

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF ECONOMICS



**THE IMPACT OF INTERNATIONAL TRADE ON ECONOMIC GROWTH
IN SOUTHERN AFRICA DEVELOPMENT COMMUNITY (SADC)**

(1995-2022)

BY

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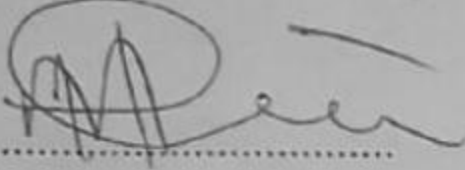
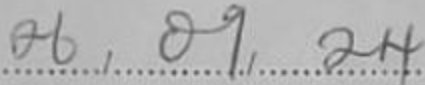
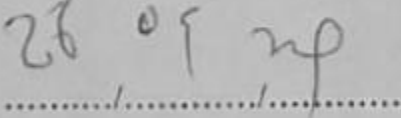
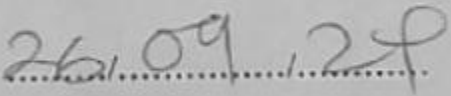
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The undersigned certify that they have supervised, read and recommend to the Bindura University of Science Education for acceptance of a research project entitled: **THE IMPACT OF INTERNATIONAL TRADE ON ECONOMIC GROWTH IN SOUTHERN AFRICA DEVELOPMENT COMMUNITY (1990-2022)** Submitted by Hillary Muchechemera, in partial fulfilment of the requirements for the Bachelor of Science (Honours) Degree in Economics.

	
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DEDICATION

I humbly dedicate this project to my beloved parents Mr. and Mrs. Muchechemera, my brother Wesley and my good friend Nigel Muzengeza, am forever indebted to you all.

ABSTRACT

The research examined the impact of International trade on economic growth in Southern Africa Development Community. Empirically. This study aimed at analysing the relationship that exist between trade and economic growth in SADC. Descriptive summary statistics for panel data covering 10 SADC member states from 1990-2022 was employed. The fixed effects model and the random effects model was used to interpret the results in the study. The Hausman test was deployed to determine the appropriate model that should be used to interpret the outcomes of the study, between Random and Fixed effects models in determining the relationship between International trade and economic growth indicated. The study included data from the World Development Indicators (WDI) related to, trade as a percentage of GDP Foreign Direct Investment (FDI), Government Expenditure, Unemployment, and inflation as control variables. E-Views 10 economics statistical package was used to regress the model.

Findings from the reveals that trade has a positive effect on GDP pc growth, with a coefficient of 0.017, implying that a one percent increase in trade increases GDP pc by 0.017%, theoretically, exchanging goods and services that comprises of capital goods, and resources between countries significantly contribute to growth in GDP per person, in Southern Africa Development Community (SADC). The findings also indicate a positive association on Foreign Direct Investment (FDI) and GDP pc growth, suggesting that a conducive investment environment and foreign investments that comes through international trade from abroad into the region have a high positive impact or explanatory power on economic growth which can also improve the competitiveness of goods and services promoting greater export earnings for the SADC region.

Inflation has also been noted to have a negative effect in its correlation with GDP per person growth, this affects the exchange rate making exports more expensive in the global markets. Government expenditure is shown to have a significant negative impact on the association between international trade and GDP pc growth. This suggest that increased government expenditure on consumption can lead to higher imports, potentially worsening the trade balance this negatively affect economic growth, having a

catastrophic negative balance of trade which might kill investor confidence which is a disaster to the labour market, crowding out effect, trade tensions notably affect growth of the SADC economy. The positive impact of unemployment and its relationship to economic growth is also observed, which is counterintuitive Based on these findings policymakers should actively support and participate in regional free trade agreements, for example the African Continental Free Trade Area (AfCFTA) this agreement advocates for the relaxation of tariffs among member countries and covering trade facilitation and services, which can enhance intra-regional trade, economic integration within SADC, and address trade barriers and avoid further ruptures in the global trade system. This includes implementing policy actions to facilitate trade and reduce barriers to international trade, promoting access to new markets.

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I give thanks to God for the wisdom, guidance and inspiration to be able to accomplish this task. My gratitude extends to my supervisor Doc Kairiza, for being a committed mentor. I appreciate my parents, siblings and last but not the least my friend Nigel Muzengeza for the prayers and encouragement through it all. On top of all, I thank the God Almighty in whom I trust

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CHAPTER I

1.1 Introduction

International trade has emerged as major catalyst towards archiving growth in the Southern African Development Community. Capital, technology and infusion through trade can contribute to enhancing productivity, job creation and overall economic performance. However, there exists conflicting views and empirical evidence in SADC. While some studies have shown a significant positive relationship between trade and economic growth, their findings differ, finding negative effects or no significant relationship. The SADC was established in 1992 it comprises of 16 member nations. The SADC represents a region with diverse economies, ranging from mineral-rich countries like South Africa and Botswana extending to agricultural economies such as Malawi and Tanzania. How trade impacts economic growth in SADC is a subject of substantial significance due to the potential for trade to drive economic development, foster industrialization, and enhance the overall welfare of the member states. Trade signifies a very pivotal role in the growth of SADC economic performance, SADC's access to international markets for both exports and imports has influence on its economy. The dynamics of trade including tariff barriers, non-tariff barriers, trade agreements and global market trends, significantly impact the growth trajectories of SADC member states. Moreover, the SADC integration into global value chains, diversification of exports, and the attraction of foreign direct investment (FDI) are critical components of the relationship between trade and economic growth. As such having a deep understanding the specific mechanisms through which trade influences economic growth in SADC is essential for formulating informed policies and strategies that can leverage the potential benefits of trade while mitigating its challenges. Through a comprehensive exploration of this study, we will delve into the intricate dynamics of trade and economic growth in SADC region, shedding light on the opportunities, challenges and implications for sustainable development and prosperity of member states.

1.2 Background of the Study

The correlation that exists amongst trade and GDP per capita growth, always stimulated complex debates by economists and policymakers also researchers. This involves debates about appropriate sufficient international trade policies that, if adopted will enhance the overall benefits of international trade in promote and enhance long run, sustainable growth. Trade is embedded as a driving tool that drives economic growth, justifying its important in the development and growth of the economy in developing countries and those that are emerging leading to a steady improvement in human status through the expansion of the range of people's standard and preferences. Policy-makers supports the notion that that growth in trade driven by factor endowments and productivity, trade policy and regulations, global trade rules and facilitation (WTO) and geographical positions and natural resources is a sufficient engine to attain economic growth and development in SADC, these factors collectively contribute to the complex landscape of international trade within the SADC region, shaping the economic interactions and trade relationships among member states.

