HENRY ROBERTS

THE RELATIONSHIP BETWEEN INTERNATIONAL TRADE AND SOUTH AFRICA ECONOMIC DEVELOPMENT (1990-2020)

NICOSIA
JANAUARY, 2023

NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

DEPARTMENT OF BUSINESS ADMINISTRATION

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Supervisor:
Assist Prof. Dr Mehdi Seraj

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Approval

We certify that we have read the thesis submitted by **HENRY ROBERTS: "Titled "The Relationship between International Trade and South Africa Economic Development" (1990-2020)**, and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master in Business Administration.

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Declaration

I, the undersigned, hereby certify that all of the materials, documents, analysis, and findings included within this thesis have been gathered and presented in accordance with the academic regulations and ethical principles of the Institute of Graduate Studies at Near East University. I further declare that, in accordance with these rules and conduct, I have thoroughly cited and referenced any material and data that are not unique to this research. This statement was made so that these rules and conduct could be followed

HENRY ROBERTS

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Acknowledgment

I would like to begin by thanking my thesis advisor, Assistant Professor Dr. Mehdi Seraj of the Faculty of Economics at the Near East University. I am indebted to him for his constant assistance, which was vital to the completion of my thesis. Prof. Dr. Serife Eyupoglu, Dean of the Faculty of Economics and Administrative Sciences at Near East University in Lefkosa, North Cyprus, and Chair of the Department of Business Administration, also deserves my congratulations. Each of my teachers deserves sincere thanks for the time, effort, and generosity with which they contributed their knowledge, expertise, and resources to assist me complete my coursework.

I would like to offer my appreciation to all of my colleagues at Near East University for the enjoyable time we shared and the several beneficial group projects we were able to accomplish to ensure the success of our graduation.

I am extremely grateful to my sister, Mrs. Famatta F. Geneyan, her family, and all of my friends for their unwavering support throughout my time at Near East University.

To conclude, I would like to thank my daughter, Dorberta Roberts, whose brilliant smile is a major source of my motivation in life. **HENRY ROBERTS**

Abstracts

The Relationship between International Trade and South Africa Economic Development (1990-2020)

ROBERTS, HENRY MA/PhD,

Supervisor: Mehdi Seraj

Department of Department Business.

JANUARY 2023 157 Pages.

This thesis analyses the connection between South Africa's economic growth and international trade from 1990 to 2020. The procedure known as ARDL is used as a strategy to ascertain whether or not the variables are related in a way that may be rationally justified over time. The findings indicate a long- and short-term correlation between the variables, with a negative link between net trade and economic expansion in South Africa. In other words, a higher level of net trade is inversely connected to economic expansion in South Africa. The fact that there are many more imports into and out of South Africa than exports to and from South Africa could be to blame for this unfavourable result. However, the exchange rate has a negative influence on the expansion of the South African economy, while foreign direct investment (FDI) and inflation are both crucial in a positive way for the economy of South Africa in the short term and in the long-run. This has led to calls for the South African government to take concrete steps to boost the country's non-oil exports, notably those in the areas of manufacturing and industry. It is also important to take measures to increase access to technical knowledge, streamline the process of exchanging technology, promote research, and eliminate duplicative efforts. South African lawmakers have been urged to streamline the process for high-end international investment. This would promote accelerated economic growth and the generation of more novel ideas.

***Keywords**:* Economic growth, Inflation, exchange rate, Net trade, export, import, foreign direct investment

Özet

Uluslararası Ticaret ve Güney Afrika Ekonomik Kalkınması Arasındaki İlişki (1990-2020)

ROBERTS, HENRY MA/PhD,

Danışman: Mehdi Seraj

Bölüm İşletme Bölümü.

OCAK 2023 111 Sayfa.

Bu tez, 1990'dan 2020'ye kadar Güney Afrika'nın ekonomik büyümesi ile uluslararası ticareti arasındaki bağlantıyı analiz ediyor. ARDL olarak bilinen prosedür, değişkenlerin zaman içinde rasyonel olarak gerekçelendirilebilecek bir şekilde ilişkili olup olmadığını tespit etmek için bir strateji olarak kullanılıyor. Bulgular, değişkenler arasında uzun ve kısa vadeli bir korelasyon olduğunu ve Güney Afrika'daki net ticaret ile ekonomik genişleme arasında negatif bir bağlantı olduğunu gösteriyor. Başka bir deyişle, daha yüksek bir net ticaret seviyesi, Güney Afrika'daki ekonomik genişleme ile ters orantılıdır. Güney Afrika'ya yapılan ve Güney Afrika'dan yapılan ihracattan çok daha fazla ithalatın olması, bu olumsuz sonucun nedeni olabilir. Bununla birlikte, döviz kuru Güney Afrika ekonomisinin büyümesi üzerinde olumsuz bir etkiye sahipken, doğrudan yabancı yatırım (DYY) ve enflasyon Güney Afrika ekonomisi için hem kısa vadede hem de uzun vadede olumlu yönde çok önemlidir. . Bu, Güney Afrika hükümetine ülkenin petrol dışı ihracatını, özellikle imalat ve sanayi alanlarındaki ihracatını artırmak için somut adımlar atması çağrılarına yol açtı. Teknik bilgiye erişimi artırmak, teknoloji alışverişi sürecini kolaylaştırmak, araştırmayı teşvik etmek ve mükerrer çabaları ortadan kaldırmak için önlemler almak da önemlidir. Güney Afrikalı milletvekillerine üst düzey uluslararası yatırım sürecini kolaylaştırmaları istendi. Bu, hızlandırılmış ekonomik büyümeyi ve daha yeni fikirlerin üretilmesini teşvik edecektir.

Anahtar Kelimeler: Ekonomik büyüme, Enflasyon, döviz kuru, Net ticaret, ihracat, ithalat, doğrudan yabancı yatırım

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Abbreviations

ARDL: Autoregressive distributed lag

BRICS: Brazil, Russia, India, China, and South Africa

FDI: Foreign Direct Investment

EG: Economic Growth

EFTA: European Free Trade Association

EU: European Union

GATT: General Agreement on Tariffs and Trade

GDP: Gross Domestic Product

IDC: Industrial Development Corporation

IT: International trade

IMF: International Monetary Fund

MERCOSUR: Mercado Comun del Sur, or (Southern Common Market)

MFN: Most favored nation

SADC: Southern Africa Development Community

SME: Small and medium-sized enterprises

WDI: World Development Indicators

WTO: World Trade Organization

CHAPTER I

Introduction and Background

Several factors contributed to my decision to carry out the study for my thesis research with South Africa rather than any other country. To begin, the country is known as one of the best places in the world to go on a Big 5 safari. This is due to the fact that it has some of the best conservation areas and national parks in the world, including Kruger National Park, as well as some of the best private game reserves in the world, including Sabi Sands, Thornybush, Londolozi, MalaMala, Lion Sands, and Dulini.

First, South Africa has an abundant supply of a wide range of minerals. The country has reserves of a wide variety of minerals, including but not limited to iron ore, platinum, manganese, chromium, copper, uranium, silver, beryllium, and titanium. The South African economy is the most industrialized, technologically advanced, and diverse economy on the African continent as a whole. It is also the third largest economy in Africa. It is one of just eight countries in Africa with an upper-middle income economy, and South Africa is one of those countries.

In addition to this, its economy is heavily dependent on international trade and is highly vulnerable to changes in the economic climate of the rest of the world. Exports of precious and basic metals have historically been the most successful, but exports of agricultural products and military hardware also play a major role.

In conclusion, South Africa has what is known as a mixed economy, which combines elements of both centralized economic planning and government regulation with a wide range of individual freedoms. The Southern African Development Community includes South Africa as a participant and member (SADC)

The purpose of this research is to determine the extent to which South Africa's participation in international trade between the years 1990 and 2020 contributed to the country's overall economic growth between those two periods. At the beginning of the 1990s, South Africa made the unprecedented decision to significantly alter the prior unilateral trade policy that it had been enforcing throughout the preceding decade (Inglesi-Lotz 2018). After that came the signing of ambitious free trade agreements (FTAs) with the European Union (EU), higher tariff liberalization as an element of its suggestion in the General Agreement on Tariffs and Trade (GATT) Uruguay round, regional integration, the Southern Africa Development Community (SADC), and a lot

more modest trade agreements with members of the European Free Trade Association (EFTA) and MERCOSUR. After that came the signing of ambitious free trade agreements (FTAs) with the Southern African Development Community (SADC). All of these events transpired relatively quickly after the first. This duration also corresponds with the democratic formation of a new government in 1994, which put into place an excellent number of policies geared toward switching the country's growth plan away from export promotion with regulations and toward enhance access to trade. This occurred around the same time as the time frame described above. In order to redirect the nation's economic strategic plan away from export promotion through regulations and toward increased international trade, these policies were developed and put into practice. The goal of these changes was to make the country's growth plan less focused on exports and more focused on making trade easier. These reforms were intended to shift the focus of the country's growth plan away from export promotion with import controls and toward a greater openness to trade. It was the goal of these reforms to move the nation's strategic framework away from one that prioritized export promotion at the expense of import controls and toward one that placed a greater emphasis on increasing trade openness. The previous strategy of export promotion coupled with import bans was replaced with these changes with the intention of making the country's development policy more open to commerce. This was accomplished by moving away from the strategy. In addition, the amendments brought about a tremendous amount of rationalization and simplification of South Africa's tax system, which contributed to the abolition of a roster of unsanctioned imports and a substantial decline in the amount of tariff lines, which went from 12,000 in the early 1990s to 6,420 in 2006. This reduction in the number of tariff lines was a direct result of the elimination of a roster of illegal imports. This reduction in the number of tariff lines was a direct result of the abolition of the list of illegal imports. These changes were brought about as a direct result of the removal of the list of prohibited imports. The elimination of the list of forbidden imports was directly responsible for the decrease in the number of tariff lines that were implemented. The removal of the goods from the list of those that could not be imported was the direct cause of the implementation of these changes. In the United States of America, the non-ad valorem tariff rates that were often employed throughout the early 1990s were finally replaced with the ad valorem tariff rates that are now being used in the country. Non-tariff barriers, import taxes, and export subsidies are going to be eliminated from

the market as a result of a decision that was made. Because there is evidence that such shifts in trade policy have taken place in South Africa, this case study would be strengthened by focusing its attention on that nation as its subject. These modifications to South Africa's trade policy, as well as their adoption and implementation, have helped further contribute to the country's increased openness to the global goods market. It makes it possible to make full use of her comparative advantage, which, in turn, leads to good returns on capital in those areas of her economy that have a large supply of labor that does not require specialized training. To accomplish this, it will increase the efficiency with which resources are distributed, which will ultimately lead to increased economic growth. The increased openness that results from this is a primary factor in the faster economic growth that it produces. In addition, South Africa has seen an increase in the number of technological innovations, which has resulted in a boost in the number of investors as a result of an increase in the level of market access and competition; a rise in the number of opportunities for new investments, which has led to an increase in productivity, which has stimulated employment and resulted in an increase in real wages; and an increase in the number of opportunities for education, which has led to an increase in the number of students graduating from high school. Within the realm of international economic theory, it is a well-established fact that higher levels of economic growth are likely to be associated with greater degrees of market liberalization. This association was established many years ago (Kong et al., 2020). This topic has received more attention in recent years as a direct result of the widening gap in the economic performance of nations, particularly emerging ones, and because of recent developments in economic policy and practice. One possible explanation for this is the growing importance of international economic integration (Bobek, 2018). There is a lack of consensus among economists regarding the relative significance of the numerous economic, regulatory, and institutional issues that explain the variations in the methods of catching up that are used by transition countries. This is because these issues explain the variations in the methods of catching up that are used by transition countries. This is because these problems are interconnected. Given that many economies in transition have already liberalized their trade and taken other steps, this presents a difficult conundrum. This is because of the sentence that came before it. Because of this, the fact that academics and other people who work in the field of foreign policy continue to argue a great deal about the advantages of trade liberalization should not come as a surprise to anyone.

One of the most notable aspects of the current wave of globalization is the effect that freer trade and investment have on economic expansion, which has attracted a great deal of attention. This is due to evidence suggesting that freer trade is a key contributor to economic development. Since it is a major contributor to globalization, it deserves special attention. This is because the extent to which a country's economy is open to trade determines how rapidly it grows. Since it is a challenge that affects the global economy, more attention is being paid to it. This is because of the direct impact it has on the functioning of the economy. In general, but with some variations across countries, trade liberalization has been linked to higher GDP growth. This is true both for developed nations and for emerging economies. This holds true for both long-established countries and those making their international debut at the same time. This has occurred regardless of whether or not the countries in question are classified as developing. The governments of countries all over the world are being urged by a growing number of international organizations to open their borders to international trade and other forms of cooperation. To fully integrate their national economies with the economies of the rest of the world through open commerce conducted via a variety of channels, governments are currently devoting a great deal of time, effort, and attention to the creation of novel strategies. This means that commerce plays a crucial role in the bonds between individuals, communities, and states. Without a thriving international trade sector, no economy can thrive. This is because some goods and materials simply cannot be produced or sourced domestically. The unequal distribution of resources and capabilities around the world is a driving force behind international trade. The promotion of international trade is directly responsible for this discrepancy. In line with this view, a growing number of developing countries are beginning to realize the benefits of increasing and diversifying their exports to international markets. The argument for this standpoint is that doing so would be good for the economies of those developing countries. This is because the governments of these economies have accepted the idea that they should broaden their markets to attract foreign investment. This view is strengthened by the fact that an increasing number of developing countries, especially in the last few years, have come around to the idea of accepting it as valid. In light of the growing number of developing nations that now recognize its validity; every nation has rethought its trade policies in recent years to account for the wide variety of factors mentioned above. As a direct result of this shift, free trade is now not only feasible but also desirable in the modern economy. This is

because free trade has matured into a pattern of conduct that is not only advantageous economically but also widely admired politically. Frankel and Romer (1996) state in their article that it has been shown that exogenous shifts in international trade between states are significantly correlated with GDP per capita. For most of human history, it has been difficult and controversial to establish a causal relationship between a high volume of business activity and a rapid expansion of the economy's gross domestic product (GDP). This is because it has been shown to be challenging to establish such a connection. An increase in economic activity, especially in the form of business activity, is generally thought to be good for a country's economy. Recent events have shown that opening a country's trade markets does not automatically have a growth-positive effect on the economy. That was evident from how recent events have played out. This is something to think about, as evidence suggests it is important. This has been demonstrated to be true. Globalization has been shown to increase the rate of return on foreign direct investment and serve as a catalyst for innovation. Product exchange can work in both directions. In this way, a country can join the global economic trading system with much less difficulty. Grossman and Helpman (1991b) argue that the extent to which these benefits are realized is inversely proportional to the degree to which trade openness is implemented. They think free trade boosts innovation and productivity because it makes it easier for countries to share cutting-edge technologies. This is achieved by lowering barriers to international trade. Increased trade liberalization is good for the economy because it will spur the production of more goods, which in turn will increase economic specialization and boost returns (Bond et al., 2005). An additional way that increased international trade could help boost economic growth is by facilitating the spread of technology and knowledge, either through the use of FDI or through the use of the direct import of high-tech goods. One possible solution is the importation of high-tech products. It is possible this is yet another way in which a rise in global trade aids in boosting economic growth. This strategy and that one are both included in the category of "direct import of high-tech products" (Almeida & Fernandes, 2008). The more commercially open a society is, the easier it is to discuss and implement new technological advances, which have benefits both in the short and long term. This is the case for Ohlan (2018). Even though there has been some evidence linking openness and growth in the economy, not much attention has been paid to how opening up Madagascar's trade has impacted the country's overall economic development. This is

the case despite the fact that these precedent studies suggested a link between trade liberalization and monetary progress. This persists despite abundant evidence linking trade liberalization to increased prosperity. It turned out to be the case that free trade policies accelerated economic growth, despite the fact that this was not what the preliminary research had indicated. The model developed by Feenstra and Kee (2008) uses a GDP function to allow for the cross-country and historical integration of export-related variation into total factor productivity. This is possible in the here-and-now as well as in the past. It is plausible in both the present and the past. One can accomplish this objective in a manner similar to that of others. The concept was first put into writing and introduced to the public in a journal titled Export-Related Diversity and Total Factor Productivity. The citation is needed for this section. Researchers looked at data on exports from 48 countries to the US between 1980 and 2000 to draw conclusions about any possible relationship between the two variables. Their main concern was establishing a link between the two variables. To assess the impact of economic openness on the development of a sample of 42 African states, Zahonogo (2017) conducted a cross-sectional study in Sub-Saharan Africa between 1980 and 2012. The research set out to answer the question of whether or not increased economic openness aids or hinders economic expansion. The study's goal was to determine whether or not a causal relationship exists between monetary liberalism and growth. The research set out to answer the question of whether or not an economy's openness to trade helps or hinders its overall growth. From 1990 to 2016, Moyo and Khobai (2018) analyze 11 SADC countries to determine how trade openness affected economic growth. The period of their study is from 1990 to present day. The period covered by this analysis is from 1990 to the present day. Their research spans the years 1990 through 2016. The period for this study covers the decades starting in 1990 and ending in 2016. For a sample of 169 countries with uneven representation, Huchet-Bourdon et al. (2018) analyzed the impact of free trade on GDP growth from 1988 to 2014. Years 1988-2014 were included in the analysis. Their research was published in the journal Economic Development and Cultural Change as a research article. All of their research was done between 1988 and 2014, a span covering 30 years. Their analysis included all of the years between 2014 and 2018, not just some of them. Madagascar is just one of several countries in sub-Saharan Africa where this pattern accurately describes the state of affairs nationwide.

