountainous terrain, the Kyrgyz Republic has been actively pursuing trade liberalization policies to expand its export markets and attract foreign investment. The country has implemented several reforms to improve its business environment, such as simplifying the procedures for starting a business, reducing import tariffs, and improving customs procedures. Moreover, the Kyrgyz Republic has been pursuing regional integration initiatives to further enhance its trade competitiveness. The country is a member of the Eurasian Economic Union and the World Trade Organization, which provides it with preferential trade access to a large market of over 180 million people. A country's high trade openness rate reflects its commitment to using trade as a catalyst for economic growth and development. The Kyrgyz Republic's efforts to promote trade and investment have resulted in increased export diversification, job creation, and economic growth.

Russian Federation

Russia has a trade openness of 42.70%, meaning that it is significantly connected to the global economy through trade. This level of integration is mainly due to Russia's status as one of the world's largest countries by area and a major energy exporter. Russia's diverse economy also contributes to its trade openness, with the country exporting an extensive range of products such as energy resources, manufactured goods, and raw materials. Despite geopolitical challenges, such as sanctions and trade restrictions imposed by other countries, Russia remains an important player in the world trade market. The country's significant role in the global trade market is due to its vast natural resources, particularly in the energy sector. Russia is one of the largest oil and gas producers in the world, with an abundance of natural resources such as coal, timber, and precious metals. In addition to its natural resources, Russia's manufacturing sector is also a significant contributor to its trade. The country produces a wide range of products, including machinery, vehicles, and consumer goods, which are exported to various countries around the world. Overall,

Russia's trade openness reflects its diverse and resource-rich economy, which enables the country to participate in the global trade market despite the challenges it faces.

Tajikistan

Tajikistan, a landlocked country in Central Asia, has a significant dependence on international trade, as evidenced by its trade opening of 63,51%. Despite facing geographical challenges, the country has actively pursued trade agreements and economic partnerships to boost its export markets and attract foreign investment. Tajikistan's efforts to diversify its economy beyond agriculture and mining into sectors such as textiles, hydropower, and tourism are reflected in its trade openness. The country has been investing in modernizing its infrastructure, including transportation and communication networks, to facilitate trade and economic growth. In recent years, Tajikistan has signed several bilateral and multilateral trade agreements, including with neighboring countries such as China, Russia, and Iran. These agreements have helped the country expand its export markets and reduce its dependence on a single trading partner. Furthermore, Tajikistan has been actively seeking foreign investment in various sectors of its economy. The government has implemented policies to improve the business climate, including simplifying procedures for starting a business and investing in the development of free economic zones. Overall, Tajikistan's trade openness and efforts to diversify its economy demonstrate its commitment to sustainable economic growth and development.

Figure No: 1 Trade openness
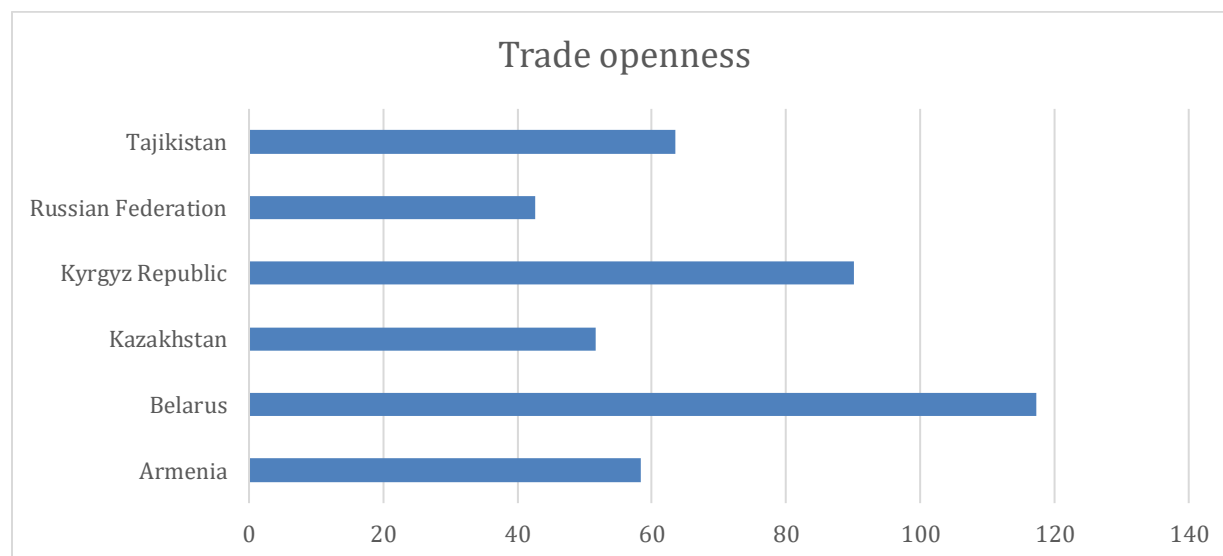
5.1.2. Export propensity

The export propensity of countries within the Eurasian Economic Union (EAEU) demonstrates how much they rely on international trade to drive economic growth. Belarus has the highest export propensity, followed by Kazakhstan and Kyrgyz Republic with moderate levels. Armenia and Tajikistan have lower export propensities. Despite these differences, all EAEU countries consider trade as a vital component of their economic strategies. They are using regional integration efforts to improve market access and competitiveness. By promoting exports and forming trade agreements, they aim to diversify their export portfolios and strengthen their positions in global markets. This will ultimately lead to sustainable growth and prosperity within the Eurasian region.