Trade greatly contributed to the turnaround of various countries such as Canada, Australia, and etc., from least developed nations to developed ones. Meanwhile some economists stipulate that in reality the impact of trade relies over a wide range of factors and aspects. One example, The UNECLAC, points out that in SADC the foreign sector crawls behind local growth due to inadequate demand for their products in industrialised countries at international markets, this is explained by the necessity of low developed nations to buy goods (capital) from nations that are past the industrial revolution. International trade enhances growth when adequate and incentivising foreign demand, stability in local supply, competitive goods and services exists. However, trade hinder economic growth when there is significant demand from abroad, an unreliable domestic supply, and inappropriate trade policies. The SADC constitutes of sixteen nations. It came to existence through the establishment of Windhoek Treaty in 1992. It began to operate as a RIA. The need to foster economic development and mitigating poverty in member countries, for the betterment of their people, was one of the reasons why the SADC was initiated according to Evans (1997). Founding countries of SADC objectivized the need to broaden trade by formulating the RIA expecting to foster sustainable expansion as far as the

economy was concerned, that being a favorable outcome for SADC member states. However, the functionality of SADC has been broadly affected negatively, by different aspects that includes, instability in the political realm, and lack of political freedom among member nations. In other words, the gains expected from rapid expansion of growth of trade, Intra-Union trade, and economic development that is accelerated are yet to be attained. Based on this situation and given the current situation in SADC countries in terms of their economy, they should partake in extensive research to answer the most important questions, has the expansion of trade through RIA organization in Southern Africa been acting as a driver the economy and the strategic recommendations that can be deployed in improving international trade in SADC and if they have materialized in terms of the performance of member states? In answering the research questions, we analyze the extent to which trade impacts growth in the economy and if the Southern Africa Development Community realized their objectives and gains.

The research utilized data from World Bank Development Indicators (WDI) in the period 1990 and 2022. The sample involves 10 SADC from the 16 countries, based on data availability.

1.3 Statement of the Problem

The Southern African Development Community has experienced significant engagement in international trade, yet there remains a critical need to comprehensively understand the specific impacts of trade on economic growth of the existing member countries. Existing theoretical and empirical literature provides perspective on the relationship between international trade and economic growth, with some studies highlighting the potential benefits of trade openness while others emphasize the challenges and complexities associated with integrating into the global economy.

Furthermore, this research on trade takes into account factors such as trade policies, regional integration efforts and the diversification of exports markets. The lack of a comprehensive understanding of these impacts hinders the formulation of evidence-based policies and

strategies aimed at maximizing the positive effects of trade within the SADC region. Therefore, there is critical need to investigate and analyze the specific impacts of international trade on economic growth of SADC member countries, considering the diverse trade patterns, policy frameworks, and regional dynamics that shape the trade landscape within SADC.

1.4 Purpose of the Study

The purpose of this study is to comprehensively examine the specific impacts of the international trade on SADC member countries. The study aims to provide a nuanced understanding of the relationship between international trade and economic growth within the unique socio-economic and political contexts of the SADC region. The study seeks to identify the key determinants and mechanisms through which international trade influences economic growth taking into account the diverse trade patterns, policy frameworks, and regional dynamics that shape the trade landscape within the SADC region. Furthermore, the study aims to generate evidence-based insights that can inform the development of targeted policies and strategies aimed at maximizing trade on, thereby contributing to the overall socio-economic development and well-being of the SADC member countries.

1.5 Research Questions

1. What are the impacts of international trade on economic growth in Southern Africa Development Community?
2. What are the strategies that promotes international trade in SADC?
3. What are the suitable recommendations the study give to policymakers so as to enhance international trade in SADC for economic growth?

1.6 Statement of Hypothesis

H0: There is a positive relationship between international trade and economic growth.

Ha: There is a negative relationship between international trade and economic growth.

1.7 Significance of the Study

This study has implications to various stakeholders, such as institutions, SSA countries, Investors, Researchers and Policymakers.

Significance to the Institution

This study is significant to the institution as it contributes to the body of knowledge in examining the correlation on trade and economic growth in SADC. The findings of the study can aid the institution in developing policies and recommendations that can promote international trade in the region. The study can also serve as a reference for future research on the topic.

Significance to SADC countries

This knowledge can inform the development of more effective trade policies, investment strategies, and economic development initiatives aimed at fostering sustainable growth and prosperity within the region.

Significance to Investors and Businesses

Findings of the study may have practical implications businesses and investors seeking to engage in trade activities within the SADC. Understanding the specific impacts of international trade on economic growth can guide decision-making processes, risk assessments, and resources allocation, ultimately contributing to more informed and strategic business operations within the region.

Significance to Researchers

The study can serve as a reference for future research on the topic. The findings of the study can also guide researchers in developing new hypotheses and research questions related to international trade and economic growth in the region.

Significance to Policymakers

Findings from the study can help policymakers to design more effective policies to promote trade which have a positive outcome towards the realization of sustainable economic growth. This will provide insights to policymakers so that they can initiate policies focused on other important factors such as infrastructure, and technological capabilities to promote an efficient trade mechanism aimed at achieving economic growth. This study can also help policymakers to benchmark their countries' performance against other countries in the region and identify areas for improvement.

1.8 Assumptions of the study

1. The major assumption of research on international trade is a source of machinery, raw materials, and semi-finished products that can boost economic growth in SADC.
2. It also assumes a positive linear relationship between international trade and economic growth. It can be captured using econometric techniques such as panel data analysis
3. The study assumes that the secondary data sources used in the study are reliable and accurately represent the variables of interest, including trade and Gross Domestic product growth.
4. The study assumes that the sample of the 10 countries out of 15 SADC countries included in the analysis due to data inconsistency is representative of the region and provides insights into the association between international trade and economic growth for the region as a whole.

1.9 Delimitations of the Study

1. The research will focus specifically on Southern African Development Community as a region. Other regions will not be considered for this study.
2. The study will focus on a sample of 10 SADC countries, and the results may not be generalizable to other regions beyond SADC.
3. The study will focus on the examination of the relationship between International trade and economic growth in SADC countries.
4. The study will use a quantitative research methodology, using econometric techniques. Panel data analysis was employed to examine the relationship between International trade and economic growth in SADC countries.

1.10 Limitations of the Study

1. Endogeneity: This study's results may be affected by endogeneity, which occurs when the relationship between the dependent variable and its control variables is bidirectional. In other words, economic growth may also attract international trade inflows.
2. Causality: The study's results may not establish causality between international trade, and economic growth. Although the study will use econometric techniques to control for potential confounding factors, the results may still be affected by unobserved or omitted variables.
3. Data quality: The study will rely on secondary data, and the quality and coverage of the data may be limited. The study's results may be affected by measurement errors, missing data, and data inconsistencies.
4. Heterogeneity: SADC countries are diverse in terms of their economic, political, and social characteristics, and the results may be affected by heterogeneity across countries. The study will use panel data analysis to control for country-specific effects, but the results may still be affected by unobserved heterogeneity.
5. Generalizability: The study's findings may not be generalizable to other regions beyond SADC or to countries with different levels of economic development or political regimes

1.11 Definition of Terms

International trade: The exchange of goods and services between different countries in the form of imports and exports.