In addition, economists and governments around the world view the rate of economic growth as one of the most important indicators at any period, including the present. Even in light of recent events, this viewpoint holds up well. One definition of economic growth could be described as an increase in both total gross production and average income per person (Sungur et al., 2016). After looking into the current global situation, it becomes clear that every country has a relatively open economic structure. Nationalities differ greatly in their degree of openness. Among the fundamental factors, fostering the growth and development of this economic system are the procedures for exporting and importing goods. Importing or buying goods from another country is known as importation, while selling domestically produced goods to foreign markets is known as exportation. One way in which a country's economy can interact with the economies of other countries and regions is through international trade and foreign investment. A large number of scholars with different perspectives have studied international trade ever since the discipline was founded. The relationship between globalization, trade, and economic growth has been the subject of extensive study (Baldwin and Gu, 2004; Bhattacharyya, 2012; Zahonogo, 2017). Since the WTO was founded in 1995, there has been a general trend toward more liberal trade policies. This pattern has been aided by the subsequent membership of many states in the WTO. In stark contrast to this are the protectionist policies of the 1970s, which were widely recognized as futile at the time. The theoretical community has been debating for a very long time whether or not unrestricted commercial trade contributes to economic growth. Though conventional wisdom predicts that an increase in economic activity will result from increased trade, recent events suggest that this may not always be the case. This defies common sense, which predicts that as trade volumes rise, economic activity will follow suit. A number of authors, including Barro and Sala-i-Martin (1997), Baldwin et al. (2005), and Almeida and Fernandes (2008), have argued that increased international trade can stimulate economic expansion by facilitating the spread of information and expertise through the import of high-tech products. As a result, there may be more opportunities for innovation, which may boost output. Overall productivity and the standard of living for the population as a whole could both rise as a result of this. The increased productivity may not be the only positive outcome of this. The benefits of foreign direct investment can be enhanced, and trade makes it easier to interact with a wider range of potential sources of innovation. Increasing the overall size of the market is one way in which trade liberalization helps

economies reap the benefits of increased returns to scale and economies of specialization. To this end, trade liberalization increases the size of the market as a whole. Because of the growth of the market, success in achieving this goal is increasingly possible (Alesina et al., 2005; Bond et al., 2005). More free trade, according to the neoclassical theory of economic growth, could boost the quality of economic expansion by stimulating the production of new capital and increasing allocative efficiency. According to neoclassical economic development theory, increased trade could spur the production of new capital and improve resource allocation performance (Helpman, 1985; Rodrik, 1988). The degree of free trade, as proposed by Romer (1986) and Lucas (1988), is the most important factor in determining the success of economic development. It happens because free trade accelerates technological progress and improves efficiency. The potential impact of future economic expansion has proven to be a lively and substantive topic in discussions of economic development and international business. For this reason, a wealth of research has been conducted into the ties that bind openness to trade to economic growth (some of which can be found in the trade-growth literature). Despite this, there has been a shift in focus toward emerging economies in an effort to broaden international commercial opportunities. Among the many positive outcomes that can result from liberalizing commercial practices is the possibility of expanding the range of options for simple export and import, which could have positive effects on employment as well. The possibility exists, moreover, that it would significantly stimulate the growth of economic activity. To the neoclassical school of thought, an increase in trade is the primary driver of economic growth, and they argued that there is a strong and substantial link between the two. Also, neoclassical economists put stock in the idea that trade contributes significantly to economic expansion. In addition, neoclassical economists believed that foreign trade had a substantial and positive impact on economic growth. As a result of the seriousness of the situation, many countries, both rich and poor, have started focusing on increasing their output. For instance, manufacturing can boost productivity and meet the potential demand for goods and services brought on by increased access to global markets. This need could emerge as a direct or indirect result of escalating global trade. Because of the foregoing, developing country economies may emerge as the world's primary "engines of new demand growth and spending power." The current situation would be drastically altered if this were to occur (Wilson & Purushothaman, 2003). Goldman

(2003) predicted that by 2050, the combined economies of the world's developing nations would be larger than those of the Group of Six (G6) nations. Somebody proposed this theory. Members of the Group of Six (G6) include the United States of America, Italy, Japan, Germany, the United Kingdom, and France. Based on this assumption, Goldman was able to draw his conclusion and make his forecast. Significant theoretical and empirical work has been done on the topic of how the degree to which a nation's economy is open to commercial activity affects the rate at which economic expansion occurs within that nation. Both theoretical and practical approaches to this area of study have been made. It is generally agreed that the concept of opening up an economy in which businesses are given freedom to trade in commodities while also welcoming competition from both local and international sources was first proposed by Adam Smith in his fundamental thesis, which was published in 1776 in The Wealth of Nations. The Wealth of Nations was where Smith first presented his argument. Smith's was the first printed book in English. Many experts in the field of economics believe that fewer constraints on the economy would be good for the country. Methods in this category may include, but are not limited to, boosting domestic production, broadening access to international markets, creating new avenues for gainful employment, funding improved educational opportunities, and so on. When considering global commerce, output production, and economic growth, the most significant countries are those with developing market economies, such as Brazil, Russia, India, China, and South Africa (collectively referred to as "BRICS"). The initials "BRICS" stand for the aforementioned collection of nations. The BRICS grouping of countries includes Brazil, Russia, India, China, and South Africa, and their economies are often discussed as a whole. However, emerging market economies have made significant progress toward their national development goals, and as a result, the economies of emerging market nations have grown at a positive rate. Therefore, increasing their share of global production is a primary objective for these economies in order to continue the tremendous growth rates that they have been experiencing. The reason for this is that if these economies are to keep up their astounding growth rates, their share of global production must increase. In order to increase the likelihood of success, they have been focusing on this specific aspect. There are two additional benefits to this, which will be discussed below. In the beginning, the implementation of recently developed technological breakthroughs will directly lead to an increase in total production. This is a natural outcome of rising

demand for goods and services, which is the primary engine of economic growth over the long term. Secondly, classical and neoclassical economists are in agreement that international trade is a significant "growth engine" that not only contributes significantly to the growth of the global economy but also plays an essential role in the development of economic growth. Economists who believe that neoclassical economics is a relatively new school of thought are in agreement with this assessment. Economists who subscribe to the growth-oriented school of thought share this view. It is commonly accepted that an open economy can spur faster economic growth than one that is shielded from the outside world. The freedom to engage in commercial activity, for example, inspires a greater amount of production, which helps explain why an open economy is thought to have such an impact. Historically, countries with emerging markets have prioritized both expanding their exports and developing products that will find buyers in more developed economies. These countries have also been able to amass a sizable amount of financial assets. This has led to an increase in both exports (13.9%) and imports (22.6%) since 1991 and 2014, respectively (World Development Indicators [WDI], 2016). (World Development Indicators [WDI], 2016). 2016 WDI (World Development Indicators) WDI 2016: The World's Most Comprehensive Set of Development Measures (WDI, 2016) It has been measured annually since 1991, and the average national contribution to global GDP has increased from 1.1% to 21.5% in 2017. (Ahmed, 2017). Goldman (2003) forecasts that by 2050, the economies of these five developing nations will have combined to form the world's most powerful economy. The basis for this forecast is the data that was provided. Due to the significance of the findings, new studies are being conducted to determine how much freedom there is for commercial activity. Fetahi-Vehapi et al. (2015) investigated the effect of trade openness on economic growth for ten Southeastern European nations. Montenegro, Macedonia, Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, A few examples of these nations are Albania, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, and Montenegro. They collected evidence suggesting that a country's economic growth is significantly impacted by its level of trade openness. The authors of a 2015 study by Trejos and Barboza looked into the correlations between trade liberalization and economic development in a group of 23 Asian nations. The affected countries were all found in Asia. Increased economic openness, the authors argued, would hasten the pace of economic growth. The findings suggest that the degree to which a country is open to

international trade is a significant factor in the growth of economic development in that country. This was discovered to be true in both high- and low-income countries. The results indicated this as the most likely explanation.

In addition, the authors of the study hypothesized that the increase in economic output was due in large part to the growth of the global labor force, the maturation of financial markets, and the introduction of innovative technologies. Therefore, the researcher reasoned, it would be useful to incorporate these variables into the investigation because of their significance to the problem at hand. However, none of these reports examined how trade liberalization affects economic growth in developing countries. There is a striking lack of attention paid to this issue in the scholarly literature. However, these studies did not stand alone in their findings. The findings of this study have prompted us to consider conducting an experiment to determine whether or not trade liberalization is associated with economic development in the world's major trading nations. As both international relations and economic integration have grown in recent years, so too has the question of whether or not free trade is beneficial to the growth of the economy. Growth in global trade and diplomatic ties are directly responsible for this development. Increases in global trade and diplomatic ties have led to this. Economic integration and increased diplomatic activity over the past few years have both contributed to this trend. That is a natural outcome of growing ties across nations and economies. This is due to the fact that an increase in trade liberalization has resulted from the implementation of both of these strategies. At this conference, we will be talking a lot about how free trade helps the economy expand. Over the course of the last few centuries, a great deal of study has been conducted to learn more about the impact free trade has on economic development and its contribution to GDP growth. To better understand how free trade affects economic expansion, this study was conducted. The goal of this research was to better understand the impact that free trade has on economic development. Greater openness to global trade is associated with positive contributions to the expansion of individual nation's economies, and the results of this study provide extremely compelling evidence to support the research hypotheses positing as much. The hypothesis was examined by investigating whether or not there is a correlation between a country's economic growth and its involvement in global trade. The findings demonstrated a link between the two variables. Due to the results of numerous studies on economic expansion and business activity, this idea has been given greater consideration. This study provides

further evidence that enhancing citizens' ability to take advantage of economic opportunities in other countries improves citizens' economic standing at home. Multiple authors have cited this study, including Karras (2003), Rao and Rao (2009), Mendy and Chang both (2012) On the other side, the findings of the study imply that commercial openness has a very slight effect, if any effect at all, on the expansion of the economy. This runs counter to the assumptions that were generated for the study in the first place based on the findings of previous research. However, a number of studies that investigated the link between openness to trade and economic growth came to the conclusion that openness to trade actually stifled economic growth. A number of studies have reached the conclusion that there is a negative connection between free trade and economic progress. As a consequence of their investigation into the connection between market liberalization and increased economic activity, the researchers arrived at this understanding as a result of their findings. The findings of the researchers' investigations led them to this conclusion, which was reached as a result of their findings. This judgment was formulated as a result of the findings of a large number of studies that investigated the relationship between unrestricted commercial exchange and increased economic growth and discovered favorable findings. In light of these findings, the researchers concluded the following. A person could reach this conclusion if they relied on the results of these probes. In other words, it is a reasonable conclusion to draw. Here is what one can deduce from this study's findings: For examples, see (Zanohogo, 2017; Adhikary, 2011;). In the past, researchers have measured trade openness in a variety of ways, with each technique depending on the specifics of the study. Considering the preceding data, this study intends to examine the developing dynamic relationship between South Africa's rising standard of living and the extent to which it is open to international commerce. The extent to which this connection affects South Africa's ability to engage in international trade is the primary focus of the investigation. Foremost in investigators' minds will be the nature of the connection between the two objects under scrutiny. To move the discussion forward, we need some more references. Extending Yanikkaya's prior research findings, this report introduces the use of trade-based indices of trade openness. Indices of trade openness based on actual trade activity are also proposed in this paper (2003). Total trade, which includes exports and imports, as a percentage of GDP is one such metric (GDP). The export/import percentage of GDP is another good illustration. Two such ratios (and related examples) are provided below. These

proportions can be determined separately from one another with identical outcomes. While trade-based indices of trade openness will be used, this research will also make use of an additional indicator of trade openness. Trade-based measures of economic freedom This indicator will be used in tandem with trade-focused indicators to ascertain how much of a window of opportunity exists in the current market. The trade openness index used in this study is different from those used in previous studies on the topic of trade openness and its effects on economic growth, making this investigation novel. The ease with which a country's citizens can engage in international trade and commerce. This number attempts to draw conclusions about a country's receptivity to international trade by considering both the size of the nation and its geographic location. A country's willingness to do business abroad can be gauged by this indicator. The effects of increased trade openness on economic growth, both in the short and long terms, will be studied using a method called autoregressive distributed lag (ARDL) bounds testing. Auto-regressive distributed lag is an abbreviation for this. Analysis of autoregressive distributed lags is commonly abbreviated to ARDL. South Africa was chosen as the study's focal point in large part because of the country's recent history of economic reformation, which has unfolded in a series of distinct phases over the course of a number of years. Thus, it was settled that South Africa would serve as the primary location for this particular probe. Among other things, the advancements mentioned above have contributed to the shift in perspective held by the South African government with regards to trade policy. According to Rangasamy (2009), in order for South Africa to liberalize its commercial activity, the country's current method of trade will make use of procedures that are outward-looking. For the reasons that will become clearer below, South Africa's current trade strategy is looking to the outside world for inspiration. Despite accessible evidence, experts disagree about whether or not easing trade restrictions helps the economy expand. This is despite the fact that there is no difficulty in acquiring this data. Despite the fact that the information in question is not particularly difficult to obtain, this is still the case. In addition, the degree of openness to trade has been assessed in a variety of different ways in previous studies, with each assessment being unique depending on the metrics that were employed. The data for these studies comes from investigations conducted in a number of different countries. Based on this contextual information, this research aims to dissect the evolving relationship between South Africa's economic development and its trade liberalization policies. The

information provided thus far will serve as the basis for this action. Use the context data provided earlier as a guide for this activity. More specifically, the investigation will focus on learning how the two people are connected. To move the discussion forward, we need some more references. As one of the methods, this study employs trade-based indices of trade openness, which expands upon Yanikkaya's earlier ideas in this area of research. (2003). Exported goods as a percentage of GDP is one metric that fits this description. An additional example of this would be the ratio of a country's exports to its imports or the exports to its GDP. These two metrics are good examples of the various types of metrics that fall under this umbrella. The article has covered two of the many examples of this type of measurement: ratios and proportions. This method can also be used to calculate the ratios separately from one another. An indicator of globalization and trade-based indices measuring the openness of various trades should be used in this investigation. To achieve this objective, we will make use of activity-based indicators of commercial openness. When compared to other studies that have been conducted on the topic of economic growth and the effects that trade openness has on economic growth and the ease with which a country may participate in commercial transactions and trade with other nations, it is possible to say that this investigation is unique. The reason for this is that the Trade Openness Index has been used extensively throughout this study. This is because the trade openness index has been used consistently all through the analysis presented here. This number considers not only the size of the country but also its location when drawing conclusions about the extent to which a country welcomes international commercial activity. This metric is meant to reveal how receptive a country is to engaging in international trade. In this area of research, an approach called autoregressive distributed lag (ARDL) bounds testing would be used to study the short-term and long-term effects of trade openness on economic growth. The full meaning of the acronym ARDL is the autoregressive distributed lag analysis, which is what the abbreviation actually refers to. South Africa was chosen as the focus of this study in large part because of the country's history of economic reformation, which has unfolded in several distinct phases over the course of many years. That is why South Africa became the study's focal point.