Table No: 3 Export propensity

Country	Export	Import	GDP	Export propencity
Armenia	2779.71	5320.44	13880.00	20.03
Belarus	39889.02	41810.69	69670.00	57.25
Kazakhstan	60321.02	41415.40	197110.00	30.60
Kyrgyz Republic	2752.16	5580.19	9250.00	29.75
Russian Federation	492313.79	293497.13	1840000.00	26.76
Tajikistan	1476.80	4201.22	8940.00	16.52

Source: Calculated from UN COMTRAD Data 2016-2021

Armenia

Armenia's export propensity stands at 20.03%, which is relatively low when compared to other countries in the list. This indicates that the contribution of exports to the country's GDP is moderate. However, it is worth noting that the export sector still plays a crucial role in generating revenue and contributing to Armenia's economic growth. The country has a diverse export industry that encompasses several sectors such as mining, agriculture, textiles, and technology. The mining sector is one of the most significant contributors to Armenia's exports. The country has a wealth of mineral resources, including copper, gold, and molybdenum. Agriculture is another essential sector, with fruits, vegetables, and wine being the primary export items. The textile industry is also growing, with a focus on high-quality natural fibers such as silk and cashmere. Furthermore, Armenia has a vibrant technology sector, with software development being a significant export. Despite being a landlocked country, Armenia's strategic location and access to markets in Europe and Asia present opportunities for further growth of its export sector. The country has actively pursued trade agreements and economic partnerships to promote export-led growth and attract foreign investment. Armenia has signed several trade agreements with countries such as the EU, Iran, and Singapore, among others. Additionally, it is a member of the Eurasian Economic Union, which allows for duty-free access to a market of 180 million consumers. Geopolitical factors, however, pose significant challenges to Armenia's export sector. The country's relations with neighboring Azerbaijan and Turkey have been strained due to historical and territorial disputes. This has limited Armenia's access to important trade routes and markets. Nonetheless, the government is committed to finding solutions to these challenges and promoting the country's export-led growth.

Belarus

Belarus, a landlocked country located in Eastern Europe, heavily relies on exports to drive its economy. Its export propensity stands at 57.25%, which signifies a substantial dependence on the export sector to contribute to the country's GDP. The export industry in Belarus is supported by various sectors, such as machinery, manufacturing, chemicals, and agriculture. Belarus benefits from its strategic location, which provides it with access to both European and Asian markets. Its well-developed industrial base is another significant factor that has helped the country establish

itself as a major exporter. To continue promoting export-oriented industries, attracting foreign investment, and enhancing competitiveness in global markets, the government has implemented policies. Despite facing challenges such as geopolitical tensions and trade restrictions, Belarus is continuously working towards strengthening its export sector as a key driver of economic growth and development. The country's government has taken steps to improve its export infrastructure, including the modernization of ports and airports, investing in research and development, and providing tax incentives to businesses. The country's export sector has also been boosted by its membership in the Eurasian Economic Union, which has given Belarus preferential access to markets in Russia, Kazakhstan, Armenia, and Kyrgyzstan. Moreover, Belarus has signed several free trade agreements with other countries, including Serbia, Ecuador, and Egypt, to open up new export markets. In conclusion, Belarus's high export propensity is a testament to the country's strong export sector, which continues to be a significant contributor to its economic growth and development. With its well-developed industrial base, strategic location, and government policies supporting export-oriented industries, Belarus is poised to continue strengthening its position as a major player in the global export market.

Kazakhstan

Kazakhstan is a country that heavily relies on exports, with a moderate export propensity of 30.60%. It has a diversified export sector that includes industries such as energy, mining, agriculture, and manufacturing. The country's vast natural resources, strategic geographic location, and infrastructure connectivity play a significant role in facilitating trade with neighboring countries and global markets. The government has taken several measures to diversify the economy and promote non-oil exports, aiming to reduce the country's reliance on commodities. These measures include developing special economic zones, creating export-oriented industries, and encouraging foreign investment. The government is also working to enhance Kazakhstan's competitiveness in international trade by improving its business climate and legal framework, simplifying customs procedures, and investing in infrastructure. Despite challenges such as fluctuating commodity prices and geopolitical risks, Kazakhstan remains committed to prioritizing export-led growth as a central aspect of its economic strategy. The country's efforts to promote non-oil exports have shown promising results, with non-oil exports growing by 20.3% in 2020,

despite the COVID-19 pandemic's impact on the global economy. Overall, Kazakhstan's diverse export sector, strategic location, and infrastructure connectivity, along with the government's efforts to diversify the economy and promote non-oil exports, position the country well to continue on a path of export-led growth and economic development.