Economic growth: An increase in the total output of goods and services produced by a country over time. It is typically measured by the growth rate of Gross Domestic Product (GDP).

Southern African Development Community (SADC): This is a regional economic community comprising of 16 member states in Southern Africa.

1.12 Summary

The chapter has provided a solid overview background, highlighting the importance of international trade and economic growth in SADC, and a problem statement, which identified the need for a clear understanding of the relationship between international trade and GDP growth rate in the region. Additionally, the study's significance has been discussed, and its underlying assumptions have been identified, including a positive effect of international trade and economic growth in this relationship. The delimitations of the study, such as its geographic, time, and sample size, as well as its limitations, have also been discussed.

The following chapters of this research study will present a literature review, research methodology, data analysis, and findings discussion. Chapter two will provide a theoretical framework and empirical evidence of the research on international trade and economic growth in Southern Africa, while Chapter three will outline the research methodology, research design, and data collection methods employed in the study. Chapter four will present the study's results, their interpretation, and discussion. Lastly, chapter five will conclude and make recommendations.

This study aims to provide valuable insights into the correlation that might exist between international trade and economic growth in SADC. The following chapters will delve deeper into the research topic, providing a more detailed understanding of the research questions at hand.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

In this chapter, a theoretical and empirical based evidence is provided. Theoretical literature is provided in the first part of this chapter with evidence that correlates trade and GDP per capita growth. The closing section of this chapter provides an empirical analysis of studies that have been carried out explaining the relationship that might exist between international trade and economic growth measured by GDP per capita growth.

2.2 Theoretical Review

Opposing theories providing significantly unique interpretations and results based conclusions supporting the relationship that emanates between trade and economic growth. Other studies proposing positive relationship, and others a negative relationship and others did not find any relationship. This section explains a theoretical view that solidifies the examining of trade as a percentage of GDP, as deemed by the classicals, neo-classical theories, new trade theories, mercantilist view and growth models that are endogenous. The chapter will also point the need for trade policy reforms in SADC.

Traditional view on International trade and economic growth

Whilst it is being maintained that trade acts as an engine of economy, other sources claim, trade only has an impact on the underdevelopment of developing countries. In the traditional point of view there are four vital factors to note that may be observed when examining the positive outcomes of participating Southern Africa Development Community members according to (Harbeler 1988). First trade being a provider of material, means involving capital goods machinery, semi-finished goods and natural raw materials, all being vital for economic

growth and sustainable development. Second, the dissemination of technology through trade is a vital tool towards economic growth. Trade also facilitates the movement in capital from and to the underdeveloped countries as the third factor, and additionally free trade is the best antimonopoly strategy in free competition (Harbeler, 1988: p 335)

The theory also exposes the potential linkages between globalization and economic growth. The integration of culture from different ethnic groups facilitates the diffusion of ideas between nations, these ideas are useful when affiliating into new market products and the improvement of new and competitive products and producing at low cost for better returns. The integration of product markets through trade encourage innovation thereby leading to increased exports earnings.

Mercantilist view on Trade

This is a highly nationalistic view that favors state regulation or government intervention and centralization of foreign trade and also other economic activities. That is the stock of precious metals such as gold, silver and platinum determines how wealthy a nation is. In Simple words gold and silver was the currency that was used in that time to settle trade obligations between nations involved in international trade, that is exporting more and importing less was the method used by nations to acquire gold and silver (Blaug, 1978: Pentecost, 2000:4). It states that the government of any nation should do the most in to maximize exports and minimize its imports (positive balance of trade). This is in accordance of achieving economic growth among nations participating in international trade. Maintaining and obtaining a favorable balance of payments is the main objective in line with sustainable economic growth and development. The over emphasized the need to economic growth by over manufacturing goods and services that have a significant opportunity cost.

International trade and growth (Classical growth theories)

This ideology of absolute advantage as contributions to the classical theories of that time was discovered by A Smith. A benefiting trade on both sides based on absolute advantage according

to (Pentecost, 2000:7) companies should specialise in the production of goods and services at which they are produce most efficiently or less costly), this is where free trade comes in, as it enables this principle enacted by Adam Smith. Specializations leads increased outcomes through the utilization of economies of scale by nations involved in international trade, this will automatically lead to high productivity resulting in increased Gross domestic product or output.

The SADC free trade agreement (FTA), has prompted free trade between member countries encouraging business to be innovative encouraged by the increased incentives that it accumulates.

Growth and trade (Neo classical)

This is a set of literature that exist in economics that emanated from Heckscher-Ohlin's theory in international trade. It stipulates the view that nations specialise in the value chain, with its factor endowments. It uses a statistical analytics framework as much as the classical comparative cost theory. The assumption of this theory is that the endowments are constant and do not change, there this makes the composition in its trade is stable and remains stable. The implication of the assumption is that labour supply which is relative should not be orgumented by exports and imports of the same factors.

The model implies that trade increases the overall demand for goods and services produced by a nation's scarce resources (Feemnstra, 2004;36). Also technology advancement increases productivity, negotiating the diminishing returns in turn enhancing the speed of economic growth.

Trade and growth in the endogenous growth theories

This theory was developed from the contributions of Romer in 1986 and Lucas in 1988. They pointed out the functionality of acquiring capital or (capital accumulation) growth in the long run. However, the neoclassical model of growth, in capital is being defined more from a deeper scope in both the theories, the contributions through, human capital accumulation and learning-by-doing.

Growth in Trade (Technological Progress)

Knowledge focused models by (Grossman and Helpman, 1991), the rate of innovation of modern products determine the rate at which the economy grows. The rate of innovation growth manifests solely by the knowledge base and the level of employment that is disseminated in RD sectoral. Therefore, in the unavailability ideas and demonstrations (no knowledge spillover), the base of knowledge that exist in each nation through trade remains constant and do not change. Increase in technological involvement in the (R&D) sector can lead to the emerging of new ideas, leading to economic growth among nations involved in trade.

These models developed by Grossman and Helpman 1991, high levels of openness permit low developed countries to access and adopt new and advanced technologies that would have been invented in other industrialised nations at a rapid response. On free trade the amount of capital accumulated in each nation would be twice prior to free trade, the same applies for market size for new products which will be twice as large before trade. The movement of resources from one sector of the economy to another when a nation is opening up for trade is predetermined by a nation static comparative advantage. Trade can promote growth at an certain level that research and development activity closely correlated with exporting sector that it would be with the import sector.

Neo-trade Theories

This is a theory that reveals that the benefits economies of scale that comes through international trade help a long way in enhancing economic growth. Trade also promotes growth in terms of the economy in the allocation of resources among material production and also in knowledge sector. These theories stress out income distribution changes that exist among industrialized nations. That is, it accounts for the observed expansion of trade as their principal mechanism within the theory basis.