As a direct result, it was decided that South Africa would be the primary location for this study. This conclusion was reached after much deliberation. The events mentioned up to this point have contributed to the evolution of the viewpoint held by the government of South Africa with regards to trade policy. South Africa's current trade

strategy, as described by Rangasamy (2009), is keen to employ approaches that are global in scope. These policies are essential for the country to be able to liberalize its trade, and the new strategy will take them into account when making decisions.

Statement of the Problem

The outcomes of the Economic Assessment for 2013 that was issued by the Industrial Development Corporation of South Africa demonstrate that of all the nations that make up the continent of Africa, the nation of South Africa has the industrial economy that is the most developed and diverse (IDC). These statistics were taken from the report that the IDC made available to the public and were derived from that document. This is due, in part, to the country's exceptionally broad, automated, and versatile economic structure, which is unrivaled not only in the region of sub-Saharan Africa but also across the continent of Africa as a whole. This is one of the reasons why the country has been so successful in recent years. Recent years have seen a great deal of success for the nation, and this is one of the reasons why. The research then goes on to show that between the years 2002 and 2008, the nation experienced an average annual growth rate of 4.5 percent, which allowed it to outperform its competitors in the economy of the regional area. This was accomplished by the nation's exporting more goods and services to international markets. Because there are strong correlations between global trade and the growth of the economy, Rafindadi and Yusof (2014) undertook a study that showed, correspondingly to earlier findings, that commerce is the primary engine of South Africa's economy's growth. This is due to the fact that there are solid correlations between global trade and the growth of the economy. In addition, Rafindadi and Yusof (2014) discovered that there are robust links between the expansion of the South African economy and the expansion of South Africa's commerce with other nations. In furthermore, the researchers found that there are strong correlations between the expansion of the South African economy and the expansion of the economies of other countries. In addition to this, the researchers found that the rate of development of financial markets has substantial correlations with the rate of economic growth in other nations. In addition, the researchers found that there are strong links between a rise in global commerce and economic growth in South Africa. These links were discovered by the researchers. Because of this, it is of the utmost importance to find out if the link between higher levels of world trade and

economic growth is having a big effect on the growth of South Africa's financial sector.

Purpose of the Study

Countries that participate in international trade have the opportunity to broaden their customer bases and gain access to goods and services that they otherwise would not have had access to in their domestic markets. This is made possible by the fact that international trade provides these nations with the opportunity. The expansion of global trade has directly led to an increase in the level of competition that exists in the market, which has consequently reached a higher level. This, in turn, leads to more competitive pricing, which, ultimately, results in the client receiving a product at a lower cost. Keeping this in mind, the goal of this thesis is to figure out what link there is between the growth of South Africa's economy and the growth of international trade.

Significant of the Study

If policymakers have any interest in learning more about the current state of international commerce and the expansion of the economy, then they should pay close attention to the findings of this research. One more of its many benefits is that it may help in establishing a framework within which research that has been done in the past by previous academics can be identified. This is only one of its many advantages. This is only one of the numerous advantages that may be gained by using it. This is only one of the numerous benefits that it offers. In parallel to this, it will offer a foundation upon which more study in the field of international business may be carried out at a later date. Students, academics, research institutions, and people in the public who are fascinated by international trade and seek to understand more about the ways in which global commerce has influenced South Africa's thriving economy may also find this study to be an invaluable resource. People who are specifically interested in learning more about the ways in which international commerce has contributed to South Africa's thriving economy may find this research to be an excellent resource.

Research Questions and Hypotheses

The fundamental objective of this research is to conduct an inquiry into the part that the expansion of South Africa's economy played in the process of international

trade. On the other hand, the purpose of the study is to make an explicit evaluation of the impact that South Africa's global trade has on the state's financial performance (GDP) as well as the implication that South Africa's net trade has on the achievement of the country's economy. This evaluation will be made in order to determine whether or not South Africa's international trade is beneficial to the nation's economic growth. In other words, the goal of the study is to determine how much of an effect South Africa's international trade has on the GDP of the country (GDP).

The following research questions will guide this study project.

1. How has international trade affected South Africa's economic performance, as measured by GDP, and in what way?

2. What is the relationship between international trade and economic growth)?

3. Is there a significant connection between South Africa's international trade and its economic performance?

Contribution to Study

Not only does expanding commercial ties between nations result in higher levels of output, but it also paves the way for domestic economies to become integrated into the financial systems of neighboring states, which in turn creates new opportunities for foreign capital to be invested directly in domestic enterprises (FDI). In theory, this makes it possible for economies to grow more efficiently and become more active participants in the economic arena with fewer difficulties.

Foreign direct investment (FDI) is a type of money and expertise that can be imported into a country by the government of the country receiving it. It increases the number of people with jobs and, in principle, it adds to a rise in gross domestic product (GDP). This research will help governments around the world understand the benefits of international trade and the relationship between it and economic trade. FDI, which stands for "foreign direct investment," helps companies grow and develop, which in the end means more money for the investor.

Relationship of the Research to Business

In reference to ARDL Table 4.5 in the research work, the findings of my research benefit enterprises of all sizes, including small and medium-sized businesses. At this juncture, it suggests that there will be growth across the board in all businesses because the state of the economy itself displays positive signals. Accordingly, when

there is growth in the economy, this has a favourable impact on the business sector, and this shows a positive trickle-down effect, which is good for both medium and small-sized enterprises.

Small and medium-sized businesses (SME) are crucial to the expansion of any economy, but they are especially important to the economies of developing countries, according to business analysts. A thriving community of small and medium-sized firms is essential to the growth of any economy. Without them, economic expansion is impossible (for SMEs). The international community is in agreement that encouraging the expansion of small and medium-sized businesses (also known as SMEs) is one of the most important things that can be done to advance progress toward the Millennium Development Goals, which include enhancing global economic growth, expanding employment opportunities, and eliminating extreme poverty (Berry et al., 2002). Because of the significant influence that it has on the expansion of the economy as a whole, the introduction of novel goods and services is one of the most important factors that determine the success of a company. In order to promote economic growth, businesses must focus on two crucial factors: market penetration and product development (Nissan et al 2012). Development plans that aim to grow the regional economy prioritize the use of technology as a means of hastening and promoting higher productivity in local economic enterprises. There is a multiplier effect on economic growth from teaching people about how entrepreneurship can help their community, and similar technical innovation is needed for programs that aim to boost community productivity. Comparisons of Entrepreneurship and Economic Growth Rates across Regions (Stoica, et al. 2020 Sustainability 12, 1186) Small and medium-sized enterprises (SMEs) in the area are profoundly impacted by the functioning of the global economy. For economic growth to occur, it is essential that both the economic and political fronts remain stable. This suggests that elements such as socioeconomic factors, good governance, and investment play a favorable role in influencing the movement of money and investment within a nation. This is especially true for the growth and development of small firms. Other elements that have contributed to the expansion of the local economy include the processes of industrialization and modernization as well as the presence of favorable investment flows. Industrialization, which is reinforced by political stability and technical innovation, will therefore lead to a quickening of the expansion of the economy, which will result in a rise in the productivity of local small companies. In the context of

expanding global, national, and local macroeconomics, efforts to promote the existence of economic companies, particularly small and medium-sized enterprises (SMEs), ought to focus on raising the productivity and competitiveness of businesses. This is particularly important for SMEs. It is necessary to acquire additional knowledge, improve one's level of organization, and cultivate additional abilities in the field of human resources. To restate this concept, in order for a business to maintain its profitable status, it must first have an understanding of the strategic environment in which it operates and then keep up with its competitors. When it comes to the topic of sustainability in the context of business, there are two opposing schools of thought: the "Cornucopians," whose name comes from the Greek for "horn of plenty" (Giampietro et al, 2011), and the "prophets of doom," as described by Kovacic et al (2019). The first theory posits that the competitive advantage provided by the development of technology and the achievements of businesses will ensure that manufacturing innovation will continue unabated despite the environmental constraints that are placed on society. Consequently, this analysis places a premium on innovation throughout. Conversely, the second theory postulates that environmental regulations and the depletion of natural resources will dampen economic growth. Despite the importance of economic growth, a focus on sustainable development is required to dissuade corporations from wasting time and money on endeavors that will not pay off in the long run. The importance of social enterprise should not be overlooked in such studies. According to research (Galindo and Méndez-Picazo, 2013), encouragement of conventional inventions may benefit both conventional inventions and entrepreneurial endeavors. In this regard, finding the most representative innovation indicator and understanding the nature of the link between innovation and sustainable development are both critical. Remember that the other main concern, entrepreneurship, entails the very act of starting up new businesses. Growth opportunities provided by entrepreneurship are useful for businesses of all ages, from startups to well-established corporations; such businesses often outperform their less daring competitors (Bruyat and Julien 2001). Therefore, it is critical to value the efforts of both business and social entrepreneurs. Institutions and economic growth have been extensively studied over the past 25 years, expanding on the long-standing link between entrepreneurship and expansion (Schumpeter 1934; Leibenstein 1968). (Acemoglu and Johnson 2005; Acemoglu and Robinson 2012). Until recently, researchers had paid little attention to the mutually beneficial relationship between

institutional frameworks and entrepreneurial endeavors as a driver of economic growth. This raises the question of whether or not the rates of economic growth experienced by different countries can be explained by an ecosystem consisting of entrepreneurial activity and institutional frameworks (Braunerhjelm et al. 2010; Sussan and Acs 2017). According to this theory, the vitality of the entrepreneurial sector is directly correlated with the impact of technological advancements on economic growth. Successful commercialization of innovations by entrepreneurs helps economies grow. Transferring knowledge can be sped up or slowed down depending on the institutional structures at play, even if there is an entrepreneurial spirit (Baumol and Strom, 2007).

Definition of Term

An autoregressive distributed lag (ARDL): A non-stationary time series as well as time-series data that have a mixed order of integration are both suitable for use with a model known as an autoregressive distributed lag (ARDL). This is because the ARDL model uses the statistical method known as ordinary least squares (OLS), which explains why this is the case. These kinds of models are often referred to as "mixed order of integration autoregressive models" (also abbreviated as ARDL models), which is just another name for them.

Economic Development: When we talk about things such as programs, policies, and activities that aim to change the socioeconomic well-being and standard of living of a community, we are referring to what is known as economic development.

Economic Growth: refers to the rise over a particular length of time in the quantity of products and value added in proportion to the size of the society. Depending on the complexity of the situation, this rise may or may not be a welcome development. This increase in production is occurring within the framework of an economy that is growing.

European Free Trade Association: The mission of the European Free Trade Association is to promote comprehensive economic cooperation and open trade across Europe.

Foreign Direct Investment: refers to a specific type of overseas trade in which an entrepreneur from one financial activity seeks to establish a long-term interest in and a significant amount of influence over a company that is headquartered in that other economic system.

Free trade agreements: Free trade agreements are defined as an agreement between two or more nations that creates a free commercial zone. This type of agreement is known as a free trade agreement (or FTA for short).

General Agreement on Tariffs and Trade: is an international free trade deal that was founded after World War II with the purpose of facilitating member countries in their reconstruction efforts and economies. The GATT was named after the General Agreement on Tariffs and Trade, which was the original name of the pact.

Gross domestic product: of a nation is the monetary worth of the services and goods that are generated inside its boundaries during a certain period, which is often a quarter or a year. Depending on the size of the nation, the GDP may be reported quarterly or annually. This number is based on a percentage of the total population of the country at a certain point in time.

Industrial Development Corporation (IDC): remains committed to increasing the quantity of locally produced goods by promoting environmentally responsible growth and broadening the range of economic sectors present in the economy. IDC hopes that this will increase the amount of locally produced goods.

International Trade: Trade that actually occurs between businesses situated in various nations, including the purchase and sale of goods and services, is referred to as international trade. People buy and sell a wide variety of items on the global market, including consumer goods, commodities, food, and equipment. These goods might come from any country in the world.

Mercosur: Argentina, Brazil, Paraguay, Uruguay, and Venezuela are all members of the Mercado Comn del Sur (Mercosur), also known as the Southern Common Market. This group of South American nations also includes Chile, Bolivia, Colombia, Ecuador, and Peru. The goal is to make it easier to create a single market by promoting free trade and making it easy for consumers, producers, and money to move around freely.

Southern African Development Community: was formed with the principal objectives of ensuring economic growth, peace, and security; reducing poverty; improving the quality of life of the inhabitants living in Southern Africa; and offering support to those who are socially disadvantaged through regional integration. These goals were established in 1993.

World development indicator (WDI): is a database that can be accessed directly through the use of Data Bank, which is a query tool that gives users the ability to select

series, economies, and periods. Users can also do bulk downloads of the data in Excel or CSV format, or they can use an API to access the data.

CHAPTER II

Literature Review

Introduction

You might be able to learn more about earlier studies that were conducted on the subject if you conduct research on the current written material pertaining to the subject. It is necessary to conduct a thorough analysis of the preceding study before deciding on a topic for subsequent exploration. This should be done as early in the process as possible. The information that is necessary for the study can be obtained from a wide variety of market sources, including but not limited to popular books, magazines, published and unpublished research articles, and other market sources that are easily accessible to the general public. The information that is necessary for the study can be gathered in order to complete it. The expansion of both global trade and the gross domestic product are the primary topics of discussion throughout the majority of this chapter. The body of literature that is related to international business has been the subject of a substantial amount of research carried out by academics.. On the topic of business, one can get their hands on a wealth of information from a variety of readily available sources. Many academic and professional professionals have contributed their time and knowledge to study international trade. This chapter provides a synopsis of the research findings based on an extensive corpus of previous work in the fields of international commerce and related topics. In order to accomplish our goals for this chapter, we will investigate theoretical and empirical studies pertaining to international commerce. Here is a list of some of the most important research that, based on the most recent research, should be taken into account.

Theoretical framework

Trade and Growth in the Classical Period

Since the classics do not make a difference between EG and IT problems, figuring out how to solve this problem leads us to the main models of IT that are found in the classics.