The Kyrgyz Republic

The Kyrgyz Republic, a small and landlocked country in Central Asia, demonstrates a moderate export propensity, indicating a significant reliance on exports to drive its economy. The country's main export sectors include minerals, textiles, agriculture, and services. Despite its size and geography, the Kyrgyz Republic benefits from its strategic location in Central Asia, which provides access to markets in the region. To boost export competitiveness and attract foreign investment, the government has implemented several policies, including trade liberalization policies, regional integration initiatives, and investment promotion strategies. These initiatives aim to enhance the country's export competitiveness by reducing trade barriers, fostering regional economic integration, and creating a favorable business environment for foreign investors. However, the Kyrgyz Republic faces various challenges that hinder its export potential, such as political instability and infrastructure constraints. Despite these challenges, the government remains committed to leveraging exports as a key driver of economic development and poverty reduction. The country's efforts to enhance its export competitiveness have yielded some positive results, such as increased export earnings and job creation, but there is still room for improvement.

Russian Federation

The Russian Federation's export propensity is moderate, with a significant but balanced reliance on exports to support its economy. The country's export sector is diverse and includes key industries such as energy, minerals, machinery, and agriculture. Russia benefits from its vast natural resources, including oil, natural gas, coal, and timber, which form the backbone of its export industry. In addition, Russia's large domestic market and strategic geopolitical position allow it to easily trade with Europe, Asia, and other regions. The government has implemented policies to promote export-oriented industries, attract foreign investment, and enhance competitiveness in global markets. These policies include tax incentives for exporters, subsidies

for research and development, and measures to improve the country's infrastructure. Russia has also established special economic zones and free trade zones to encourage foreign investment and facilitate trade with other countries. Despite challenges such as economic sanctions and fluctuating commodity prices, Russia remains a major player in international trade. In recent years, the country has increased its focus on non-resource-based exports, such as high-tech products and services. This shift has helped diversify the country's export sector and reduce its reliance on commodity exports. Overall, exports play a crucial role in sustaining economic growth and development in Russia. The country's export industry is an important source of employment and foreign exchange earnings, and it has helped modernize the country's economy. Despite the challenges it faces, Russia's export sector has significant potential for growth and development in the future.

Tajikistan

Tajikistan is a country with a relatively low export propensity compared to other countries in the list. This indicates that the country does not heavily rely on exports to drive its economy. However, Tajikistan has key export sectors such as minerals, metals, textiles, and agriculture that contribute to its overall economic output. Despite its landlocked geography and limited infrastructure, Tajikistan benefits from its strategic location in Central Asia, which provides access to markets in the region. The government of Tajikistan has taken steps to promote export-led growth, attract foreign investment, and diversify the economy away from dependence on remittances and agriculture. It has pursued trade agreements and economic partnerships with other countries to achieve these goals. Some of these agreements include the Eurasian Economic Union, the World Trade Organization, and the Central Asia Regional Economic Cooperation program. Despite facing challenges such as political instability and infrastructure constraints, Tajikistan remains committed to enhancing its export competitiveness and leveraging trade as a driver of economic development. The government has implemented policies and programs aimed at improving the country's business climate, modernizing its infrastructure, and promoting innovation and entrepreneurship. These efforts have helped to create new opportunities for businesses and investors, and have contributed to the country's overall economic growth.

Figure No: 2 Export propensity
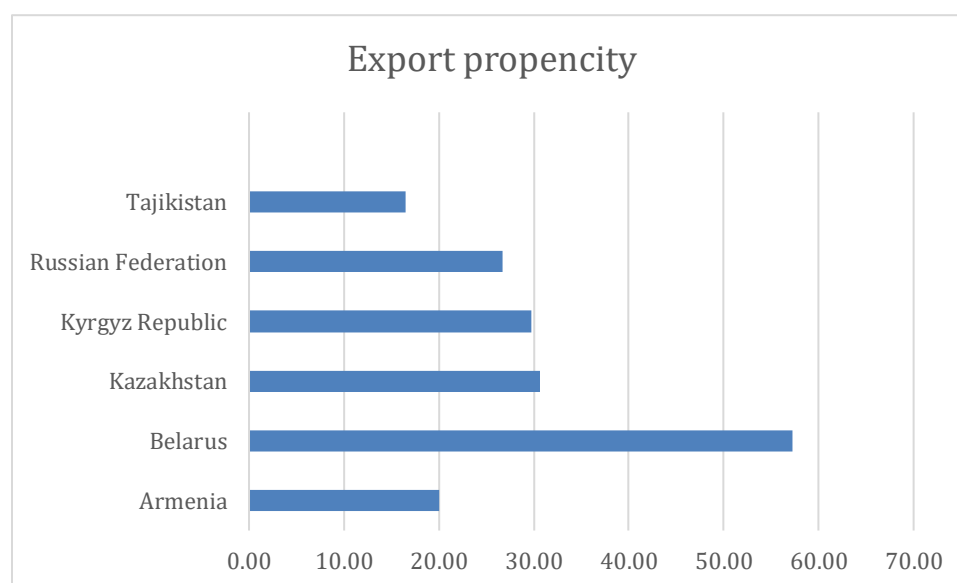
5.1.3. Normalized Trade Balance

The detailed interpretation of the normalized trade balance for each EAEU country highlights the unique factors influencing their trade positions, the economic impacts of these balances, and the timing of these trends based on historical developments, sectoral strengths, and policy initiatives. Understanding these nuances is essential for assessing the trade dynamics within the EAEU region and identifying opportunities for economic growth and sustainability.