Trade policy reforms

Policies in trade that exists in Southern Africa Development Community are centered mainly on the enhancement and expansion of exports in goods and services as finished and intermediate goods, laying a significant foundation in the production of capital commodities for domestic and global markets, (Makoche Kanwa 2012). Therefore, policies should yield high foreign earnings which indicates higher exports than imports, this automatically avoids balance of payments deficits. There has been introduction of various incentives available to the investors in producing and exporting, that includes government export subsidies, export processing zone (EPZ), manufacturing under bond scheme, etc.

Environmentally conducive policies are now a requirement in developing nations for innovation and product development which brings out confidence in businesses in the utilization of the local resources that exist in nations and producing for export purposes. That is policies should be formulated taking into considerations the need to speed up industrial processes, and smoothing the ease of trade by making it easy for businesses to access foreign markets and be competitive. The East African communities, COMESA, SADC, and etc are multilateral, regional, bilateral and preferred trade agreements that have been established to conform with the objectives of trying to create a rapid expansion in developing economies. These theories mainly stress the need for free trade to alleviate the major economic and technical challenges that are faced by nations that are still emerging especially African nations, transforming countries to be more export driven.

2.3 Empirical Review

Foreign exchange earnings sources have been mainly used to indicate for trade, including changes in GDP per capita as a measuring of economic growth. Researches have been conducted to test the hypothesis that there is a positive relationship that emanates between trade and economic growth. Robertson 1938 enunciated trade as an engine of growth, which will be supported by a positive statistical relationship between trade and economic growth. These different and diverse researchers employ different approaches in coming up with expected results.

Studies on the impact of international trade on economic growth in developing countries

This study examined the differential effects of trade on economic growth based on cross-country data. This empirical research was developed by Were (2022). Differential effects of trade and growth were not left for considerations by carefully categorizing countries based on the level of economic development in developing and developed nations. Based on the findings of the study the results indicated that as much as trade has a positive correlation in terms of its relationship with economic growth in developing and developed countries its impact is more notably observed to have effect more on the developing nations. There is need for structural and pattern adjustments to obtain optimum benefits from trade.

Economists have produced a huge quantity of statistical validations and justifications that supports this relationship. Findings significantly supporting the hypothesis that if factors remain constant, trade openness manifests to high incomes and increased economic growth Hendrik and Lewer (2007) concluded. From the findings there is no valid evidence that can suggest that trade and economic growth are negatively correlated.

A study by Moyo and Khobai (2018) examined trade openness as having a positive effect on economic growth in SADC. The study used panel data analysis for 11 nations, for the period 1990-2016. Their findings revealed an adverse impact on economic growth in the long-run. Basing on the results from the study, the writer concluded that trade openness hinder growth in SADC especially in the long-run.

Studies on the significance of international trade on economic growth in developed countries

A panel data analysis was deployed. According to (Massell, 1972) on a sample of 11 Latin American nations and the results of the examination indicated that, earnings in exports had a significant impact the outcome of the economy or on output growth in contrast to other sources of foreign earnings such as Foreign direct investment.

Also another important regression analysis that examined the export-growth, found evidence in favor of exports acting as a stimulus for economic growth by Among the more important time series studies are those by Emery (1967), Krueger (1978), Ogbokor (1978) developed a log-linear specification that analyzed the impact of exports on economic growth. The research focused on 10 countries, using data from 1954-1971. They found that real gross national product depended more on export earnings than on total foreign exchange availability.

Another study examined the dynamic impact of trade openness on economic growth in South Africa (SA) developed by Malefane and Odhiambo (2018). Their empirical results indicated that trade openness had a positive and significant impact on economic growth and the ratio “total trade-GDP” was functionalized as proxy of trade openness not when other proxies are adopted. Their short run empirical results show that when the first three proxies of openness were used, trade openness had a positive significant impact on economic growth, but not so when trade openness index was used. Based on these findings, the conclusion was promoting policies that support international trade was relevant for the South African economy.

Another important study examined whether or not countries should develop consolidating strategies for the expansion of international trade increases. This based on openness level, whether countries need to develop policies that solidifies trade through potential value addition chains due to integration in the ECOWAS region developed by Tinta et al. (2018). Two models that is fixed-effects panels. The models’ estimations used data from ECOWAS member states. It focused on data from 1995 to 2012. Their results showed that regional and integration needed to be strengthened and solidified to stimulate the potential of each country to move from discontinuous growth to growth. Based on their findings, they concluded that international trade is not a sufficient solution for ECOWAS countries towards enhancing economic growth except regional trade connected to the creation of value chains.

2.4 Summary

This chapter provides a theoretical framework in examining the impact of international trade on economic growth in Southern African Development Community. The chapter commences with an extensive review of various economic growth models and theories. It then investigates the essential determinants of international trade in the region, including factors such as economic growth, political stability, liberalization of trade policies, comparative advantage, regional integration strategies, infrastructure and trade costs and intra-regional trade and trading blocs, natural resource availability, and market size. To establish a comprehensive foundation for the subsequent analysis of the relationship between International trade and economic growth in SADC countries, the chapter concludes with a thorough empirical review of the existing literature pertinent to the study. By synthesizing a wealth of theoretical and empirical research, this chapter provides a robust framework for understanding the complex dynamics between International trade and economic growth in the region. The primary goal of this framework is to facilitate a deeper understanding of the factors that drives trade and their potential impact on economic growth in Southern African Development Community (SADC) countries.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

The research methodology presents the methodology that is to be used that is comprising of several section, including the research design, followed by the subjects (population and sampling), Data collection procedures, Research instruments and the closing summary

3.2 Research Design

This study will examine the impact of international trade on economic growth in the SADC region. The importance of research designs also extends to readers of scientific literature, decisions-makers, and various stakeholders who rely on the outcomes of the research study to inform their actions and policies. This study shall embrace a quantitative descriptive research design, due to the use of secondary data. The e-views package shall be used to perform regressions using econometric tools on the data. The period being covered stretches from the year 1990 up to the year 2022 and has adopted an annual panel data in addressing the relevant issues of the study.

3.3 Theoretical Model

This framework is based on a well-established literature that explores the impacts of trade and GDP growth in its relationship assumed to positive. The neoclassical theory of international trade and economic growth encompasses several key models and concepts. It emphasizes the role of comparative advantage, which posits that countries should specialize in producing goods in which they have a comparative advantage leading to a mutually beneficial trade, factor endowments, such as labor and capital, and trade liberalization, it suggests that policies fostering openness in a country's trade regime can stimulate technological change and contribute to economic growth, in driving economic growth and shaping trade patterns. The

Cobb-Douglas production function being one of the most widely used. This model assumes that economic output is a function of capital and labor inputs, which allows for a better understanding of how International trade can contribute to growth in GDP per capita growth as a measure of economic growth.