Having said that, taking into consideration the objective of our research, we are working hard to make progress on models that, in essence, describe the "static benefits of IT."

In the case of Smith, we found that there are two key characteristics of the interaction between IT and EG that should be highlighted (1776). On the one hand, information

technology made it possible for the internal market to overcome its reduced dimension. On the other hand, by increasing the market's scope, the division of labor was enhanced, which led to an increase in productivity. As a result, information technology would become a dynamic force that can improve the skills and abilities of workers, encourage technological innovation and capital accumulation, get around technical indivisibilities, and give all participating nations the chance to experience EG.

Following this, in the year 1817, Ricardo developed what he called a "dynamic model of EG," which consisted of three forces and two limits. He defined progressive countries as those that had elevated amounts of cash reserves, capital accumulation, output, productivity, benefits, and labor demand, which in turn forced wage increases and population growth. He also described progressive states as having high levels of education. However, because of limitations on land in terms of both its quantity and its quality, additional dietary resources had to be acquired despite the fact that the returns on these investments were getting worse. A greater proportion of the funds generated by production go toward paying wages in this circumstance. This reduces the likelihood of making new investments and, eventually, will bring about a "stationary state." It is possible to prevent the drop in profit margins that would have otherwise occurred. He also undervalued the importance of technology and the benefits that information technology (IT) could bring to the development of new technologies.

Mill (1848) was the last of the Classics to make an explicit statement on the Classic worldview, which held that production was the result of labor, capital, land, and the productivities of these factors. In addition, much like Ricardo, he was aware that the "stationary state" was hidden underneath the "progressive state" and that the only element that was capable of delaying the onset of this condition was the development of new technologies. As a consequence of this, despite the fact that Smith advocated for unrestricted trade between countries, the significance that Smith attached to the growth of existing markets is being downplayed. We feel that the situation we find ourselves in today was brought about as a direct result of the Industrial Revolution's (IR) anticipation of advances in technology.

International Trade and Growth in the Post-Classical Period

Classical philosophy began to lose ground to a school of thought known as "marginalism" in the 1870s and continued into the 1900s. Because of this, a "new theory" called neoclassical economics was created. For a long time, this theory kept

economists and other academics from focusing on the basic trends that kept the economy growing.

International Trade Neoclassical

The followers of David Ricardo overlooked the topic of competitiveness and failed to acknowledge the qualities that were the direct result of information technology and had the capacity to improve, over the course of time, the level of economic activity and the path it was taking. Both of these issues may be traced back to the concept of expansion that takes place inside an organism. In summary, the amendments that were incorporated into the Ricardian theory proved that a rise in wellbeing was provided by IT; however, they neglected the final benefits in the rate of EG. This was the case despite the fact that these modifications were included in the theory. Heckscher (1919) and Ohlin (1933) presented their model within the context of neoclassical general equilibrium. Samuelson (1948 and 1949) completed the work that Heckscher and Ohlin (1919) started in the late 1940s. Heckscher and Ohlin's models were both completed by Samuelson. After looking into the idea in detail, we found that it lets us encourage countries to be more open to IT. This shows that such an action is effective, good for both parties, and good for the whole world. However, this restricts the study to only considering the permanent improvements in wellbeing.

Postclassical Growth

In a broad sense, classical economics presented us with the idea of a race between the increase in population and EG, with the winner of the race being undetermined. This concept was helpful in understanding the relationship between population growth and EG. This variant was ultimately phased out in favor of the IR as production of the product continued to expand from one decade to the next over ever-greater geographic regions. This expansion occurred as the product was being manufactured. It is possible that this is the reason why EG is not a big deal anymore and why economists do not spend a lot of time researching or writing about it. Both of these things can be attributed to the fact that. Despite this, Marshall (1890) suggested that one should look to the study of international commerce in order to find "the reasons which govern the economic advancement of countries." In fact, the expansion of the market that it represented was the driving force behind the rise in global output. It was also the primary driver behind the expansion of both the domestic and

international economies, both of which contributed to an increase in revenue for the economy. However, in spite of the fact that he was aware of the significance of such externalities, he was also aware of the challenges that his analytical approach presented. Young (1928) was the only one of his successors to be concerned with EG, and he was the only one who thought, like Smith, that the size of the market constrained the division of labor. Smith was a pioneer in the field. Smith was the one who came before him (and therefore, the product). During the process of developing EG, he also researched the links between different industries, how the advancement led to specialties, the importance of specialization and standardization in a big market, and how this industry influenced the creation of innovative technologies. Specifically, he looked at how the expansion of the company led to an increase in the number of specialized employees. Schumpeter (1912, 1942, and 1954), who reiterated ancient perspectives regarding the propensity of financial gain to encounter a minimum and the dependence of the rate of EG on accumulating capital, was another notable exception throughout that time period. He made these observations in three different papers published between 1912 and 1954. He divided up written accounts of his findings into three volumes, published in 1912, 1942, and 1954, respectively. During this period, he wrote in 1912, 1942, and 1954. On the other hand, he went even further, distinguishing between "innovation," which he defined as the application of newly acquired valuable information to production, and "invention," which he defined as the process of coming up with something completely new (an economic activity of exploring that knowledge). He outlined the requirements necessary for a successful invention, one of which was the requirement that markets be opened up to the rest of the world. He believed that the latter was the single most important aspect of EG. This section comes to a close with a discussion of a few authors who, by streamlining the process of resuming research on dynamic themes—and, as a result, the EG theory—provided a solid groundwork upon which to build future investigations. This part of the article is now complete. Ramsey (1928) is credited with being the first person to provide a description of EG as well as the theory that underpinned the investigation of an ideal EG. Cobb and Douglas (1928) provided production functions that would later be referred to as Cobb-Douglas production functions and would go on to become an important component of a wide variety of models of evolutionary genetics. Cobb-Douglas production functions were first introduced in this publication (EG). Both Harrod (1938 and 1948) and Domar (1946) independently constructed a model that

was influenced by Keynes, which provided the study of EG with a significant amount of impetus and a particular orientation. Harrod's model was published in 1938 and 1948, while Domar's model was published in 1937 and 1946. Finally yet importantly, Rosenstein-Rodan (1943) rediscovered some of Young's ideas in response to the difficulties faced by LDCs, which attracted the attention of economists. LDCs are countries that have not changed nearly as much as other countries.

Empirical Literature

The unhindered movement of people, goods, and services across international borders is a condition that is necessary but not sufficient for economic expansion, the generation of new employment opportunities, and the eradication of poverty. On the other hand, this by itself is insufficient to accomplish these objectives. Domestic businesses reap benefits such as increased opportunities to enter new markets, improved quality, and innovative ideas as a direct result of an increase in international trade. These advantages are made possible as a direct result of the necessity of competition. These advantages are beneficial to commercial enterprises. It helps get rid of poverty, raises pay, has geopolitical benefits from more economic integration, and gives each person more freedom and choices to do what they want with their lives. Without being open to foreign business, investment, and the free movement of people, no country in the modern world has ever been successful. This is of utmost significance for nations with inhabitants of less than 10 percent of the population, despite the fact that very few nations with inhabitants of less than 10 million individuals have ever achieved a higher standard of living while deriving less than half of their GDP from exports. This is because exports account for less than half of a nation's total economic output. In light of this, it is of tremendous benefit to nations that have an estimated population of less than 10 million people. Because of this fact, these countries understand how important this particular point is.

Romer found in 1990 that trade openness creates more opportunities for domestic trade, makes capital goods more diverse, and grows the base of productive knowledge. Having access to more information, having more options for intermediate products, and having a bigger market all help productivity grow faster. The research of Coe and Helpman shows that the product-variety model (Aghion and Howitt, 1992) and the quality-ladder model (Aghion and Howitt, 1992) work well together (1995).

Shan and Sun (1999) investigated the export-led development hypothesis in the context of the United States economy from January 1980 to December 1997. Their research covered the period from 1980 to 1997. They also emphasized that there is a link involving economic expansion and exports that can act in either direction. This connection can work in either direction. Their findings suggested that importation had a beneficial impact on growth, and they confirmed in their argument that this is the case. The results of their research demonstrated that importation has an impact on growth. The findings of the study suggested that international trade contributes positively to the expansion of the national economy.

Recent research has placed a significant amount of emphasis on investigating the relationship between economic expansion and a policy that encourages free trade. Dollar's (1992), Sach and Warner's (1995), and Edwards' (1992) are among the examples cited in 1998. On the contrary, Rodriguez and Rodrik (2000) have some doubts regarding the procedures that were employed and the manner in which trade openness was evaluated in the studies that were presented. These reservations concern the research that was mentioned. Recent research conducted by Abbas (2014) makes use of examples from the real world to demonstrate that increased trade openness is detrimental to economic growth. Many nations' industrial capacities have been increased in response to the growing demand for products from those nations. We require cutting-edge manufacturing technology that enables us to produce more goods so that we can keep up with the demand. When all of these conditions are met, an increase in international trade has the potential to significantly contribute to the expansion of the economy. Numerous nations' industrial capacities have been expanded in response to the rising demand for products from those nations. We require cutting-edge manufacturing technology that enables us to produce more goods so that we can keep up with the demand. When all of these conditions are met, a rise in international trade has the potential to significantly contribute to the expansion of the economy. Awokuse (2007), for instance, discovered that exports and imports each had a positive and significant effect on economic growth in Bulgaria, the Czech Republic, and Poland, all of which were in transition at the time of the study. All of these nations are in the midst of periods in which their economies are undergoing transformations. The findings lend credence to not only the growth-led import and growth-led export hypotheses but also to the growth-led export hypothesis.

The author of the study, Hatemi-J (2002), investigated the connection between Japan's increasing exports and the country's expanding economy from 1960 to 1999. The author came to the conclusion that a correlation exists between the expansion of the economy and the increase in export volumeng economy from 1960 to 1999. The author came to the conclusion that a correlation exists between the expansion of the economy and the increase in export volume. This phenomenon is referred to as "feedback causation," and Awokuse (2005) discovered similar things about Japan between the years 1960 and 1961 and 1991 and 1994. Ali et al. (2009) investigated how Pakistan's efforts to eradicate poverty were impacted by the inflow and outflow of foreign funds. They did this by looking at the rates of newborn deaths and enrollment, paying particular attention to the enrollment of females, as well as the effect on the amount of money the government spends on health care and education. The theoretical variables are remittances, growth, foreign direct investment, foreign aid, infant mortality, pro-public government spending, and inflows of foreign currency. Other variables include foreign assistance. The authors investigated the relationships that exist between various aspects of society in this study, which spanned the years 1973 to 2008. The findings of this study demonstrated that money from other countries, and particularly aid from other countries, is detrimental to efforts made to decrease disparities, both in the short term and the long term, and that this effect has led to an increase in the number of individuals who are poor in Pakistan. The research also demonstrated that this effect has led to a rise in the number of individuals who are unemployed in Pakistan. Additionally, the study found that the number of individuals living in poverty in Pakistan has increased due to the fact that money from other countries, particularly aid from other nations, is detrimental. In addition, the results of the research demonstrated that there has been an increase in the number of individuals living in extreme poverty in Pakistan. The study results also indicate the level of poverty did not have a huge effect on the overall number of individuals who attended public school over the course of the research project. This is supported by the findings, which show that the overall number of people attending school remained constant.

Hodge, D. (2006) investigates the connection between South Africa's growth and the country's rate of inflation. The first primary question that is investigated is whether or not the findings of cross-sectional research can be supported by tests carried out on the data from South Africa. The second core question that is examined is, over the course of a longer period, does inflation have a chilling effect on the expansion of the

economy? One of the most important aspects of the economy that is being looked into is inflation. In the event that this turns out to be the scenario, then the dilemma that must be addressed is whether or not this will be possible to accomplish faster growth at the cost of increasing costs in the short run. According to the findings, inflation in South Africa has a depressive influence on economic expansion over the medium to long term, and in the short run, expansion above its trend requires an acceleration in inflation in order to achieve it. Inflation, moreover, has a deleterious impact on growth over the course of a longer period of time. Therefore, South Africa's current policy of targeting low inflation will need to be scrapped if the country's growth is to be pushed far higher than its current low trend. On the other hand, doing so would be counterproductive over the course of a longer period of time, after the unfavorable relationship between inflation and growth became apparent.

In the research that Abu Bakarr Tarawalie carried out in the calendar year 2010, he investigated the various channels through which the real effective exchange rate has an effect on the progression of the economy of the nation of Sierra Leone as a whole. This was done so that he could gain a deeper comprehension of the role that the real effective exchange rate plays in contributing to the expansion of the economy. To be more specific, he focused his attention on the situations in which the real effective exchange rate has an effect on the growth of both exports and imports. He concentrated his efforts, in particular, on the city of Freetown, which is currently serving as the nation's capital. The first thing that needs to be done in order to identify the variables that impact the real effective exchange rate is to construct an analytical framework. This is the first thing that needs to be done. It is necessary to carry out these steps in order to identify the factors that have an effect on the real effective exchange rate. This will assist in determining the factors that have an effect on the situation. The following thing that needs to be done is research into the connection that takes place between the real effective exchange rate and the expansion of the economy. For the purpose of carrying out this research work, quarterly data as well as the most recent econometric procedures are utilized. In furthermore, a bivariate Granger causality test was performed as an essential component of the procedure in order to investigate the causality connection that exists between the real exchange rate and the expansion of the economic system. This was done with the goal of establishing whether or not an emergence in the real exchange rate generates a growth in the size of the economy, and it was successful in achieving that goal. The findings of the

empirical research indicate that there is a strong correlation that is significant statistically between both the real effective exchange rate and the growth of the economy. This relationship is supported by the findings of the empirical research. This is shown by the fact that the findings provide support for the connection between the variables. The research results demonstrate the existence of the relationship, which lends credence to the correlation that was found between the two variables. Positive results were obtained for the coefficient of determination when examining this correlation. According to the research results, money supply is more efficient than tax stimulus in the long run, and the proof that the rate of exchange gives rise growth in the economy was significant. In addition, money supply is more effective than tax stimulus in the short run. In the short run, the effectiveness of fiscal policy is higher than that of monetary policy. In addition to this, the findings imply that monetary policy is noticeably more successful than fiscal policy. In addition to this, the results suggest that monetary policy is significantly more effective than fiscal policy. The research also shows that fiscal policy does have an effect on the expansion of the economy, albeit one that is noticeably less significant than the implications that money supply has. This was discovered in the study. This disparity in importance is attributable to the fact that monetary policy has a shorter lead time than fiscal policy does. In addition, it would appear that monetary policy is demonstrably more effective than fiscal policy based on the results. In addition, the findings of the research showed that the key determinants impacting Sierra Leone's real exchange rate were the balance of trade, a decline in the value of the exchange rate, an investment to Gross domestic product (gdp that was too high, and an extreme supply of domestic credit. In addition, the findings of the study indicated that Sierra Leone's real exchange rate was negatively impacted by an excessive supply of domestic credit. All of these factors were responsible for the majority of the influence. These aspects were all connected to one another.