Table No: 4 Normalized trade balance

Country	Export	Import	X-M	X+M	GDP	NTB
Armenia	2779.71	5320.44	-2540.74	8100.15	13880.00	-0.3137
Belarus	39889.02	41810.69	-1921.67	81699.71	69670.00	-0.0235
Kazakhstan	60321.02	41415.40	18905.63	101736.42	197110.00	0.1858
Kyrgyz Republic	2752.16	5580.19	-2828.02	8332.35	9250.00	-0.3394
Russian Federation	492313.79	293497.13	198816.66	785810.92	1840000.00	0.2530
Tajikistan	1476.80	4201.22	-2724.42	5678.02	8940.00	-0.4798

Source: Calculated from UN COMTRAD Data

Armenia

Armenia has a negative normalised trade balance of -0.31, which means that the country imports more goods and services than it exports, resulting in a trade deficit. This trade deficit is mainly due

to Armenia's heavy reliance on imported energy resources and machinery. Moreover, the country's limited export diversification also contributes to the trade deficit.

The trade deficit creates challenges for Armenia's current account balance and foreign exchange reserves, which can ultimately affect economic stability. To address the trade deficit, Armenia needs to take steps to boost export competitiveness, reduce import dependency, and encourage domestic production.

The country may need to implement policies that foster export-oriented industries, facilitate foreign investment, and improve trade infrastructure to narrow the trade deficit. Furthermore, trade agreements and regional cooperation initiatives can help expand export markets and reduce import costs, thus improving Armenia's trade balance

Belarus

Belarus has a slightly negative normalised trade balance of -0.027602, indicating a small trade deficit where imports marginally exceed exports. This can be attributed to factors such as import dependence on specific goods and machinery, as well as fluctuations in global commodity prices. Although a small deficit may not significantly impact Belarus' overall economic stability, it is important to address trade imbalances for long-term sustainability. Belarus can work towards improving export competitiveness, diversifying export markets, and reducing import reliance through domestic production and innovation.

To mitigate the trade deficit, Belarus can implement policies that promote export-oriented industries, streamline trade processes, and encourage foreign investment. Strengthening trade infrastructure and participating in regional integration efforts can also contribute to a more balanced trade position.

Kazakhstan

Kazakhstan has a positive normalised trade balance of 0.096438, indicating that the country exports more goods and services than it imports. This surplus is due to Kazakhstan's significant exports of commodities such as oil, metals, and minerals, which generate substantial export revenues. The trade surplus strengthens Kazakhstan's current account balance, increases foreign

exchange reserves, and supports economic growth, demonstrating the country's competitiveness in global markets and its ability to leverage natural resources.

Kazakhstan can maintain its trade surplus by investing in extractive industries, developing infrastructure, and expanding export diversification efforts. Moreover, trade agreements and partnerships with key trading partners could further increase export opportunities and help mitigate the risks associated with commodity price volatility.

Kyrgyz Republic

The Kyrgyz Republic has a significant negative normalized trade balance, which means that its imports exceed exports by a considerable margin. This trade deficit is primarily influenced by the country's reliance on imported consumer goods, machinery, and energy resources, as well as its limited export capacity.

The trade deficit poses several challenges for the Kyrgyz Republic's current account balance, foreign exchange reserves, and overall economic stability. To address the deficit, it is essential to boost export competitiveness, encourage domestic production, and reduce import dependency by implementing policies that promote investment and innovation.

To narrow the trade deficit, the Kyrgyz Republic needs to focus on developing export-oriented industries, improving trade infrastructure, and diversifying export markets. Regional cooperation initiatives and trade agreements could also facilitate trade expansion and help achieve a more balanced trade position.

Russian Federation

The Russian Federation has a positive normalised trade balance, which means that it has a trade surplus, where its exports exceed its imports. This is mainly due to the country's significant exports of energy resources, metals, machinery, and chemicals that contribute substantially to the revenues generated from exports.

The trade surplus strengthens the Russian Federation's current account balance, supports its foreign exchange reserves, and contributes to its economic growth. This reflects the country's position as

a major player in global commodity markets and its ability to leverage its natural resource wealth for export earnings.

To sustain its trade surplus, the Russian Federation could continue investing in extractive industries, infrastructure development, and export diversification efforts. It could also form trade agreements and partnerships with key trading partners to further enhance export opportunities and mitigate risks associated with commodity price volatility.

Tajikistan

Tajikistan has a significant negative normalised trade balance which indicates that its imports far exceed exports, resulting in a substantial trade deficit. This trade deficit is likely due to several factors such as import dependence on energy resources, machinery, and consumer goods, as well as limited export capacity and infrastructure.

The trade deficit poses several challenges for Tajikistan's economy, including its current account balance, foreign exchange reserves, and overall economic stability. To address this deficit, Tajikistan needs to focus on boosting export competitiveness, promoting domestic production, and reducing import dependencies through policies that encourage investment and innovation.

To narrow the trade deficit, Tajikistan should focus on developing export-oriented industries, improving trade infrastructure, and diversifying export markets. Regional cooperation initiatives and trade agreements can also facilitate trade expansion and contribute to a more balanced trade position.