The model is expressed as follows:

$$Y = AK^{\alpha}L^{\beta} \dots\dots\dots \text{e.q}$$

Where:

Y is output

K is capital

L is labor

A is the total factor productivity

α and β are parameters that reflect the elasticity of output concerning capital and labor inputs.

This study, a panel regression analysis will be used to estimate the relationship between International trade and GDP growth in Southern Africa Development Community (SADC). The panel regression analysis will allow for the control of unobserved country-specific factors that may affect the relationship between trade and economic growth. The panel regression model will be estimated using fixed effects and random effects estimators. The fixed effects estimator controls for unobserved country-specific factors that are constant over time, while the random effects estimator assumes that the unobserved country specific factors are uncorrelated with the explanatory variables

The panel regression model will be specified as follows:

$$Y_{it} = \beta + \beta_1 A_{it} + \beta_2 X_{it} + y_t + \varepsilon_{it} \dots\dots\dots \text{e.q1}$$

3.4 Model Specification

The objective of this analysis is to examine the impact of international trade and the listed independent variables that are assumed to have explanatory power on economic growth in

Southern Africa Development Community (SADC). A panel data was adopted to achieve the study objectives or goals. This model presents economic growth (dependent variable) as a function of trade (as a percentage of GDP)), foreign direct investment net inflows (% of GDP) (FDI), Government expenditure, Unemployment, and inflation (Independent variables).

A generalized panel regression model will be specified as follows

$$GDPpc_{it} = \beta + \beta_1 trade_{it} + \beta_2 X_{it} + Y_i + \varepsilon_{it} \dots\dots\dots eq1$$

Where:

$GDPpc_{it}$ Is gross domestic product per capita growth of country i in year t

$trade_{it}$ Is trade as a percentage of GDP of country i in year t

X_{it} Represents the vector of control variables that include inflation, Government expenditure, Unemployment and Foreign Direct Investment,

y Represents the country-specific fixed effects

ε Is the error term.

The panel regression model specification is as follows:

$$GDPpc_{it} = \beta_0 + \beta_1 trade_{it} + \beta_2 FDI_{it} + \beta_3 GovE_{it} + \beta_4 UnEmp_{it} + \beta_5 Infl_{it} + \varepsilon_{it}$$

Where:

$GDPpc_{it}$ is gross domestic product per capita growth (annual %)

$trade_{it}$ is trade (% of GDP)

FDI_{it} is foreign direct investment, net inflows (% of GDP)

$GovE_{it}$ is the general government final consumption expenditure (% of GDP)

$UnEmp_{it}$ is the unemployment, total (% Of labour force) (modelled ILO estimate)

$Infl_{it}$ is the inflation, GDP deflator (annual %)

ε_{it} is the error term.

The hypothesis of this study is trade positively affects economic growth measured GDP Per capita growth. The magnitude of β_1 that is the coefficient of trade will determine the direction of the effect on GDP per capita growth, same applies for all explanatory variables and their respective coefficients.

3.5 Subject of the Study

The study employs a rigorous methodology utilizing panel data from 10 countries Southern Africa Development Community (SADC) spanning the period from 1990 to 2022 which is a period consisting of thirty-three years. These countries include Zimbabwe, South Africa, Botswana, Mauritius, Namibia, Madagascar, Eswatini, Democratic Republic of Congo, Tanzania, and Comoros with the exclusion of six countries which are Angola, Malawi, Zambia, Lesotho, Mozambique, and Seychelles due to data inconsistencies.

3.6 Justification of Variables

3.6.1 Description of variable

SADC is a regional inter-governmental organization. It consists of 16 member states in Southern Africa. The region is characterized by its rich diversity in terms of natural resources and cultures, and economies. With a population estimated at about 340 million, The SADC region encompasses a wide range of economic activities including agriculture, mining, manufacturing, and services.

Economically, the SADC region is known for its significant natural resource endowments, including minerals, arable land, and water resources. These natural assets play a crucial role in shaping the economic landscape of the region, with mining and agriculture being the major contributors to many SADC economies. Additionally, the region has been actively engaged in international trade, both within the SADC member states and with external partners, contributing to the overall economic dynamics of the region. The SADC region faces various developmental challenges including issues related to infrastructure development, access to education, and health

care, and the need sustainable economic growth. Moreover, the region has been striving to enhance regional integration, trade facilitation, and industrial development to harness its economic potential.

The proposed variables are intricately interconnected and collectively contribute to a holistic approach in comprehending the favorable correlation between international trade and economic growth within the SADC region.

3.6.2 Economic Growth (Gross Domestic Product Per capita Growth)

GDP per capita growth refers to the changes in the economic output per person within a specific country or region over a certain period of time. It is a key indicators used to assess the economic well-being and prosperity of individuals within the SADC economy. This is closely linked to the overall economic growth of a country or region, but focuses specifically on the average output per person, providing insights into changes in individual standards of living and economic prosperity, Economists and policymakers often use GDP per capita growth as a measure to determine the relative prosperity of SADC countries based on their economic growth. Trade, foreign direct investment (FDI), Government expenditure Unemployment, and Inflation are included in the study as the independent variables to the dependent variable in question.

3.6.3 Trade

The proportion of trade to the Gross Domestic Product is fundamental in measuring a country's openness to trade. Studying the impact of international trade on economic growth in the SADC region requires and understanding of how changes in trade volumes and patterns affect the overall size and composition of the region's economy. A higher trade-to-GDP ratio often indicates a greater reliance on international trade, making it an essential variable to consider. An increment in export level leads to effective resource allocation, economies of scale, and improved production processes through job creation, knowledge transfer and technology. According to Ahmad empirical evidence there is a significant positive relationship between exports and economic growth. Trade (% of GDP) is expected to have a positive effect on economic growth, this will

ultimately increase foreign exchange earnings and the overall economies of Southern Africa Development Community member states.

3.6.4 Foreign Direct Investment

Foreign direct investment is the investment made by foreign investors to a certain country and not their home country. Foreign direct investment will be included as a variable in this study as it creates lasting and stable links among nations. It plays a significant role in shaping the economic landscape of the SADC countries. International trade can influence the inflow of FDI, which, in turn, can impact various aspects of economic growth, including technology transfer, job creation, and infrastructure development. Understanding the relationship between FDI and economic advancement is crucial for assessing the broader impacts on economic growth within SADC.

3.6.5 Government Expenditure

Government expenditure is a crucial variable to consider as it reflects the fiscal policies and priorities of the SADC countries. International trade can influence government revenue through tariffs, Customs duties, and other trade related taxes. This, in turn, can impact the level of government expenditure on various sectors, such as infrastructure, education, and healthcare. However, the Keynesian model argues that an expansionary government expenditure (on infrastructures) culminates to high economic growth. In this study total government expenditure (General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation) is used.

3.6.6 Unemployment

The level of unemployment is critical indicator of the labour market's health and the overall economic well-being of the SADC countries, which is a condition in which individuals willing and able to work are unable to get employed. Decrease in labour supply is expected to decrease GDP per capita growth. Labour force is expected to be negatively related to economic growth.