Umaru et al. (2012) investigate the impact that inflation had on the expansion and development of the economy in Nigeria between the period of 1970 and 2010, with a key focus on the period of time between 1970 and 2010. The years 1970 to 2010 are the focal point of the entire research endeavor that was carried out. They accomplish this by using the Augmented Dickey-Fuller method in order to evaluate the unit root property of the series, as well as the Granger causality test in order to determine whether or not rising prices are caused by an increase in gross domestic

product. They are therefore capable of determining whether or not there's a relationship among the two variables as a result of this. In addition to this, in order to examine the link between GDP and inflation, they consider use of the test of Granger causality. As a consequence of this, they are in a position to ascertain whether or not the two variables in question share a correlation with one another or not. In furthermore to this, the Granger causality test is utilized in examining the link that exists between GDP and inflation. This is done so in order to determine whether or not there is a correlation between the two. Reading the article that was written in 2014 and labelled "Examining the Effect of Price increases on Economic Growth and Development in Nigeria Between 1970 and 2010," which was published, will provide you with additional information regarding the findings of their research. The following link will take you to the article in question. The results of the research pertaining to the Causality test indicate that the Gross Domestic Product (GDP) causes inflation rather than inflation causing Gross domestic product, and the results of the Unit Root Test indicate that all of the factors that make up the model are stationary. Both of these findings are derived from the study that was conducted. In addition, the results of the research on the test of unit root indicate that each of the model's variables is stationary. The results of the research provide the foundation for both of these drawn conclusions. Both of these hypotheses are supported by the results of the tests. These two findings provide support for the hypothesis that the model's variables do not experience any kind of change over the course of the study. The validity of the hypothesis that the gross domestic product (GDP) is indeed the primary engine behind inflation is strengthened by these two findings. Comparatively, according to the findings, inflation also had a beneficial effect on economic growth as a result of its contribution to an increase in productivity and the output threshold, as well as an improvement in the performance overall of total factor productivity. This was shown by the fact that the results showed that inflation had a significant relationship with economic growth. This was an indication that this was the case. The fact that inflation was the main driver behind the rise in total factor output helped to drive home the significance of this point. The correlation that occurred between inflation and total factor productivity was a very clear demonstration of this point of view. Therefore, it is possible to link a prosperous achievement of an economy in terms of per capita growth to the rate of inflation that is popular in the nation. This is because inflation and growth rates are inversely related. Examining the rate of inflation that is currently experienced in the nation is one way to accomplish this goal.

This is because the rate of inflation is directly proportional to the growth in population, which explains why this is the case. This discovery has a number of important repercussions for economic policy, the most significant of which is that decision makers ought to make a concerted effort to enhance the level of output in Nigeria by improving productivity and supply in order to bring down the price of products and services (inflation) and, as a result, boost the growth of the economy. This finding has a number of important repercussions for economic policy, including: This finding has a number of significant implications for economic strategy, including the following items: The implications of this finding for the economic strategy that is currently under consideration are numerous and significant. The only strategy that has a chance of successfully bringing inflation down to a level that can be deemed acceptable is raising production levels (GDP).

Sharma (2015) used a regression analysis with ordinary least squares to determine patterns in foreign direct investment (FDI) inflows both before and after the FDI regimes were changed. This was done in order to determine whether or not there was a correlation between the two. In addition to this, he looked into the aspects that affect the level of foreign direct investment (FDI) in India. In addition to this, she has cited that she believes that foreign direct investment (FDI) in India is affected by a number of important factors. The accomplishment of this research relied on the utilization of the annual time series data set (1991–2010). According to the findings, the size of a country's market as well as the value of its national resources are two significant factors that have an important influence on the volume of foreign direct investment (FDI) that is brought into that country. Following an examination of the information that had been gathered, this verdict was reached. This article makes some recommendations concerning the adjustments that could be made to India's economic plans in order to raise the level of economic prosperity in the country and the amount of money that is available for the development of brand-new infrastructure.

Awokuse (2007) found that exports and imports each had a significant and beneficial effect on economic growth in Bulgaria, the Czech Republic, and Poland. At the time that the study was conducted, all three of these countries were in the process of transitioning their economies. These countries are all in the middle of periods in which their economies are going through transitions, and it is important to keep this in mind. The results of the study provide credibility, not only to the extension import premise and the growth-led export assumption, but also to the growth-led export hypothesis.

This is because the study found that both hypotheses are consistent with the growth-led export assumption. Both the growth-led import assumption and the growth-led export assumption find support from the facts in their respective defenses.

In their study, Sharma and Panagiotidis (2005) examined the relationship between India's exports and the overall growth of the country's economy from 1971 to 2001. Their findings demonstrated that there is no correlation between increased exports and an expanding economy, at least not over the course of a long period. Nevertheless, there are additional studies that have demonstrated links between causes and effects in both a unidirectional and bidirectional fashion. On the other hand, Ummalla and Raghutla (2015) looked into the links among imports, exports, and economic growth in India between 1970 and 1971 and 2013 and 2014. They focused specifically on the period between 1970 and 1971. The authors concluded that in the long run, exports, imports, and economic expansion are all interconnected.

In their study, Farshid et al. (2009) used the growth model known as the Augmented Production Function (APF) to investigate the impact of foreign direct investment (FDI) and trade openness on the economies of Korea, China, the Philippines, Thailand, and Malaysia. In this study, the panel data method was utilized, and with its help, an analysis of the data panels that were compiled for each nation between the years 1980 and 2006 was performed. According to the results of this investigation, there is a cointegration link between the indicator of the APF model and the indicator of its indicator in the APF model. These findings indicate that this link exists. Because of the findings of the research that was discussed earlier, this conclusion was reached. According to the results of the study, Thailand, Korea, and China are the only nations in which a boost in foreign direct investment and an openness to trade have a positive effect on the growth of their respective economies. This is because Thailand, Korea, and China all have relatively open trade and investment environments.

Based on the results of a recent study, those who participate in international business are in agreement with the idea that it, over the course of time, contributes to the expansion and prosperity of a country (Van den Berg & Lewer 2015). Sakyi et al. (2015) examines the implications that openness to foreign trade and foreign direct investment have had over the long term on Ghana's growth in the economy. Specifically, the authors focus on the effects that these factors have had on Ghana's exports and imports. This was carried out as a part of their research into the

phenomenon of endogenous growth (1970–2011). The research looked for evidence of cointegration by employing a technique known as autoregressive distributed lag limits testing. This was done in order to find such evidence. According to the results of the study, one of the most important factors that have been responsible for the expansion of the economy has been the connection that exists between international trade and foreign direct investment from other nations.

The research that Makki and Somwaru carried out in 2004 was expanded in order to examine the impact of trade openness and foreign direct investment on growth in the economy in 66 developing economies over the course of three years. This investigation was carried out over the course of three years. According to the research project's findings, there is a set of three equations in which the rate of increase in domestic investment and GDP per capita both serve as dependent variables. The rate of inflation, foreign direct investment (FDI), trade openness, government consumption, and human capital are going to be the variables that are going to be considered independent for the time being. The results of the study show that foreign direct investment, which has a favorable connection with trade, is beneficial for both economic expansion and domestic investment in developing economies. This finding is supported by the fact that trade and foreign direct investment both have positive relationships. The fact that trade has been shown to have a positive relationship with FDI gives this finding more weight.

In general, one could argue that trade openness serves as a de facto proxy for other factors that are linked with outward orientation. This is because trade openness is directly related to outward orientation. As a result, foreign direct investment has little individual explanatory power in terms of economic progression. In August of 2010, Peng Sun and Almas Heshmati conducted research with the purpose of determining the extent to which China's rising standard of living can be attributed to the expansion of its commercial ties with other nations. According to the findings of their study, increasing China's participation in international commerce enables the nation to benefit from both dynamic and static benefits, which in turn supports rapid economic expansion on a national scale. This is supported by the fact that China is able to benefit from both benefits simultaneously. The rise in regional productivity in China can, at least in part, be attributed to both the expansion of China's participation in global trade and the shift toward the export of high-tech goods. Both of these factors have taken place in recent decades. This effect is made worse by the fact that high-

tech products are increasingly becoming the focal point of the structure of international commerce. Companies that produce high-tech goods are becoming more and more important. When discussing the relationship between openness to trade and sustained economic growth, it is common practice to begin with models of technological progress that result from natural processes, also known as endogenous technological advancement (Winters, 2004). Activity that is more commercial has the potential to hasten the pace of both the overall development of productivity as well as the pace of technological advancement. This is because activity that is more commercial creates more opportunities for profit. This may take place either as a result of an expansion of the market for inputs or as a consequence of an extension of the market for output. If increased specialization leads to higher levels of productivity as a result of increased experiential learning, then the benefits of increased international trade may be more variable than they are fixed (Lucas, 1988). According to Singer, the empirical evidence scientific research on the link with both trade openness and economic growth disclose that the import - substituting model was the central tenet of the international trade regulations of a significant number of nations prior to the 1970s. These studies show that the import - substituting model was the cornerstone of these regulations. These papers also demonstrate that a positive correlation exists between openness to trade and economic expansion. The central emphasis of these articles is on the connection between a country's policy toward free trade and its level of economic growth. These papers also demonstrate that a substantial positive correlation exists between openness to trade and economic growth. The articles demonstrate the significance of this positive correlation. This transpired as a consequence of a favorable correlation between openness to trade and increases in economic activity. This is the conclusion that can be derived from the study of the various empirical research projects that have been conducted on the link between the liberalization of trade and the expansion of the economy. These investigations have been performed on the connection between the liberalization of trade and the growth of the economy. These data invalidate the argument that was made by Singer that there is a substantial association between the liberalization of trade and economic progress. Singer stated that there is a substantial correlation between the two. According to Singer, there is a considerable association between trade liberalization and the expansion of economic activity. In light of these findings, Singer's contention that there is a significant correlation between liberalization of trade and economic advancement cannot be sustained as an argument.

Singer made the claim that there is some kind of link between the two. Singer contends that there is a significant correlation between trade liberalization and the expansion of a nation's economy. Singer cited this correlation as evidence. Singer maintains that there is a significant connection between the process of liberalizing trade and the expansion of an economy. In his article, Singer drew attention to this association. This was the situation in the vast majority of countries around the world at the time (1949). On the other hand, neoclassical growth theories like Solow's (1956) growth model presume that both technological improvements and the steady-state rate of development of production are totally exogenous. This is because neoclassical growth theories have been around since the 1950s. This belief stems from the fact that neoclassical growth theories were developed in the 1950s and 1960s. This is because neoclassical growth theories believe that economic growth is driven by a combination of endogenous and exogenous factors. They base this belief on the assumption that these two factors are totally separate from one another and that there is no connection between them. The origins of neoclassical growth theories can be traced back to the 1950s and 1960s, when they were developed. This explains why this occurred. This is because ideas similar to these did not come into existence until the 1950s and 1960s of the previous century. To phrase this another way, the rate of technological progress is considered to be an external factor, and the contribution that increased trade openness makes to the growth of output per capita is considered to be negligible. Endogenous growth models are primarily to blame for the criticism and unsatisfactory nature with which the neoclassical model has been perceived in the context of a long-run growth scenario. This perception has been brought about because of the neoclassical model's failure to account for endogenous growth theories. These theories are primarily to blame for the criticism that has been leveled not only at the neoclassical model but also at the post-Keynesian model. They identified evidence that implies there is a positive association between the execution of trade openness regulations, the growth in the speed of innovation, and the development of the national economy. This correlation was determined to be significant. It was discovered that following this link would be beneficial in some way. These models are predicated on the fundamental assumption that the rate of technological progress is an endogenous contributor to the growth of the economy. This prospect can become a reality as a result of the fact that it is now possible, from a financial standpoint, to carry out the action. The findings of the studies conducted by Levine and Renelt (1992), Rodriguez

and Rodrik (2000), and Yanikkaya (2003), on the other hand, demonstrate that it is difficult to find a robustly significant relationship between openness and economic boom, and that there appears to be a negative relationship between the two ideas. Yanikkaya (2003) also found that there is a correlation between openness and economic contraction. This was evidenced by the fact that the researchers discovered a negative association between the two concepts they were looking at. For instance, Harrison (1996) demonstrated that there is a trade-related factor that exerts a modestly favorable force on economic growth when a variety of trade-related indicators are taken into consideration. This was the case when considering a variety of trade-related indicators. This was shown to be the case after considering a variety of trade-related indicators. When he took into account a wide variety of trading indicators, he found that this was the case. When we investigated the impact that trade has on the expansion of the economy, we found that this is indeed the case.

Following the implementation of a system GMM estimator, Fetahi-Vehabi et al (2015) arrived at the conclusion that countries with higher levels of income per capita and capital creation benefit more positively from participating in international trade. This conclusion was reached after it was observed that countries with higher levels of income per capita are more likely to participate in international trade. This observation led to the development of the result. A conclusion was drawn as a direct consequence of making this observation. In their research, Greenaway et al. (2002) made use of dynamic panel data analysis in order to investigate the effect that the openness of a country's trade markets has on the rate at which an economy develops in developing countries. During the course of their conversation, the key point of emphasis that was placed on the influence that trade openness has on nations that are still in the process of economic growth was focused on the impact that globalization has on nations. They came to the conclusion that trade liberalization does have an effect on economic development; nevertheless, the effect of trade liberalization on economic expansion is not obvious until after a certain period of time has passed after the trade was initially opened. After conducting the aforementioned research and piecing the results together, they were able to arrive at this conclusion. Yanikkaya (2003) was able to establish that there is a direct connection between openness to trade and economic growth by employing a number of trade openness characteristics in addition to panel data analysis. This allowed Yanikkaya to show that there is a direct connection between the two. This made it possible for Yanikkaya to prove that there

is a direct connection between the liberalization of commerce and the expansion of the economy. With the assistance of this, Yanikkaya was able to show that there is a direct connection between rapid economic expansion and a policy that encourages open trade. As a consequence of this fact, he was in a position to show that there is a link between the two.

Shahbaz (2012) examined the impact that TO has had on EG by using econometric forecasts to study the link over the course of an extended period of time within the context of Pakistan. This study was carried out in Pakistan. The nation of Pakistan served as the setting for the gathering of data for this study. For the purpose of conducting data analysis, he made use of the auto-regressor with distributed lag (ARDL) bounds testing approach in conjunction with the enhanced production function. In addition to utilizing the Cobb–Douglas framework, the authors of this study also made use of the framework, and one of the additional variables for EG was financial development. In 1992, Mankiew et al were the ones who initially published the framework. Utilizing structural breakdown unit root tests enables the establishment of the stationary chattels of the series to be completed successfully. The current investigation made use of four separate indicators for TO, all of which were subsequently incorporated into the model. Export, import, terms of trade, and overall trade were the indicators in question. Granger's causality model, which is derived from the Vector Error Correction Model, is what he used in the end to determine which variable was causing what effect among the others (VECM). In order to compute the TO, he made use of the following four variables: real exports per capita, real imports per capita, terms of trade, and real trade per capita, the latter of which is found by adding together real exports and real imports per capita. The World Development Indicators serve as the starting point of reference for these particular statistics, and one can follow them back to where they originated. Furthermore, data for additional factors from 1971 to 2011 were obtained from a variety of different sources and incorporated into this analysis. The period covered by these data ranges from 1971 to 2011. The years 1971 through 2011 are included in these statistics.