Figure No: 3 Normalized trade balance
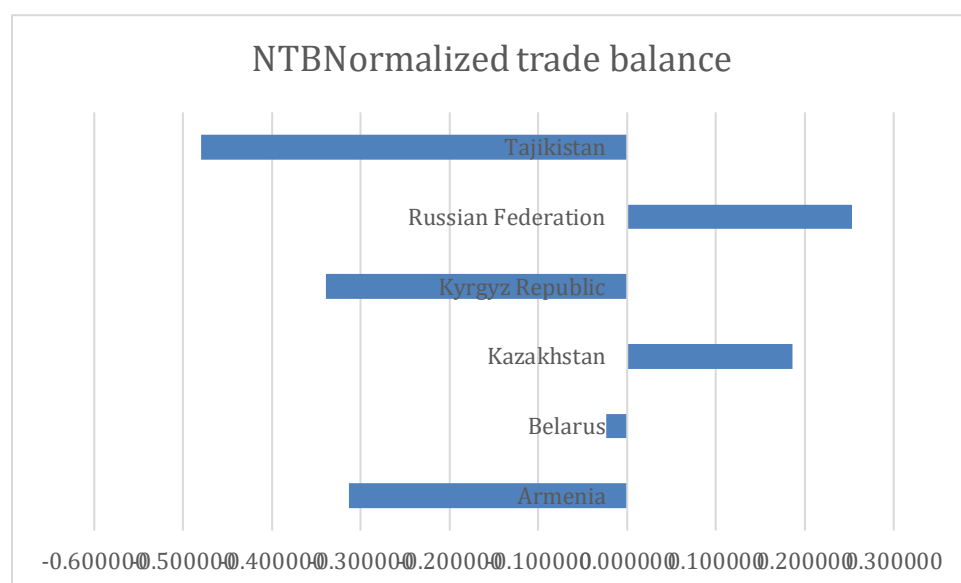
5.1.4. Regional Market Share

The regional market share trade indicator is a valuable tool to analyze the export contributions and market positions of Eurasian Economic Union (EAEU) member countries within the regional trade bloc. The market shares of Armenia, Belarus, Kazakhstan, Kyrgyz Republic, and the Russian Federation provide an insight into their respective export capacities, economic strategies, trade integration efforts, and roles as major exporters that shape the dynamics of the EAEU export market.

It's worth noting that the market shares of member countries have been changing over time, reflecting their efforts to promote trade integration and increase their export capacities. The EAEU's free trade agreements with other countries have also influenced the regional market shares of its member countries.

Table No: 5. Regional market share

Country	Export	Total export of EAEU	Regional market share
Armenia	2779.71	599532.51	0.46
Belarus	39889.02	599532.51	6.65
Kazakhstan	60321.02	599532.51	10.06
Kyrgyz Republic	2752.16	599532.51	0.46
Russian Federation	492313.79	599532.51	82.12

Armenia

Armenia's regional market share is 0.46%, which shows that it has a modest presence in the Eurasian Economic Union (EAEU) market. This percentage represents Armenia's share of total EAEU exports, highlighting its contribution to exports and economic integration within the regional trade bloc. Armenia's export presence in the EAEU is supported by factors such as trade agreements, geographical proximity, and efforts to enhance export competitiveness in key industries.

Belarus

Belarus has a substantial regional market share of 6.65% within the Eurasian Economic Union (EAEU) market. This indicates a significant export presence and highlights its trade relationships, export capabilities, and economic importance within the regional trade bloc. Belarus' export strength within the EAEU is driven by factors such as industrial production, machinery manufacturing, and trade partnerships with other member countries.

Kazakhstan

Kazakhstan holds a notable regional market share of 10.06%, indicating its significant export contributions within the Eurasian Economic Union (EAEU) market. This percentage represents the proportion of total EAEU exports that come from Kazakhstan, highlighting its role as a major exporter and economic powerhouse within the regional trade bloc. Kazakhstan's export dominance within the EAEU is supported by factors such as abundant natural resources, diversified industries, and strategic trade partnerships with other member states.

Kyrgyz Republic

The Kyrgyz Republic has a regional market share of 0.46%, which represents its limited, yet noteworthy, export presence in the Eurasian Economic Union (EAEU) market. This percentage indicates the Kyrgyz Republic's efforts to participate in regional trade, despite facing challenges like geographical constraints and economic dependencies. The Kyrgyz Republic's initiatives to enhance trade infrastructure, promote export-oriented industries, and strengthen economic ties with other member countries have supported its export activities within the EAEU.

Russian Federation

The Russian Federation's dominant regional market share of 82.12% underscores its significant export presence and leadership within the Eurasian Economic Union (EAEU) market. This clearly showcases Russia's significant presence in the export market within the Eurasian Economic Union (EAEU) and highlights its leadership role in the region. Russia's largest economy and primary exporter status within the EAEU is reflected in its substantial share of total exports. This is due to various factors such as abundant natural resources, diversified industries, and extensive trade networks with other member states.