3.6.7 Inflation

This variable is crucial to consider when examining the relationship existing among trade and economic growth in SADC. Inflation's impact on growth is negative (Fisher, 1993). Increases in inflation will typically reduce the competitiveness of exports on the international market, which will make exports expensive leading to reduced export earnings and the overall innovation incentive. Inflation hinders sustainable and efficiency in resource allocation, as it plays a signaling role as prices, increasing the level of uncertainty (Temple, 2000).

3.7 Data Collection Procedure

The research employs data from various recognized secondary data sources. The data emanated from the world bank, international labour organizations, the national accounts data, international; monetary fund, international financial statistics and OECD national accounts data files. This approach to data collection incorporates widely recognized international datasets promoting a more nuanced understanding of the study.

3.8 Estimation Techniques

Random Effects Model

The random effects model is mainly concerned by time-invariant control variables, reducing the variance estimated for the coefficients. The random effects consider that the values of an independent variable are drawn at random from a larger population of possibilities.

One advantage of the random effects model is the efficiency gains it offers. By permitting the error term to have a covariance structure that varies across individuals while remaining constant over time, it allows for more precise estimation of the model parameters. This feature helps to account for the unique characteristics and dynamics of each individual country in the panel, thereby enhancing the overall robustness of the analysis.

Fixed Effects

This is a regression method that controls for the variables that have been omitted. These variables are known to vary over time. Variables such as language used in a country, the religion, and etc. That is the fixed effects model is estimating the coefficients for each independent variable holding variables not observed constant. Through the elimination of individual-specific effects, the fixed effects model provides a reliable method for examining the impact of other variables on the outcome of interest, without the potential bias introduced by unobserved heterogeneity.

The choice between the random effects and fixed effects models depends on the nature of the individual-specific effects and the presence of unobserved heterogeneity. The Hausman test can be conducted to determine which model is more appropriate.

Hausman Test

The Hausman test is an econometric model that was adopted to determine the most appropriate model between the random and fixed model. Accept the null hypothesis when the p-value greater than 0.05, suggesting the efficiency and stability of the random effects model of regression. We reject the null hypothesis when the p-value is greater than 0.05 suggesting a difference in coefficients and accept the use of the fixed effects mod

Autocorrelation

Is a problem that arises within a model, referring to the degree of correlation of the variable's values over time. A Durbin Watson was adopted to test for the presence of serial correlation within the control variables. A test statistic that is close to 2 implies the absence of autocorrelation amongst the independent variables in the model the opposite is true.

3.9 Chapter Summary

This chapter provided a detailed description of the research design and methodology used to investigate the correlation between trade on economic growth in SADC countries. The chapter

highlights the data sources, model specification, variable justification, and techniques that will be adopted to regress the data. GDP per capita growth sets as the dependent variable with trade as a percentage of GDP, FDI, government expenditure, unemployment and Inflation as independent variables. The Hausman test determined the efficient and appropriate model between the fixed effects or random effects

Model is appropriate. Overall, this chapter provides a solid foundation for the empirical analysis in subsequent chapters of the dissertation.

CHAPTER IV

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

The chapter outlines the findings following an analysis of the trade model developed in the previous chapter, which is to examine the relationship between International trade and economic growth. To achieve these objectives, empirical findings based on data from ten Southern African Development Community (SADC) countries spanning thirty-three years from 1990 to 2022 were analyzed using data analysis techniques or tools. Secondary data was used and the main source of the data was the World Bank. The data analysis was conducted using E-views 10. A summary of explanatory variables, and random and the Hausman test are used to determine which is a better model for the study between the random and fixed effects model on the data.

4.2 Descriptive Statistics

Table 1 Summary of explanatory variables

Variables	Foreign direct investment	Government expenditure	Unemployment	Inflation
Mean	2.573157	17.23963	13.18470	11.68440
Median	1.636540	16.80575	11.70500	6.527544
Maximum	37.32298	36.14305	28.84000	604.9459
Minimum	-17.29224	2.047121	0.600000	-27.04865
Std. Dev.	4.564913	6.039714	8.396300	40.78118

Skewness	3.189109	0.554117	0.060751	10.91299
Kurtosis	24.24773	2.939101	1.342986	144.9564
Jarque-Bera	6767.033	16.93851	37.95632	283634.8
Probability	0.000000	0.000210	0.000000	0.000000
Observations	330	330	330	330

The table above represents descriptive statistics of a summary of independent variables with 330 observations. The maximum and the minimum value represents the outliers of the data. All the variables in the dataset are positively skewed indicating a normal distribution. Foreign Direct Investment and inflation have a kurtosis of more than 3, indicating a leptokurtic distribution. From the results the average foreign direct investment inflows of the selected SADC countries is 2.57% with a standard deviation of 4.56% of foreign direct investment, which is a similar pattern with FDI inflow of other countries in SADC. The lowest and highest foreign direct investment inflow rate is -17% and 37% respectively.

There is also evidence of a wide variation in mean inflation rate of 11.68% and a standard deviation of 40.78% in the selected SADC countries. Inflation showed the maximum and minimum values of 604.95% and -27% respectively.

Government expenditure is represented with a mean value of 17% and standard deviation of 6% indicating across the selected SADC countries, with a maximum and a minimum value of 36% and 2% respectively across selected SADC countries.

Additionally, there is weak variation in unemployment rate across the selected SADC countries represented by a mean of 13% and standard deviation of 8.396%. The unemployment maximum value is 28.84 and the minimum value is 0.60

Government expenditure, and unemployment indicates a platykurtic distribution shown by a kurtosis which is less than 3.

Table 2: Summary of dependent variable (GDP pc growth)

Variable	GDP pc growth
Mean	3.063692
Median	3.440215
Maximum	21.45206
Minimum	-17.66895
Std. Dev.	4.635487
Skewness	-0.834090
Kurtosis	7.450082
Jarque-Bera	310.5583
Probability	0.000000
Observations	330

The table above shows descriptive statistics of the dependent variable GDP pc growth. The dataset shows a mean is close to the median showing that the data is symmetrically distributed. GDP Growth rate is showing negatively skewed data across observations. The dependent variable has a mean of 3.1% and a standard deviation of 4.6% which shows data deviating from the mean, with a kurtosis which is more than 3 indicating a peaked distribution or a leptokurtic distribution. The dataset has 330 observations.

Table 3: Summary of Trade

Variable	Trade
Mean	78.41426
Median	79.41183
Maximum	175.7980
Minimum	23.98087
Std. Dev.	34.48766
Skewness	0.378724
Kurtosis	2.178291
Jarque-Bera	17.17283
Probability	0.000187
Observations	330

There are 330 observations in the dataset for several countries. The data is positively skewed with a skewness of 0.4 indicating a normal distribution and a platykurtic distribution. Trade is represented by a mean value of 78.4% around a standard deviation of 34.5% which concludes to less variability in trade across 10 SADC countries. Trade also shows a kurtosis less than 3 showing a platykurtic distribution.