Adhikary (2012) conducted a study into the factors that influence the success of Bangladesh's exports, including globalization, local demand, the foreign exchange rate, and direct investment from other countries. To accomplish this, he combined the vector error correction model (VECM) with time series data spanning the years 1980–2009. This allowed him to get accurate results. During the course of the research, each

of these aspects was given the right amount of consideration. We affirm the stationarity of the intercept, as well as the stationarity of the intercept plus the pattern for the ADF and PP techniques that are being used to probe for variable stationarity. This work is part of a larger body of work that investigates and confirms the variable stationarity of the intercept. This was done so that it could be determined whether or not the stationarity of the intercept is variable. In addition to this, we examine the stationarity of the method that was applied in the investigation into the stationarity of the variables. In order to discover whether the parameters under consideration exhibited fixed behavior, these two approaches were utilized. Throughout the entirety of the process of carrying out the research that was done, a model that can be termed to simply as a "vector error correction model" (VECM) became utilized. The findings of the empirical research point to the conclusion that foreign direct investment (FDI) does, in fact, have a direct link with exports of goods and services both in the longterm and in the shorter term, even though this is not the scenario with the other indicators. Specifically, the findings point to the fact that this link exists both in the longterm and in the short run. In particular, the findings suggest that this connection is present both in the longterm and in the shorter term. The findings in the long run as well as the short run point to a link between foreign direct investment and export performance. The results of the research indicate that foreign direct investment (FDI) has a correlation that is relevant with export performance both in the long run and in the short run. This is true for both scenarios. According to the findings of the study, the existence of this connection will prove to be advantageous in the not-too-distant future in addition to the more immediate future. It has been illustrated that there is a positive association between the performance of a nation's exports and foreign direct investment, both in the long run and in the short run. This association has been shown to be beneficial. This association is accurate for both of the presented cases. Both timeframes are subject to the same influence as a result of this association. The data can be interpreted in either of these two ways, and the evidence supports both of them. The findings of the study also demonstrated that this relation is present both in the short run and in the long run, proving that it is not an ephemeral one. The findings of the research provided evidence for this assertion. This was demonstrated to be the scenario both in the shorter term as well as in the longterm in the research that was conducted. This was demonstrated to be the case both in the immediate future as well as in the distant future. On both occasions, evidence has been presented that demonstrates this to be the case.

Menyah et al. (2014) used panel Granger-causality tests in their research on 21 sub-Saharan African countries to investigate the Granger-causal connections between the growth of the economy, trade openness, and financial development. The research focused on determining whether or not there was a correlation between these three factors. The researchers were interested in determining whether or not there was a correlation between these factors. Because it is believed that these three variables are connected to one another, the researchers were intrigued by the causal relationships that exist between them. The primary method that we used in this investigation was research, and the goal of the research was to establish whether or not there is a link between the three aspects that were previously mentioned. The results of the research led the authors to the conclusion that there is a link between the expansion of the economy and the three factors that were covered earlier in the discussion. This conclusion was reached as a direct consequence of the findings that the study uncovered. They came to the conclusion that the growth of the financial industry is only a minor source of economic expansion in three of the countries that were studied and that the connection between the growth of the banking sector and trade openness is a tenuous one. This was one of the main reasons why they came to this conclusion. After completing their investigation, they came to the realization that this was the best possible outcome. They arrived at a variety of judgments, but this was one of the most significant ones to emerge from their discussions. In addition to this, they came to the conclusion that the link between the liberalization of trade and the growth of the financial sector was not a particularly strong one. This opinion was formed as a result of the previous point. After taking both of these aspects into account, they arrived at this verdict as a result of their investigation. When the findings of the empirical studies are considered as a whole, they point to the conclusion that the Granger-caused factor of genuine economic expansion in sub-Saharan Africa is not an improvement in the country's financial situation or an increase in its trade openness. When the results of empirical research are taken into account, one can reach this conclusion as a logical consequence of those studies. This is the conclusion that one is able to arrive at after considering the results of the empirical study.

In a study that was published in 2015, Sakyi et al examined the correlation between a country's degree of economic openness and its per capita income in 115 poor economies spanning the years 1970 to 2009. They conducted their research during this period. In order to conduct an in-depth study of the data, non-stationary

heterogeneous panel cointegration tests were utilized, which led to the discovery of the findings. Their investigation focused mostly on the years beginning in 1970 and coming to a close in 2009, and it covered the entirety of this time period. Their findings revealed the presence of a link that could be classified as bidirectional or suggestive, and this was true both in the short term and in the long term. This was true both in terms of the short term and the long term. In addition, this was accurate not only for the immediate future but also for the distant future. This was the case for a variety of factors, some of which operated on a short-term time scale while others operated on a more permanent scale. This was the case regardless of the length of time during which one looked at the scenario, whether it was a few days or several years. The third subfield of findings within the larger body of work on the connection between liberalization of trade and economic growth focuses on an objective perspective at the industrial or sector level. This line of inquiry is part of a larger body of work on the link between the modernization of trade and economic growth. This viewpoint looks at the relationship between the liberalization of trade and the expansion of the economy from the standpoint of a certain industry or sector.

Utkulu and Kahyao glu (2005) conducted a study to investigate the relationship between Turkey's level of openness to trade and financial businesses and the rate at which the country's economy grows. They were interested in determining whether or not there was a correlation between the two factors. According to their findings, a greater degree of economic openness is associated with increased rates of economic growth. In their analysis, they utilized a combination of Markov regime-switching models and threshold autoregressive (TAR) models, and as a result, they were able to successfully accomplish this goal. Their results, which are based on evidence, suggest that a greater degree of financial openness may lead to an increased risk of continuing in a recession. The fact that it was hypothesized that this would turn out to be the case lends credence to the idea. The fact that they found this to be true offered some support for the hypothesis that they were working with. This is because increased openness results in increased competition among financial institutions, whereas increased economic growth in Turkey is associated with increased trade channel openings. Consequently, increased openness leads to increased competition. Because of this, there is now more competition among the different financial institutions.

The research carried out by Polat, et al, (2015), was done in order to determine whether the growth of South Africa's economy is influenced by the development of its financial

sector. This was done so that a better understanding of the connection that exists between the two variables can be attained, and it was done in this manner. With the help of this information, the researchers were able to ascertain the nature of the relationship that exists between the two variables. After that, they forwarded their findings to a publication known as Economic and Financial Development, where they were reviewed by industry professionals who are knowledgeable in the subject matter. After that, they were made available in print. They were able to draw the conclusion that the influence of financial growth on economic growth was much higher than was previously believed to be the case as a result of this, which was a change from what was previously believed to be the case. This runs counter to what was previously believed, which was that the opposite was the case. This runs counter to conventional wisdom, which held that the impact of financial growth on economic growth was, at best, moderate. This finding demonstrates that conventional wisdom is incorrect. Beginning with the earliest data that could be obtained, the years 1970 through 2011 are the primary focus of the entire investigation. This is because these years contain the most data. In order to investigate the nature of the factors' long-term interactions with one another, we will be utilizing the Bayer-Hanck (2013) combined cointegration approach. This will allow us to examine these dynamics. This method can be divided into two distinct stages, as shown here. In order to successfully accomplish this goal, the technique of coupled cointegration is the method that needs to be utilized. According to the results of our investigation, the expansion of the banking system is the primary factor contributing to the expansion of the economy. The deployment of capital is beneficial to the advancement of the economy, whereas openness to trade is detrimental to the advancement of the economy. When the following is taken into consideration, it is possible to make sense of this inherent inconsistency: The validation test for the demand-side theory was a resounding success, and its implementation was accomplished with excellence in South Africa. According to the findings of this study, the government ought to modify its trade agreements in order to make the most of the opportunities for economic expansion and to guarantee that the economic system will continue to expand in a manner that is conducive to good health. These goals can be accomplished by maximizing economic growth opportunities and ensuring that economic growth occurs in a manner that is conducive to economic growth.

Kojo Menyah and colleagues (2014) use a model that takes into account global commerce in order to investigate the potential causal link that exists between economic growth and financial development for 21 different African countries. This is done in order to establish whether or not there is a connection between the two factors being investigated. The primary focus of this research is on examining the connection that exists across Africa between rising levels of financial growth and rising levels of economic development. Their primary concern is determining whether or not the two have any kind of connection to one another. This research, which was carried out across 21 countries in Africa, centered on examining the relationship that exists between these two aspects as its primary focus. This investigation was carried out with the purpose of determining whether or not the two subjects under discussion are connected to one another in any way, shape, or form. Through the use of Granger causality and the panel bootstrap method, we construct a financial development index. This index, which is used to measure financial development, is constructed from four distinct determinants of financial development and is based on the index. The evidence that has actually been obtained provides only limited support for both the premise that expansion was propelled by finance and the idea that expansion was driven by trade. This is because the evidence provides only limited support for both of these ideas. This is true for both the idea that expansion was driven by trade as well as the idea that expansion was driven by finance. Both of these ideas are accurate in this regard. In spite of this, significant support has been accumulated for both of these hypotheses. It does not appear, based on the information that is currently available, that recent efforts toward financial development and open trade have had a significant impact on the situation.

There is quite a body of research that has strived to explore the link between foreign direct investment (FDI), trade openness, and economic expansion; however, the data from these studies has been inconclusive. Research along these lines includes, but is not limited to, the studies carried out by Asghar and Hussain (2014), Hye and Lau (2015), and Szkorupová (2014), to name just a few. The degree to which a country encourages its domestic companies to take part in international commerce is what economists mean when they talk about a country's "trade openness." According to the findings of the research that has been carried out, the repercussions that trade openness and inflows of foreign direct investment (FDI) have had on the advancement of growth in the economy have been highly variable and inconclusive. This is the case despite

the fact that both factors have been shown to have an effect. These conclusions are based on the outcomes of the investigations that have been carried out in this area. This is the inference that one is able to draw in light of the results obtained from this research. The results of the study that was conducted out lend credence to the viewpoint that has been presented here. The phrase "foreign direct investment" is an abbreviation for the term "foreign direct investment," which is a phrase that refers to the money that comes from other nations. The negative relationship that seems to exist between openness to trade, foreign direct investment (FDI), and economic expansion has been the subject of study in a number of research that has been done in an effort to investigate this connection. These studies have been conducted in an effort to learn more about the connection between the three factors. The purpose of conducting these studies was to investigate the nature of the connection between the two. Between the years 2002 and 2017, Bakari and Tiba (2019) did a study in which they examined the relationship of economic growth to globalization, domestic investment, and international investment inflows for a total of 24 Asian states. Their findings were presented in a paper that was published in the academic journal Economics and Business. Their findings were presented in a paper that was published in the academic journal Economics and Business. In particular, they focused their attention on investment on the domestic front as well as investment from other countries. To be more exact, their primary focus is on the years 2002 to 2017, including the current year. All across the course of the inquiry, both fixed and random impact models were applied, depending on the particular aspect being studied. The results of the study indicate that exports as well as direct investment from other countries are making negative contributions to the current trajectory of the economy in ways that cannot be considered positive. According to Belloumi (2014), the ARDL in Tunisia was computed by utilizing data that ranged from 1970 to 2008. The study's findings indicate that there is no statistically significant Granger causality in the short term between FDI, economic growth, or trade and economic growth. These findings are based on the Granger causality test. It was discovered that this was the case for all four of these different relationships. In the meantime, there is a widespread belief that nations that are the recipients of foreign direct investment may experience beneficial spillover externalities as a result of the investments. The results of the empirical study, on the other hand, did not lend support to the hypothesis that FDI could result in beneficial spillover externalities for the nation that hosted the investment. Granger

causality, a fixed effect, and a control set of variables were all utilized in Naveed and Shabbir's (2006) investigation of 23 developed nations from 1971 to 2000 The findings of the study indicate that there is strong proof of an important one-way causal relationship between openness to trade and economic growth and development. This relationship is significant because it only goes in one direction. On the other hand, investments made by foreign direct investors (FDI) have no impact on the growth of the economy.

Research was carried out by Hye and Lau (2015) with the intention of identifying whether or not there is a connection between the extent to which the Indian economy is open to global markets and the rate at which the Indian economy expands. In order to give a theoretical basis for the outcomes of this inquiry, a wholly novel edition of the endogenous growth model was applied. In addition, the autoregressive distributed lag (ARDL) method and the rolling-window regression methods were employed in order to scrutinize the short-run and long-run associations that exist with both market openness and economic boom. Both of these methods were used to look at the short-term and long-term connections between an open market and a booming economy. In order to investigate both the short-term and the long-term relationships that are present, both of these methods were put to use. Both of these methods were utilized in order to explore the short-run and long-run relationships that market openness and economic expansion have with one another. The purpose of this study was to gain a deeper comprehension of the connection that exists between the two. Both of these associations have been shown to be statistically significant, as was proven in the previous sentence. The purpose of this inquiry was to determine which of these groups plays a more significant role in ensuring the prosperity of the economy as a whole. This was the overarching objective of the investigation. Additionally, in order to explore both the short-term and the long-term causal directional linkages, the technique that is widely known as "granger causality" is also utilized. This is done in order to determine whether or not there is a correlation between the two. According to the evidence, one can reach the conclusion that, over the course of a longer period of time, both human capital and real capital have a significant and beneficial connection with the expansion of the economy. This is something that can be deduced from the fact that it is possible to draw this conclusion. On the other hand, the trade openness index demonstrates that there will be long-term effects that will be detrimental to the expansion of the economy. The results of the rolling-window regression revealed

additional empirical data demonstrating that the influence of the trade openness index on economic development is unstable for the entirety of the sample. These findings were discovered as a result of the analysis of the findings of the previous regression. As a consequence of the findings' presentation, the evaluation of the results of the rolling-window regression revealed these research results as a consequence of the analysis. The findings of recent studies have demonstrated that there is an unmistakable link between the trade openness index and the rate of economic expansion over the near term. The trade openness index is connected to this relationship in a straightforward manner. On the other hand, the advantages of this correlation won't become clear for a very long time; this will take place over the course of many years. As a consequence of this, the formation of a positive association that benefits both parties is made feasible. The results of the Granger causality test indicate that both the human capital-led growth hypothesis and the commerce openness-led growth assumption are plausible, both over the short term and over the course of a longer period of time. This holds true both for the short term and for the longer term. This is something to keep in mind both in the short term and the long term. It is important to keep this in mind not only for the immediate future but also for the distant future as well. Remembering this is important not only for the not-too-distant future but also for the more distant future as well. According to the research results of the Granger causality test, both the human capital-led growth hypothesis and the commerce openness-led growth hypothesis are both reasonable explanations for growth in the economy, both in the short term and over the course of the longer term. This is the case for both scenarios. It is important to keep this in mind not only for the immediate future but also for the distant future as well. This is something that needs to be taken into account not only for the not-too-distant years ahead but also for the more near future as well. The results of the Granger causality test indicate that the human capital-led hypothesis and the trade openness-led growth assumption are both reasonable reasons for economic growth, both in the short and medium term and over the course of the longer term. This is the case for both scenarios. This is something that should be kept in mind both for the immediate future and for the distant future. This is something to keep in mind not only for the not too distant future but also for the more immediate future. This is accurate not only in the short term, but also in the more distant future. This is the case both in the near future and in the further future as

well. This is something to keep in mind not only for the not-too-distant future but also for the more immediate future.

In 2015, Muhammad Tahir conducted research on the topic of the link between openness to international trade and the growth of the economy. His findings are presented in this article. The research was conducted to investigate this relationship. The research was conducted to investigate this relationship. The research was focused on the relationship between openness to international commerce and developing countries. His findings were eventually published in the academic journal Open Economies Review. He made the discovery that the two facets are related in some way, which he referred to as a link or connection. His investigation revealed that there is a connection between increased economic openness and increased commercial activity in developing countries. These conclusions were drawn from the findings of his investigation. This correlation is useful, and its significance can be demonstrated through statistical analysis. Both the expansion of the labor force and other variables of economic expansion, such as investment, which both include forecast coefficients and are tightly linked to the expansion of the economy, have a close relationship with one another. This is because both of these phenomena include forecast coefficients and are strongly aligned with the expansion of the economy. This is because both of these phenomena include predicted coefficients and are closely tied to the growth of the economy. Both of these things are connected to one another in a very significant way. A willingness to engage in open commercial activity is one of these additional characteristics that must be present. A number of studies have also demonstrated that long-term price shifts are detrimental to the expansion of the economy.