Figure No: 4 Regional market share
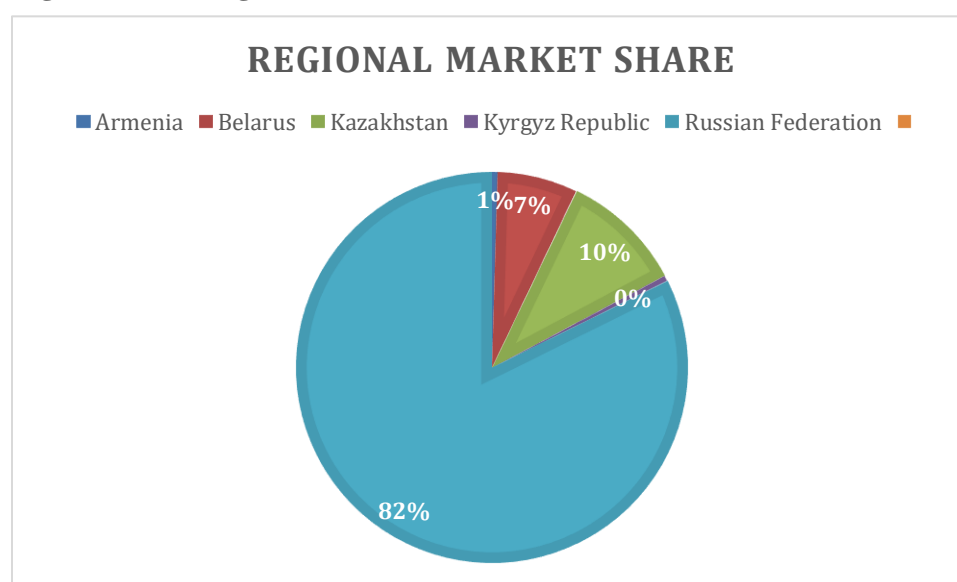
5.2 Gravity model

The basic gravity model serves as the foundation, representing the typical trade pattern between two countries. It considers factors like their economic size (GDP) and geographic distance.

The augmented gravity model builds upon the basic model by introducing dummy variables. These act like switches, turning on or off the influence of specific conditions beyond size and distance. Examples include belonging to a common trade agreement, sharing a language, or having a land border.

A positive and significant coefficient on a dummy variable in the augmented model indicates that the corresponding condition (e.g., trade agreement) increases trade above what the basic gravity

model predicts, or the "normal" level of trade without that factor. A negative and significant coefficient represents the opposite.

The augmented gravity model used in the study is presented as follows:

$$lnTT_{ij} = \alpha + \beta1lnGDP_i + \beta2lnGDP_j + \beta3ln\text{GDPP}i + \beta4ln\text{gdppj} + \beta5lnDistance + \beta6\text{EAEU}dum + \beta7Cont\ Border + \varepsilon_{ij}$$

Table No: 6 Gravity model

Statistic	Description	Value
Residuals	Range of the differences between predicted and actual trade values	Min: -3.02, Max: 2.06
		Q1: -0.29, Q3: 0.33
Coefficients	Estimates of the impact of each variable on trade	
(Intercept)	Constant term in the model	2.4
GDPi	Impact of exporter's GDP on trade	0.96
GDPj	Impact of importer's GDP on trade	0.99
GDPPi	Impact of exporter's income per capita on trade	0.17
GDPPj	Impact of importer's income per capita on trade	0.18
Distance	Impact of distance on trade (negative coefficient)	-0.88
RTA	Impact of being in the same RTA (positive coefficient)	1.04
Common_borders	Impact of sharing a common border (positive coefficient)	0.48
Std. Error	Standard error of each coefficient	Varied
t value	Test statistic for coefficient significance	Varied
**Pr(>	t	)**
Residual Std. Error	Standard deviation of residuals	0.63
R-squared	Proportion of variance explained by the model	0.795
Adjusted R-squared	Adjusted R-squared for model complexity	0.795
F-statistic	Test statistic for overall model fit	2324
F-statistic p-value	Significance level of F-statistic	< 2.2e-16

Intercept (2.40196): The intercept represents the expected log-transformed bilateral trade when all independent variables are zero. In this case, it is 2.40196.

GDP of Country j (0.95684): This coefficient indicates that a 1% increase in the GDP of country j is associated with a 0.95684% increase in bilateral trade, holding other variables constant.

GDP of Country i (0.98743): Similarly, a 1% increase in the GDP of country i is associated with a 0.98743% increase in bilateral trade, all else being equal.

Per Capita Income of Country i (0.17292): The coefficient for PCI i suggests that a 1% increase in the per capita income of country i leads to a 0.17292% increase in bilateral trade.

Per Capita Income of Country j (0.18469): Likewise, a 1% increase in the per capita income of country j results in a 0.18469% increase in bilateral trade.

Distance (-0.87934): The negative coefficient for distance (-0.87934) implies that as the distance between countries increases by 1 unit, bilateral trade decreases by 0.87934%, assuming all other variables remain constant.

RTA (1.04240): The coefficient for RTA (Regional Trade Agreement) indicates that being part of an RTA is associated with a 1.04240% increase in bilateral trade.

Common Borders (0.48181): The coefficient for common borders suggests that sharing a border with another country leads to a 0.48181% increase in bilateral trade.

Overall Model Fit:

- **R-squared:** The multiple R-squared (0.7894) indicates that the model explains a high proportion (almost 79%) of the variation in trade flow. This suggests a good fit for your model.

- **Adjusted R-squared:** The adjusted R-squared (0.7891) takes into account the number of explanatory variables and is slightly lower than the R-squared. This is a more reliable measure of the model's explanatory power, and the high value still suggests a good fit.

Additional Points:

- The intercept (3.0478) can be interpreted as the baseline level of trade flow when all independent variables are equal to 1 (which isn't typically the case in reality).

- It's important to consider that correlation doesn't necessarily imply causation. While the model shows strong relationships, other factors not included in the model might also influence trade flows.