Table 4: Hausman Test

Test Summary	Chi.Sq Statistic	Chi.sq d.f	Probability
Cross Section Random	4.394039	5	0.4942

The Hausman test determined the appropriate model specification that is to be functionalized in giving conclusions basing on the fixed effects and random effects model. The probability value of 0.4942 indicates that there is a high probability that the observed data could have occurred under the null hypothesis. In other words, there is not enough evidence to reject the null hypothesis in favor of the alternative hypothesis at conventional levels of statistical significance. This suggests that the random effects model is consistent and efficient compared to the fixed effects model. Therefore, the results of the Hausman test supported the appropriateness of using random effects model in interpreting the results of regression analysis.

Random Effects (Model) Regression Results

Table 5: Random effects Estimation

Variable	Coefficient	Std. Error	t-Statistic	Probability
Trade	0.016601	0.011999	1.383500	0.1675
Foreign direct Investment	0.030929	0.058494	0.528748	0.5973
Government expenditure	-0.098230	0.066790	-1.470731	0.1423
Unemployment	0.022165	0.062063	-0.357144	0.7212
Inflation	-0.009560	0.006462	-1.479465	0.1400

The regression results are showing the estimated coefficients of the explanatory variables in the study. Trade and foreign direct investment and unemployment are showing a positive relationship on GDP pc growth, that is an increase in trade by 1% percent leads to an increase in the GDP pc growth by 0.017%, whilst Government expenditure and inflation show a negative relationship on GDP pc growth, that is an increase in inflation by 1% leads to a decrease GDP pc growth by 0.010%.

The Random effects model also show a Durbin-Watson value which close to 2. It indicates that there is absence of autocorrelation in the residuals from the regression model.

The F-statistic value is 2.08 and a 0,012566 as the p-value, is less than 0.05 indicating that the regression model is statistically significant.

4.3 Summary

An outline of the results in the chapter present the research techniques, panel data analysis and conducted a summary of descriptive statistics, random-effects (RE) and Fixed Effects (FE) regressions. Used the Hausman test to determine an efficient and stable model between the random effects and the fixed effects model regression which is appropriate. The findings suggest that trade as a percentage of GDP and foreign direct investment have significant positive liner impact on economic growth in SADC. Based on the findings, significant positive relationship between International trade and economic growth is the null hypothesis and is in the region is acceptance.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMENDATIONS

5.1 Introduction

This chapter serves as the concluding section of the dissertation, summarizing the key findings concerning the effects of trade on economic growth in Southern Africa Development Community. The chapter also provides recommendations for policymakers and suggests areas for future research.

5.2 Summary

This study analyzed the impact of International trade on economic growth in SADC. By Descriptive summary statistics for panel data covering 10 SADC member states from 1990-2022, a Random effects model and the Hausman to determine the appropriate model between (Random and Fixed effects) within the model in examining the association between trade and economic growth. The study focused on data from the World Development Indicators relating to trade as a percentage of GDP, Foreign Direct Investment, Government Expenditure, Unemployment, as control variables including inflation. E-Views 10 economics statistical package was used to regress the data.

The finding reveals trade as a percentage of GDP having a significant positive impact on GDP pc growth in SADC. This implies that exchange of materials finished and semi -finished comprising of capital goods, labor, and resources between countries significantly contribute to economic growth of countries in the Southern Africa Development Community (SADC). The findings also indicate a positive association between Foreign Direct Investment (FDI) and GDP pc growth, suggesting that a conducive investment environment and foreign investments that comes through international trade from abroad into the region have a high positive impact or explanatory power on economic growth which can also improve the competitiveness of goods and services promoting greater export earnings for the SADC region.

The findings highlight a negative association that correlates positively to GDP pc growth, as this affects the overall exchange rate making exports more expensive in the global markets. Government expenditure significantly impact on the relationship between trade and GDP pc growth which is negative. This suggest that increased government expenditure on consumption can lead to higher imports, potentially worsening the trade balance this negatively affect economic growth, crowding out effect, trade tensions notably affect economic growth in SADC. The study also exposes the positive impact of unemployment on economic growth, that is at a certain level of unemployment, it can lead to increased efficiency, which in turn can positively impact GDP per capita growth.

5.3 Conclusions

Findings from the study reveals a positive association between trade and economic growth in SADC. Trade and Foreign Direct Investment are identified as key factors driving economic growth, while Inflation, Unemployment, and Government expenditure emerges as a significant deterrent. Addressing governance challenges in terms of its consumption expenditure, unemployment level and inflation which boosts its exchange rate is crucial for creating a conducive investment climate and harnessing the potential benefits of trade for sustainable economic growth in SADC.

5.4 Recommendations

Embrace Regional Trade Agreements: Policymakers should actively support and participate in free trade agreements. The African Continental Free Trade Area, aims at relaxing or the lifting of tariffs between member states, this involves trade facilitation, which can enhance intra-regional trade and economic integration within SADC.

Address Trade Barriers: The SADC administration should work to address trade barriers and avoid further ruptures in the global trade system. This includes implementing policy actions to facilitate trade and reduce barriers to international trade, promoting access to new markets.

Leverage Digital Trade Opportunities: Policymakers should recognize the importance of digital trade and its impact on international trade. Embracing digital trade can lead to more complex international trade transactions and policy issues. Therefore, policymakers should consider policies that support and regulate digital trade to harness its potential for boosting sound international trade.

Promote Sustainable Trade Practices: Policymakers should explore how international trade can contribute to sustainable forestry and environmental conservation. By leveraging trade policies to promote sustainable forest management, policymakers can align international trade with environmental sustainable goals.

Address Root Causes of Conflicts: The Southern Africa Development Community leadership and policy making chamber should address the root causes of conflicts in the region beyond trade issues. A stable and peaceful environment is essential for fostering international trade and economic growth. Therefore, efforts to address conflicts and promote stability can positively impact international trade within the SADC region.

Invest in human capital and infrastructure: Governments should invest in human capital and infrastructure, such as education, healthcare, transportation, and energy, to attract a more suitable trade background or diversity.

Strengthen Regional Integration: Encouraging regional integration and cooperation among SADC countries can create a larger market, attract more international trade, and stimulate

economic growth. Policymakers should work towards harmonizing trade regulations, improving infrastructure connectivity, and fostering collaboration in key sectors.

Foster Economic Diversification: Encouraging economic diversification can reduce dependence on specific sectors and attract a wider range of goods and services available for trade. Policymakers should focus on developing industries with growth potential, promoting innovation and technological advancements, and investing in human capital development.

Enhance Governance and Anti-Corruption Efforts: Governments should prioritize anticorruption measures and strengthen governance frameworks to combat corruption effectively. This includes implementing transparent and accountable practices, promoting integrity, and establishing robust legal and regulatory frameworks.