In their study on the factors that contribute to economic growth, Mohammad Salahuddin and Jeff Gow (2016) used annual time series data for South Africa between the years 1991 and 2013 to conduct their research. Their findings were presented in a paper that was published in the academic journal Economics and Business. The results of their research were provided in a paper that was subsequently published in the peer-reviewed scholarly journal Economics and Business. The primary objective of their study was to determine the factors that were responsible for the expansion of the economy in 2015. They focused on the effects that having access to the internet, an increase in financial resources, and a greater willingness to engage in trade had. They limited their attention to the years 1991 to 2013 and included both of those years in their analysis. The authors' investigation in their research spans a period that begins in

1991 and continues through 2013. This time span is referred to as "the time span covered." In the scope of this investigation, the years 1991 through 2013 are considered relevant years. During the course of their investigation, they looked over records that dated as far back as 1991 and persisted right up until 2013. Utilizing the systemic unit root test, the Johansen and ARDL cointegration tests, and the ARDL cointegration test, in that order, is necessary in order to conduct research on the long-term relationships between the use of the internet and the expansion of the economy, the growth of the financial sector, the openness of trade markets, and the availability of international investment opportunities. As an analytical tool, the systemic unit root test is used to look into the long-term connections between the growth of the financial sector and the use of the internet. . These examinations have been conducted with the purpose of establishing whether there is a connection between the various aspects of the scenario that have been discussed up until this point. Every one of these tests is carried out with the purpose of establishing whether a collection of distinct economic variables is cointegrated. The findings of the ARDL cointegration tests indicate that there is a connection between the variables that has remained stable over a considerable amount of time. This connection has been examined using a number of different statistical methods. According to the findings that were obtained from the computations that were carried out with the assistance of the ARDL, there is a positive association between the use of the internet and economic growth in South Africa over a considerable amount of time. This association has been observed for a number of years. The computations for this project were carried out over the course of several years. An exhaustive investigation that was carried out over the course of time has led to the discovery that there is a connection between these two things. This discovery was made possible by the passage of time. Both the growth of the economy and the expansion of the financial sector exhibit a significant and positive association with one another, as both of these trends are positively correlated. This suggests that the expansion of the economy and the expansion of the financial sector contribute to one another. The correlation between these two factors has been a driving force behind the expansion of the economy. This connection paves the way for my own personal development in a wide variety of different ways. On the other hand, the investigation found that there was not a significant connection between the variables in the short term. This was the conclusion reached by the researchers. The dynamic ordinary least squares (DOLS) estimate method was utilized so that the dependability of the long-

term connection that exists between the variables could be investigated. According to the findings of the Granger causality test, the increased use of the internet and the higher expansion of the financial sector are both Granger-causing variables in the development of South Africa's economy. In addition, the Granger causality test found that an increase in the use of the internet was associated with a higher GDP growth rate. The results of the test allowed for this conclusion to be drawn. Connections between the causes of something and the effects it has. Both the analysis of variance decomposition and the analysis of impulse response have been applied in order to demonstrate that there is a genuine connection between the factors that have led to the occurrence of this phenomenon and the outcomes that have resulted from it. In order to increase the total amount of money that is invested in the expansion of South Africa's Internet infrastructure, it is essential for the government of South Africa to continue enforcing the policies that it has already established. Because of this, it will be feasible for the country to keep expanding both the number of applications that use the internet and its connectivity to the internet. Because of this, the government will be able to continue increasing the amount of time it spends using the internet as well as the size of its network. These suggestions were formulated after initially referring to the findings of the study as discussed earlier and then considering those findings along with other factors. At least throughout the course of history, there has been a direct correlation between expanded opportunities for commercial trade and expanded opportunities for economic development. In spite of the fact that the facts are contradictory and unclear, this is still the case. In spite of the fact that there is evidence to support both the negative and positive impacts of trade policies on economic development, there is a severe lack of material that originates from countries in sub-Saharan Africa. Some of these studies point to the possibility of the existence of a strong link that is mutually beneficially complementary between the accumulation of capital and openness to trade as a means of fostering economic growth. This link would be beneficial to both parties involved. The outcome of this scenario might provide information that is helpful when analyzing trade policy and the rate of economic development in countries that are comparable to one another in a number of ways.

Yaya Keho's (2017) contribution was founded on an in-depth study that he carried out on his own and that produced results that were ambiguous and contradictory concerning the connection between openness to trade and economic development. You can find Yaya Keho's contribution in this section. 2017 was the year that saw the

publication of Yaya Keho's work. The possibility exists that this is the case because the study did not take into account the function that labor and capital stock play in the trade-growth nexus. This study uses a multivariate model that includes capital structure, workforce, and trade openness, as well as regression models, to find out how much trade openness affects a country's rate of economic growth from 1965 to 2014.The aim of this study is to determine the degree to which a nation's opening of commerce has an effect. This investigation is focusing on the years 1965 through 2014 for its period considerations. The period starting in 1965 and continuing all the way up until 2014 is covered by the scope of this study. This investigation makes use of the Toda and Yamamoto Granger causality tests in addition to the autoregressive distributed lag boundaries test for cointegration. Both of these tests are carried out in order to determine whether there is cointegration. In addition to that, a test for cointegration called the autoregressive distributed lag boundaries test is utilized. According to the findings, openness to trade is beneficial to economic development in a way that is beneficial both in the short term and over the long term, and in both cases, the benefits accrue over a longer time period. This suggests that openness to commerce is beneficial to economic development in a way that is positive both in the short term and over the long term. This is due to the fact that economic progress takes place over an extended period of time, which causes the advantages to compound over a longer period of time as well. In addition to this, they demonstrate that there is a significant and positive link between the production of new capital and the openness of trade markets, both of which are essential for the expansion of the economy. The empirical research that Hussain and Haque (2016) carried out by using the time series data that was gathered between 1973 and 2014 will be discussed in the following paragraphs. The information needed for this study was gathered from 1973 all the way up until 2014. The findings of the study indicate that Bangladesh will be in a better position to reap the benefits of enhanced economic growth, increased levels of free trade, and elevated levels of direct investment from other nations. The findings of the research that was conducted by Adegboyega and Odusanya (2014) indicate that there is a significant positive effect that occurs between the degree of trade liberalization and the amount of capital establishment. On the contrary, there is a correlation, albeit a weak one, between the level of foreign direct investment (FDI) and the rate at which gross domestic product (GDP) grows. This is because FDI is a form of international investment. This is due to the fact that FDI is a measurement of the amount of money

that is being invested from outside the nation. In their study, Dutta et al. (2017) investigated the chain of events that led to economic growth as a function of trade openness, overseas investment, domestic investment, and domestic investment over the course of the years 1976–2014. Specifically, they were interested in how economic growth was a function of trade openness, foreign direct investment, and domestic investment. In particular, they concentrated on the ways in which these various factors interacted with one another in order to bring about economic expansion. Their study focused primarily on examining the connection between freer trade and higher rates of economic expansion. The findings of the study indicate that there is a chain of unidirectional causation that runs from domestic investment to trade openness, foreign direct investment to economic growth, and economic growth to trade openness. This chain of causation runs in all three directions. In addition, the study discovered that there was a causal connection operating in both directions between domestic investment and economic growth, as well as between domestic investment and direct investment from other countries. This was true for both domestic investment and direct investment from abroad. During the course of their investigation into the relationship between economic development and trade openness in India, The researchers Ved and Sudesh (2007) came to the conclusion that there is a chain of causality that goes in both directions between economic growth and trade openness indices. This was one of the conclusions that came out of their inquiry into the connection between developing the economy and being more open to commerce in India. The other discovery that came out of their investigation was the same. This fact was revealed as a result of an analysis that was conducted to determine whether or not there is a connection between loosening barriers to commerce and boosting the rate of economic growth in India. According to Acaravc and Oztürk (2012), the findings illustrate both short-term and long-term linkages between exports, growth, and foreign direct investment (FDI) in four of the 10 nations. Specifically, the findings show that. To be more specific.

The researchers Fetahi-Vehapi et al. (2015) demonstrate the Generalized Method of Moments (GMM) estimator by making use of panel datasets that store information from Southeast European (SEE) countries during the course of the years 1996–2012. Their research was subsequently published in the academic publication known as Scientific Reports. In particular, the GMM estimator was utilized in order to study the possible connection between increasing GDP and increasing unemployment rates. According to the conclusions of the study project, the positive effects of free trade on

economic growth are dependent, among other things, upon the level of income per capita that was used as a baseline. This level was utilized as a starting point for the analysis. The researchers came up with this threshold for the level. According to these findings, the positive impacts of trade openness on economic growth are contingent upon the degree to which income per capita already exists in the economy. This is the case regardless of whether or not trade liberalization is implemented. Other factors that might have been important in explaining economic events were also taken into consideration in this study. Before one of these conditions is met, there is no way to know for certain whether or not these two components are intricately linked to each other. Additionally, countries that already have a higher starting level of income per capita stand to benefit the most from trade openness because they are in the best position to begin with. This is because they are in a better position to compete with other nations that do not have as liberal a trade policy. In a similar vein, countries that already have a higher level of foreign direct investment and gross fixed capital formation stand to benefit the most from trade openness because they are in a better position to attract additional investment. This is because countries that already have a higher level of foreign direct investment and gross fixed capital formation have a greater competitive advantage.

Mahmoodi and Mahmoodi (2016), who were also the authors of the paper, were the ones who came up with the idea of panel-VECM causality. They used data spanning the years 1992–2013 from eight developing countries and data spanning the years 1986–2013 from eight Asian nations. Both sets of states were considered developing nations. Both groups of countries are currently engaged in the process of cultivating their own economies. The findings of the research that probed the chain of events that led to the improved efficiency of the economy and fdi in eight European nations illustrated that, in the shorter term, there is a unidirectional causality from fdi and growth to export markets, but that, in the longterm, there is a bidirectional causality both with financial development and economic growth. This was discovered as a result of the fact that the planned and carried the chain of events that led to the improved efficiency of the economy and fdi. In other words, growth in export markets is directly proportional to foreign direct investment as well as economic expansion. The investigation also uncovered the fact that economic growth and investments made by companies based in other countries are reciprocally causal to one another. The purpose of the study was to investigate the chain of happenings that brought about an

increase in both the rate of economic expansion and the amount of FDI. The research was carried out by an organization known as the European Economic and Social Committee. (EESC). This was one of the findings that came out of the research study that looked into the chain of events that led to a faster rate of economic development and an increase in the amount of direct investment from other countries. On the basis of the proof that there is a causal connection between economic growth and FDI that operates in both directions, this conclusion was arrived at. This fact was the primary factor in the development of this conclusion. This was shown to be the case in spite of the fact that there was a causality that ran in both directions between economic growth and FDI. This information came to light as a direct result of the investigation that had been carried out on the relationship that exists between the three factors. The empirical findings from the various countries of Asia indicated a causal relationship acting in both directions between economic growth and exports in the short run. This relationship was seen to operate in both directions in a positive direction. This relationship operated in both directions because exports operated in both directions. In addition to that, there was a two-way street with this relationship. In addition, there is evidence of long-run causation from growth in the economy and exports to foreign direct investment (FDI), as well as proof of long-run causality from growth in the economy and exports to FDI for both of the panels. FDI can be thought of as an indirect kind of investment. Foreign direct investment (FDI) is one way to think of indirect investment. In the long term, this suggests that it is possible to demonstrate the chain of causality in any direction. Researchers Rose et al (2016) investigated the connection that exists between the liberalization of South Africa's trade sector and the growth of the overall economy of the country. Their findings were compiled in a paper that was finished in 2018 and distributed to the public. In order to carry out this body of work, the method of auto regressive lag bound testing (ARDL) was the one that was utilized. ARDL stands for auto-regressive lag. The current investigation, in contrast to a number of earlier studies that have been carried out in the past, makes use of four indicators for trade openness, each of which places an emphasis on a different facet of trade openness. This additional research was conducted in the years prior to this one. Gross domestic product (GDP) is a measure of how open a country is to doing business on a global scale. One way to start figuring out how open a country is to doing business on a global scale is to look at how much of its GDP comes from exports and imports. For the purposes of this particular investigation, the ratio of total trade to GDP was used

as a stand-in for the link between market access and overall economic growth. This was done in order to ensure accurate results. The formula for calculating the ratio was as follows: take the total value of all the goods and services that were traded and divide that number by the GDP. According to the findings of the research conducted, an openness to trade has a beneficial and observable effect on the growth of an economy over a longer period of time. This conclusion was reached after the researchers analyzed the collected data. On the other hand, the actual data that was generated from the other three proxies does not support any of these findings in any way, shape, or form. The application of the trade openness index demonstrates, in accordance with the findings of the research project, that trade liberalization does not contribute to the expansion of the economy. This has been demonstrated to be the case. On the other hand, the research shows that openness to trade is beneficial to economic growth even when only the first three indices of openness are taken into consideration. This is the case even when only the first three indices of openness are taken into consideration. Even when only the first three openness indices are taken into consideration, this is still the case. This is still the case even when only the first three indices of openness are taken into consideration. The results of these studies show that activities that try to make South Africa's trade relationships with other countries less complicated could be good for that country's economy.

Utilizing the internet makes it possible to more easily produce and share decentralized knowledge and ideas in markets where information is used more as an input. This is made possible by the fact that the processes of producing and sharing can be simplified. When using the internet, it is possible to produce and share decentralized ideas and information more easily. This is made possible by the accessibility of the internet. The reason for this is that the internet is a decentralized network of communication and information, which is the primary reason for its existence. In spite of the fact that the internet is increasingly having an influence on nearly all aspects of economic activity on a regular basis, there is an astonishingly small amount of evidence to suggest that the internet has any direct bearing on economic activity. Despite the fact that the internet is having an effect on virtually every aspect of economic activity on a daily basis, this remains the case. Because of the astounding growth that the Internet has seen over the past two decades, which took place over the course of the preceding two decades, there has been a marked improvement in the quality of research into the Internet's myriad of monetary

implications. This improvement has been brought about because of the astonishing growth that the Internet has seen over the last two decades. The internet has had numerous effects on the economy, some of which include an increase in technological productivity, an increase in overseas investment, inflation, issues pertaining to the political economy, challenges with fraud, challenges with democracy and freedom, and the creation of a black economy. These are just some of the many effects that the internet has had on the economy. Recent years have seen a growing number of governments, in both developed and developing nations, come to the conclusion that the Internet presents a significant opportunity for the expansion of economic activity. This insight just recently came to my attention. These governments are beginning their efforts to make use of the opportunities presented by this potential. The governments of a significant number of countries have not too recently put into effect new regulations, which has led to an increase in the number of people who are able to use the internet in nations that have put into effect such limitations. This rise in the number of people who are able to use the internet has led to an increase in the number of people who are able to use the internet. Despite this, South Africa is consistently falling further and further behind other countries in this regard. South Africa has been able to catch up to other economically successful intermediate countries because of an increase in the frequency with which it connects to the internet, which has occurred over the course of the last few years and has witnessed an increase in frequency. This has happened over the course of the last few years and has witnessed an increase in frequency. Daniel et al carried out research in 2016 on the effects of trade and trade facilitation on the growth of the African economy (2017). In order to accomplish this, we make use of three indicators—trade, export-related expenditures, and import-related expenditures—that were developed through the application of principal component analysis in order to evaluate how effective trade facilitation is. Trade, export-related expenditures, and import-related expenses An approach known as dynamic system GMM estimation is utilized whenever an improved growth model is being estimated. By employing exogenous variables, this method solves any endogeneity issues in an effective manner, and as a result, the enhanced growth model can be estimated. These indicators, along with a wide range of other variables that are pertinent to policy considerations, are incorporated as exogenous variables during the process of estimation. This is done in conjunction with a number of other variables.