The study analyzes Tajikistan's trade dynamics with various countries, including data on Tajikistan's bilateral trade in thousands of USD, the GDP of the countries involved in billions of USD, per capita income, distance, regional trade agreements (RTA), common borders, and former USSR membership.

The study identifies significant insights into Tajikistan's trade dynamics. Firstly, it shows that Tajikistan's trade with China and Switzerland, countries with a large economy, has increased significantly over the years. Secondly, distance plays a vital role in Tajikistan's trade dynamics, as the country's trade with countries that are geographically close, like Belarus, has increased over the years. Thirdly, regional trade agreements (RTA) play a significant role in Tajikistan's trade dynamics, as Tajikistan's trade with countries that are part of the Eurasian Economic Union (EAEU) has increased over the years.

However, it is essential to consider several limitations when analyzing Tajikistan's trade dynamics. Firstly, the data used in the analysis is limited to the period between 2016 and 2022 and may not be a true representation of Tajikistan's long-term trade patterns. Secondly, several other factors, such as trade policies, political stability, and cultural ties, may influence Tajikistan's trade dynamics and have not been taken into account in the analysis. Lastly, the accuracy and completeness of the data used in the analysis cannot be independently verified, which may affect the robustness of the findings.

Based on the analysis, the following policy suggestions are made: Tajikistan should continue to promote regional integration and strengthen its diplomatic relations with key trading partners, diversify its trade partners, implement trade-friendly policies, and consider the potential impact of political, social, and migration problems on its trade dynamics.

In conclusion, the analysis of Tajikistan's trade dynamics shows that Tajikistan's trade is influenced by several factors, including the GDP of the trading partner, distance, and regional trade agreements. The findings suggest that Tajikistan's membership in the EAEU could provide new

opportunities for trade and investment, but it is important to consider potential challenges and implement policies that promote economic growth and development.

CHAPTER VI: CONCLUSION

6.1. Findings

The dataset under analysis provides significant insights into the trade dynamics of Tajikistan with its fellow member countries of the Eurasian Economic Union (EAEU). It includes comprehensive information on Tajikistan's bilateral trade in thousands of USD, the GDP of the countries involved in billions of USD, per capita income, distance, regional trade agreements (RTA), common borders, and former USSR membership.

Upon analyzing the data, we can infer that Tajikistan's trade dynamics are primarily influenced by the GDP of the trading partner. For instance, Tajikistan's trade with China, which boasts of a large economy, has witnessed a significant increase over the years. The data reveals that in 2016, Tajikistan's trade with China was 463,120.664 thousand USD, which eventually rose to 1,697,243.179 thousand USD in 2022. Similarly, Tajikistan's trade with Switzerland, another country with a large economy, has also witnessed an upward trend.

Distance is another crucial factor that significantly impacts Tajikistan's trade dynamics. For example, the data shows that Tajikistan's trade with countries that are geographically close, such as Belarus, has increased over the years. In 2016, Tajikistan's trade with Belarus was 36,315.528 thousand USD, which eventually rose to 185,220.39 thousand USD in 2022.

Furthermore, regional trade agreements (RTA) have played a vital role in shaping Tajikistan's trade dynamics. The data suggests that Tajikistan's trade with countries that are part of the Eurasian Economic Union (EAEU) has shown a marked increase over the years. For instance, in 2016, Tajikistan's trade with Belarus, which is a member of the EAEU, was 36,315.528 thousand USD. Over time, this figure saw a substantial surge, reaching 185,220.39 thousand USD in 2022.

6.2.Limitations:

When examining the trade dynamics of Tajikistan, it is important to take into account various limitations that may affect the accuracy and completeness of the analysis. One such limitation is that the data used in the analysis is confined to the period between 2016 and 2022, which may not be a true representation of Tajikistan's long-term trade patterns. Therefore, it may be necessary to

collect data over a more extended period to gain a more comprehensive understanding of the country's trade dynamics.

Additionally, several other factors may influence Tajikistan's trade dynamics that have not been considered in the analysis. These factors include trade policies, political stability, and cultural ties. For example, trade policies such as the imposition of tariffs can have a significant impact on a country's trade dynamics. Likewise, political instability can result in fluctuations in trade, while cultural ties can influence the types of goods exchanged between countries.

Moreover, the accuracy and completeness of the data used in the analysis cannot be independently verified. This fact may affect the robustness of the findings and conclusions drawn from the data. Therefore, it is essential to exercise caution when interpreting the results of the analysis, and further research may be necessary to confirm the findings. Ultimately, taking into account these limitations is crucial to ensure a comprehensive understanding of Tajikistan's trade dynamics.

6.3. Suggestions

Based on the findings, the following policy suggestions are made:

Firstly, Tajikistan should continue to promote regional integration and strengthen its diplomatic relations with key trading partners. This could help Tajikistan to expand its trade relationships and attract foreign investment.

Secondly, Tajikistan should diversify its trade partners and expand its trade relationships with countries beyond the immediate region. This could help Tajikistan to reduce its dependence on a single market and increase its economic resilience.

Thirdly, Tajikistan should implement trade-friendly policies, such as reducing tariffs and non-tariff barriers, to attract foreign investment and promote exports. This could help Tajikistan to increase its competitiveness and attract more foreign investment.