5.5 Suggestions for Future Studies

Long-Term implications of trade Agreements: Examine the long-term implications for regional trade agreements, for instance African Continental Free Trade Area, on economic growth in SADC countries.

Socioeconomic Effects of Global Economic Trends: Explore the socioeconomic effects of global economic trends on SADC countries' economic growth.

Trade and Sustainable Development: Examine the correlation that exists amongst trade, sustainable development in SADC.

Foreign Direct Investment and Trade: Assess the relationship between foreign direct investment, trade, and economic growth in SADC countries

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APPENDIXES

APPENDIX 1: SUMMARY OF INDIPENDENT VARIABLES

Date: 03/13/24

Time: 05:57

Sample: 1 330

	TRADE	GOV_EXPENDIT URE	UNEMPLOY MENT	INFLATI ON	FDI
Mean	78.41426	17.23963	13.18470	11.68440	2.57317
Median	79.41183	16.80575	11.70500	6.527544	1.63650
Maximum	175.7980	36.14305	28.84000	604.9459	37.3228
Minimum	23.98087	2.047121	0.600000	-27.048651	17.29224
Std. Dev.	34.48766	6.039714	8.396300	40.78118	4.56493
Skewness	0.378724	0.554117	0.060751	10.91299	3.18919
Kurtosis	2.178291	2.939101	1.342986	144.9564	24.2473
Jarque-Bera	17.17283	16.93851	37.95632	283634.8	6767.03
Probability	0.000187	0.000210	0.000000	0.000000	0.0000
Sum	25876.70	5689.077	4350.950	3855.853	849.18
Sum Sq. Dev.	391312.2	12001.31	23193.80	547161.5	6855.4
Observations	330	330	330	330	330

APPENDIX 2: SUMMARY OF DEPENDENT VARIABLE

Date: 03/13/24

Time: 05:59

Sample: 1 330

	GDP_GRO WTH
Mean	3.063692
Median	3.440215
Maximum	21.45206
Minimum	-17.66895
Std. Dev.	4.635487
Skewness	-0.834090
Kurtosis	7.450082
Jarque-Bera	310.5583
Probability	0.000000
Sum	1011.019
Sum Sq. Dev.	7069.465
Observations	330

APPENDIX 3: SUMMARY OF TRADE

Date: 03/13/24

Time: 06:07

Sample: 1 330

	TRADE
Mean	78.41426
Median	79.41183
Maximum	175.7980
Minimum	23.98087
Std. Dev.	34.48766
Skewness	0.378724
Kurtosis	2.178291
Jarque-Bera	17.17283
Probability	0.000187
Sum	25876.70
Sum Sq. Dev.	391312.2
Observations	330

APPENDIX 4: SUMMARY OF FIXED EFFECTS

Dependent Variable: GDP_GROWTH

Method: Panel Least Squares

Date: 03/13/24 Time: 06:13

Sample: 1 330

Periods included: 33

Cross-sections included: 10

Total panel (balanced) observations: 330

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.702932	2.950000	2.272180	0.0237
TRADE	0.015238	0.016555	0.920425	0.3581
GOV_EXPENDIUR				
E	-0.174312	0.082585	-2.110684	0.0356
UNEMPLOYMENT	-0.135885	0.151955	-0.894244	0.3719
FDI	0.027585	0.059705	0.462017	0.6444
INFLATION	-0.009277	0.006700	-1.384636	0.1671

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.084704	Mean dependent var	3.063692
Adjusted R-squared	0.044024	S.D. dependent var	4.635487
S.E. of regression	4.532302	Akaike info criterion	5.904726
Sum squared resid	6470.654	Schwarz criterion	6.077412
Log likelihood	-959.2798	Hannan-Quinn criter.	5.973608
F-statistic	2.082206	Durbin-Watson stat	1.708755
Prob(F-statistic)	0.012566		

APPENDIX 5: SUMMARY OF RANDOM EFFECTS

Dependent Variable: GDP_GROWTH

Method: Panel EGLS (Cross-section random effects)

Date: 03/13/24 Time: 06:16

Sample: 1 330

Periods included: 33

Cross-sections included: 10

Total panel (balanced) observations: 330

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.779757	1.340156	2.820385	0.0051
TRADE	0.016601	0.011999	1.383500	0.1675
GOV_EXPENDIUR				
E	-0.098230	0.066790	-1.470731	0.1423
UNEMPLOYMENT	-0.022165	0.062063	-0.357144	0.7212
FDI	0.030929	0.058494	0.528748	0.5973
INFLATION	-0.009560	0.006462	-1.479465	0.1400

Effects Specification

	S.D.	Rho
Cross-section random	1.179505	0.0634
Idiosyncratic random	4.532302	0.9366

Weighted Statistics

R-squared	0.021664	Mean dependent var	1.703368
Adjusted R-squared	0.006566	S.D. dependent var	4.543002
S.E. of regression	4.528062	Sum squared resid	6643.083
F-statistic	1.434920	Durbin-Watson stat	1.676589
Prob(F-statistic)	0.211218		

Unweighted Statistics

R-squared	0.015277	Mean dependent var	3.063692
Sum squared resid	6961.466	Durbin-Watson stat	1.599910

APPENDIX 6: HAUSMEN TEST

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.394039	5	0.4942

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
TRADE	0.015238	0.016601	0.000130	0.9049
FDI	0.027585	0.030929	0.000143	0.7798
GOV_EXPENDIUR				
E	-0.174312	-0.098230	0.002359	0.1173
UNEMPLOYMENT	-0.135885	-0.022165	0.019239	0.4123
INFLATION	-0.009277	-0.009560	0.000003	0.8730

Cross-section random effects test equation:

Dependent Variable: GDP_GROWTH

Method: Panel Least Squares

Date: 05/12/24 Time: 13:46

Sample: 1 330

Periods included: 33

Cross-sections included: 10

Total panel (balanced) observations: 330

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.702932	2.950000	2.272180	0.0237
TRADE	0.015238	0.016555	0.920425	0.3581
FDI	0.027585	0.059705	0.462017	0.6444
GOV_EXPENDIUR				
E	-0.174312	0.082585	-2.110684	0.0356
UNEMPLOYMENT	-0.135885	0.151955	-0.894244	0.3719
INFLATION	-0.009277	0.006700	-1.384636	0.1671

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.084704	Mean dependent var	3.063692
Adjusted R-squared	0.044024	S.D. dependent var	4.635487
S.E. of regression	4.532302	Akaike info criterion	5.904726
Sum squared resid	6470.654	Schwarz criterion	6.077412
Log likelihood	-959.2798	Hannan-Quinn criter.	5.973608
F-statistic	2.082206	Durbin-Watson stat	1.708755
Prob(F-statistic)	0.012566		

APPENDIX 7: Turnitin Originality Report