Finally, Tajikistan should consider the potential impact of political, social, and migration problems on its trade dynamics. This could include issues such as political instability, social unrest, and migration flows, which could affect Tajikistan's trade relationships and economic performance.

In conclusion, the analysis of Tajikistan's trade dynamics reveals that Tajikistan's trade is influenced by several factors, including the GDP of the trading partner, distance, and regional trade agreements. The findings suggest that Tajikistan's membership in the EAEU could provide new

opportunities for trade and investment. However, it is important to consider the potential challenges and to implement policies that promote economic growth and development while addressing these challenges.

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Table A-1 Basic Gravity model

Statistic	Value
Residuals	
Min	-3.02807
1Q	-0.32121
Median	0.02362
3Q	0.35969
Max	1.95996
Coefficients	
(Intercept)	3.64814
GravNew1$gdpo	0.93719
GravNew1$gdpd	0.96764

Statistic	Value
GravNew1$pcio	0.13447
GravNew1$pcid	0.14815
GravNew1$Dist	-1.08345
Signif. codes	0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error	0.6645 on 4194 degrees of freedom
Multiple R-squared	0.7708
Adjusted R-squared	0.7706
F-statistic	2821 on 5 and 4194 DF
p-value	< 2.2e-16

Table A-2: Augmented Gravity Model

Statistic	Value
Residuals	
Min	-3.01554
1Q	-0.29187
Median	0.01275
3Q	0.33180
Max	2.05882
Coefficients	
(Intercept)	2.40196
GravNew1$gdpo	0.95684
GravNew1$gdpd	0.98743
GravNew1$pcio	0.17292

Statistic	Value
GravNew1$pcid	0.18469
GravNew1$Dist	-0.87934
GravNew1$RTA	1.04240
GravNew1$Common_borders	0.48181
Signif. codes	0 '*** *0.001* '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error	0.6284 on 4192 degrees of freedom
Multiple R-squared	0.7951
Adjusted R-squared	0.7948
F-statistic	2324 on 7 and 4192 DF
p-value	< 2.2e-16

Statistic	Value
Min.	1.126
1st Qu.	1.301
Median	1.757
Mean	1.554
3rd Qu.	1.786
Max.	1.817

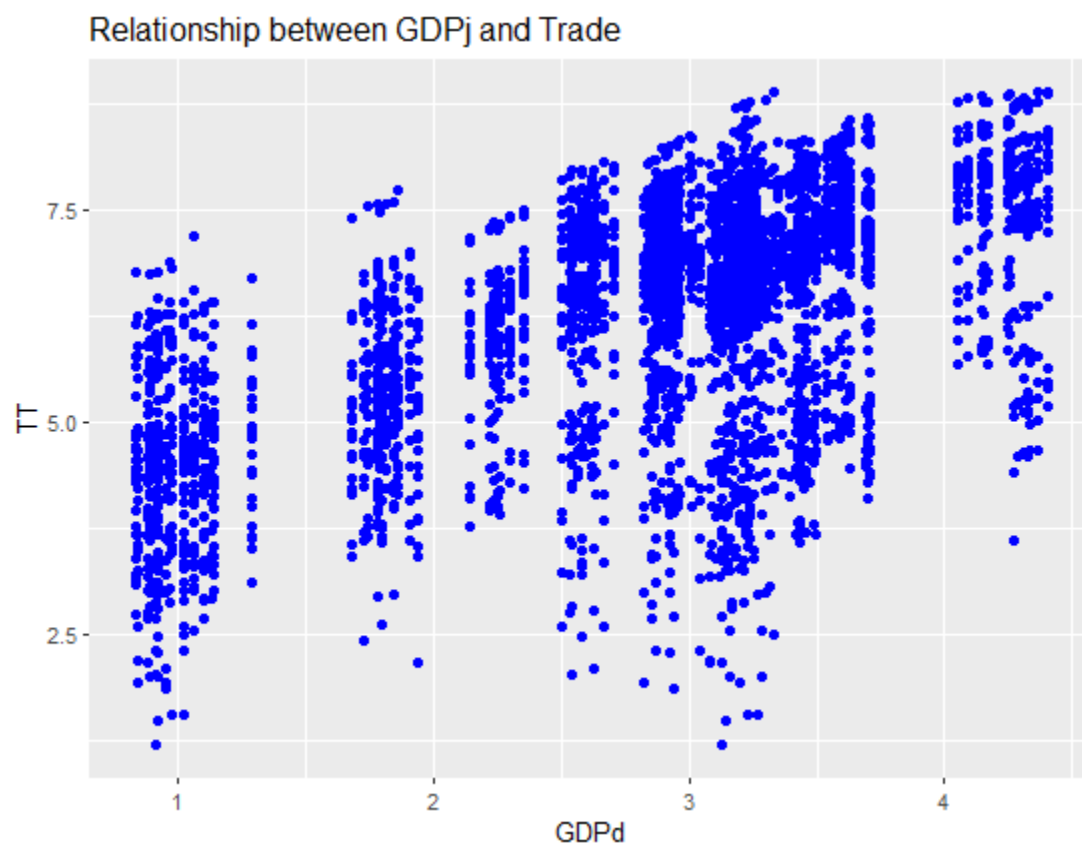**Figure A-1: Relationship between GDPj and Trade**

Relationship between GDPj and Trade

Figure A-2: Relationship between Distance and Trade

Relationship between Distance and Trade