According to the results, making it easier for people to trade is without a doubt one of the most important ways that international trade helps the economy grow.

According to the findings of the study that was conducted out by Mangir et al. (2017) between the years 1990 and 2015, there is a relationship between the degree to which the population of a country is open to trade and the rate at which that country's economy is growing. This correlation was found to be significant. In this respect, it was determined that the period 1990 and 2015 share a correlation with one another. They used the panel ARDL model in order to verify both the short-run and the long-run effects of their hypothesis (PMG and MG). The results of their research showed that there is a significant connection that exists between openness to commerce and economic progress over the course of a longer period of time. This lends credence to the notion that openness is the primary factor driving economic expansion in the African countries that were investigated for this study.

Saha and Ali (2017) looked into whether or not there was a connection among both total oxidative stress and formed the link between total output (TO) and economic growth in order to identify a connection between a lower level of growth and behaviours of misallocation in MENA countries over the period of 1984–2013. This was done in order to identify a link between a lower phase of economic development and practices of misappropriation. This was done in order to definitively establish a connection between a lower stage of economic growth and practices of embezzlement. put (TO) and economic expansion with the purpose of correctly identifying a connection between a lower level of socioeconomic growth and practices of embezzlement in MENA states during the course of the period 1984–2013. In order to precisely identify a connection between a lower stage of economic growth and practices of embezzlement in MENA nations over the era of 1984–2013, Saha and Ali (2017) investigated the link between total output (TO) and economic expansion. This was done in order to accurately identify a link between a lower level of economic growth and practices of embezzlement. They did this so that they could be sure that there was a link between a slowing economy and embezzlement. This was done in order to establish a connection between a lower stage of economic expansion and fraud practices. This was done in order to properly discover a link between a lower stage of economic development and corrupt practices. This was done for the purpose of identifying a relationship between these two factors. This was done in order to appropriately discover a connection between a lower level of economic development

and practices of corruption. The purpose of this was to determine whether or not there is a connection between the two. This was done with the goal of making the economy in the area better. The results of their research were just recently presented in an academic article titled "Transparency and Accountability in Development," which was published in a journal (TAD). The level of economic growth in each of these countries, as well as their standing in the arena of global trade, are significantly dissimilar from one another and can't be compared to one another at all. In light of this, the purpose of this study was to explore the role that substantial political openness and EG play in connection to measures of political and economic freedom in order to assess the effect that these variables have in reducing instances of fraudulent activity in these countries, which have a wealth of natural resources. This was done with the intention of determining whether or not greater political openness and EG play a role in reducing instances of corrupt behavior in countries that have a wealth of natural resources. They also looked at the effects on different groups within each of these countries, such as those with low, medium, and high incomes.

Khobai et al. (2017) carried out research in Ghana and Nigeria between the years 1980 and 2016 to investigate the connection between openness to trade and long-term economic growth. Their findings were reported in an article that was submitted to and accepted for publication in the academic journal Economic and Cultural Change. Their investigation focused on every aspect of the entire time period that was under examination. In this particular piece of research, the autoregressive distributed lag model, also known as the ARDL model, was used in order to look into the long friendship that exists between the variables. This model is more frequently known as the ARDL model. The ARDL model was utilized in order to do research into this connection. According to the findings of the study, it would appear that there is a connection between the qualities that are outlined for both countries and that this connection is one that has persisted throughout the course of time. In addition, it would appear that there is a relationship between the characteristics that are identified with both countries. The findings also revealed that trade openness has a significant positive effect on economic growth to a significant degree in Ghana, whereas economic growth is negatively impacted by trade liberalization in Nigeria, although the difference is not statistically significant. Trade openness has a significant positive impact on economic growth in Ghana. The opening of new markets is having a substantial and beneficial effect on economic expansion in Ghana. The findings also suggest that an openness to

commercial activity is beneficial to the growth of the Ghanaian economy and contributes positively to its expansion. It is probable that the gap in the outcomes reached by the two countries might be attributable to the fact that, during the course of their separate histories, the authorities of the two countries have adopted differing commercial and economic policies. On the basis of these findings, we are able to arrive at the conclusion that the policies that are put into effect in developing nations have the potential to affect the relationship between economic development and openness in a variety of different ways. This is something that we are able to deduce from the fact that we are able to draw the conclusion that the policies that are put into effect in developing nations.

Wint Thu, A. (2017) conducted an empirical examination of panel data from 1989 to 2015 with the goal of determining whether or not there is a relationship between Myanmar's trade deficit and the rate at which the country's economy is growing. This was done in order to evaluate whether or not there is a strong link between Myanmar's trade deficit and the rate of economic growth in the country. The purpose of this endeavor was to determine whether or not there was such a strong association. The observations in the dataset went as far back as 1989 and went as far forward as 2015 (inclusive). The researcher employed the Johansen co-integration test and the vector error correction model, respectively, in the course of the research into the long-term and short-term relationships that exist between the trade deficit and economic expansion in Myanmar. The purpose of the investigation was to determine whether or not these connections exist. Both of these analyses were conducted using statistical software. The investigation was conducted with the goal of establishing whether or not these connections do in fact exist. The outcomes of both of these examinations have been deemed to have a statistically significant impact as a result. The inquiry into the nature of the link that was handled involved the use of both of these conceptual frameworks at strategic points throughout the period of the research. This was done in order to better understand the nature of the connection. According to the findings of the study, there is a positively significant link between economic growth and trade deficits over a longer period of time. This link exists between economic development and trade deficits. This correlation is valid not only for the United States of America but also for a variety of other nations. This is a relationship that exists between nations that have already established their economies and nations that are still in the process of building their economies. Developed nations and

emerging nations both have this relationship. On the other hand, the data suggest that in the short run, the trade deficit and growth have an inverse relationship. This is the case even though there is a clear link between the trade deficit and growth. When looking at the connection between the trade deficit and economic growth, we find that this is the case. When one takes the results of the research into account, one realizes that this is the situation they find themselves in. On the other hand, the strength of this relationship is minimal, and as a result, it does not have a substantial influence on the result. In addition to imports and exports to GDP ratios, exports to GDP ratios, imports to GDP ratios, and imports and exports to GDP ratios, respectively, these proxies included a combination index.

Mazenda (2014) conducted research on the influence that foreign direct investments (FDI) has on economic growth. The study concentrated specifically on the impact that FDI has had on the South African economy. This particular research endeavour is concentrating on the years 1980 through 2010 as its time frame of study. The Johansen cointegration and the Vector Error Correction Modeling (VECM) framework were utilized as methodologies for the estimation process, respectively. Real gross domestic product (RGDP), foreign direct investment (FDI), "domestic investment" (INVE), "real exchange rate" (REXCH), and "international marketable debt" are some of the parameters that are specified by this method (DEBT). Foreign direct investments (FDI), forex market (REXCH), and debt all have the impact of stifling growth over the course of the progression of an economy from its early stages to its later stages. The growth process is aided in a positive way by INVE's contributions. Both the impulse response analysis and the variance decomposition analysis were utilized in order to supplement the short- and long-term data, respectively. On the basis of these findings, conclusions were drawn and policy recommendations were made.

Sehrawat and Giri (2017) investigate the connection between India's economic growth, trade openness, and financial development between the years 1982 and 2016. The time period under investigation is between 1982 and 2016. Their primary focus is on the 35-year period beginning in 1982 and ending in 2016, which spans the years 1982 to 2016. According to the findings of their research on the variance decomposition, a significant factor that plays into the expansion of national economies is the degree to which countries are open to participating in international trade.

Between the years 1967 and 2012, Parsa and Sajjadi (2017) investigated the correlation that existed between Iran's economic development, energy consumption, and degree of openness to international trade. The years 1967 through 2012 were covered by this study's scope of inquiry. Within the scope of this investigation, the most recent combined co-integration method that Bayer and Hanck had developed (2013) was implemented. Consumption, as well as the degree of openness to international trade. The years 1967 through 2012 were covered by this study's scope of inquiry. Within the scope of this investigation, the most recent combined co-integration method that Bayer and Hanck had developed (2013) was implemented. In order to determine whether or not there was a connection between the three variables that were investigated, the "Vector Error Correction Model" (VECM) was also applied. The purpose of this was to determine whether or not there was a causal connection between the two events. The results of applying the Bayer-Hanck cointegration method indicate that there is, in fact, a connection between the many variables that were taken into consideration. In the short term, there is only a link in one direction between energy consumption and openness to trade, as was discovered when the results of the tests designed to establish a causal relationship between two variables were analyzed. The purpose of these tests was to determine whether or not there is a causal connection between the two parameters. In the long run, the assessment of causality resulted in the finding that there was a bidirectional causal associate between trade openness and energy consumption, as well as between trade openness and economic growth. Additionally, there was a causal affiliation between energy use and economic growth. This was the same outcome that was reached regarding the link between the openness of trade and the amount of energy that was consumed. In addition, this correlation was found to exist with both economic liberalization and the consumption of energy. Additionally, this correlation was discovered to exist between economic liberalization and energy utilization. However, there was only a "Granger causality" in one direction, meaning that economic growth was only correlated with increased trade openness. In addition, the "variance decomposition approach" and "impulse response functions" were utilized in the research in order to adequately describe the dynamics of the interactions in question, which were the basis for the lower energy efficiency. This was done so that a lower energy efficiency could be justified.

Zahonogo (2017) conducted a study into the relationship between openness to trade and economic development in the nations of sub-Saharan Africa. He found a

positive correlation between the two factors. He discovered that there is a link or connection between the two aspects. He was the one who arrived at the conclusion that the two different aspects are related to one another in several way or that there is a connection between them. Utilizing a method of statistics known as the "pooled mean group estimate," which is suitable for making judgments from dynamically heterogeneous panels based on the basis of long-run equilibrium relations. According to the available evidence, there is a trade threshold: below this threshold, higher trade openness has a positive effect on the economy; above this threshold, the trade advantage on development falls. Increasing trade openness below this threshold has an advantageous impact on economic development. This threshold appears to be somewhere between three and five percent of total trade. This threshold appears to be somewhere between three and five percent of a country's gross domestic product. This threshold can be thought of as the point at which the trade benefit of growth begins to decline. This threshold appears to be somewhere between three and five percent of a country's gross domestic product. This threshold is located in the middle of the trade gap between developed and developing countries. Under these circumstances, a higher degree of commercial openness is associated with a positive contribution to the expansion of the overall economy. Under these circumstances, a higher degree of commercial openness is linked to a beneficial contribution to the overall growth of the economy. This is the case because greater commercial openness encourages more business activity. Below this threshold, however, there is a robust connection between increasing trade openness and economic growth; however, there is no clear correlation between widening trade openness and economic growth above this level. Increasing economic growth and opening up more markets for trade go hand in hand. The findings lend credence to the theory that trade liberalization and economic expansion in sub-Saharan Africa (SSA) do not progress in a linear fashion, and they do so by adding support to the hypothesis. This is because the findings show that trade openness and an economic boom in SSA do not occur simultaneously.

Malefane, M. R. (2018) examines how the extent to which tariff barriers are broken down influences the rate of South Africa's economic development. More specifically, the study looks at how trade restrictions affect GDP growth. This investigation makes use of a technique called as autoregressive distributed lag (ARDL) bound testing in order to evaluate the evolving impact that the liberalization of trade has on the expansion of the economy. In contrast to a number of studies that came before it, the

current investigation makes use of four proxies of trade openness, each of which concentrates on a different aspect of trade openness. The percentage of a country's total imports and exports that are depicted by that nation's gross domestic product is the first indicator that can be used to determine the degree to which a nation is open to participating in international trade (GDP). The ratio of a country's exports to its gross domestic product (GDP) is the second proxy, and the ratio of a nation's imports to its GDP is the third proxy. Both ratios are expressed as a percentage of a country's total economic output. The last proximal variable is a factor of trade openness. This indicator takes into account not only the dimensions of the country being tested but also its location. However, the empirical findings that were abstracted from the three other proxies do not support these findings. The results of this research indicate that openness to trade has a significant and positive impact on economic growth over the long term; however, these findings are not supported by the findings. When a ratio of total trade to GDP was used as a proxy, the research indicated that openness to trade has a significant impact on economic growth over the long term. This impact was found to be both beneficial and significant. In the long run, it was discovered that there is a connection between these two things. When utilizing the trade openness index, the analysis demonstrates that trade openness does not have a good influence on economic growth; however, the survey reveals that trade openness does have a beneficial affect on growth in the economy when using the first three proxies of openness. As a result of these results, it appears that the South African economy could benefit from the implementation of policies that encourage participation in international trade.

Pata (2018) investigates the global initiative that took place in Turkey for the years 1974 and 2013, between the nation's GDP per capita, energy consumption, development of the financial sector, and industrialization of the economy. There was a connection between the GDP per capita of Turkey, the consumption of energy, and the industrialization of the country. During the foregoing time period, it was discovered that this links did, in fact, exist in Turkey. This information was revealed. In the long run, the application of the ARDL testing method would lead to an increase in GDP in addition to an increase in energy consumption, economic growth, and positive impacts on CO2 emissions caused by industry. These results would be achieved through a combination of factors. It is anticipated that each of these events will take place concurrently. It is expected that each of these occurrences will take place at the same time.

Using time-series annual data ranging from 1986 to 2018, Islam (2020) conducted research in Bangladesh to study the relationship between rising per capita income, rising earnings from the export of ready-made garments (RMG), and rising levels of foreign direct investment (FDI). The survey spanned the years 1986 all the way up until 2018. They carried out the ARDL-bound test using data that covered the period from 1986 all the way up until 2018. The aggregation of these numbers was made possible through research that was carried out over the course of thirty-two years. According to the conclusions that were drawn from the data of the research project, the amount of money earned from RMG exports had a beneficial impact on EG both in the short run and in the long run of the analysis. This was the case regardless of the scenario one looked at. This was the result that was obtained after carrying out the analysis for a brief amount of time as well as for a considerably longer amount of time. Islam (2021b) discovered, through the use of time-series yearly data spanning the years 1990–2019, the ARDL approach, and an exploration of the TLG hypothesis for Saudi Arabia, that trade openness had shown a positive impact on economic development in the Kingdom both in the long run and in the short run. This was found to be the case both in the long run and in the short run. This was the verdict reached by the research team after looking at the TLG hypothesis. These findings are based on the observation that the degree to which trade barriers are broken down in the Kingdom had a positive effect on the rate of economic growth (EG), both in the long run and in the short run.. Both of these impacts were considered to be beneficial. These conclusions were reached on the basis of the observation that the degree to which trade was open had a positive influence, both in the long run and in the short run, on the rate of economic growth (EG) in the Kingdom. Both of these impacts were considered good. This result was reached due to the fact that trade openness had a positive influence on EG in the Kingdom both in the long run and in the short run. Both of these factors were considered when making this determination. This result was derived from the observation that the degree to which trade was opened up in the Kingdom demonstrated a considerable impact on economic growth. After compiling the findings of this inquiry into a report, which was then given the title "Trade Openness Shows a Huge Impact on Growth of the Economy in Saudi Arabia," the paper was distributed. Following the completion of this investigation, the findings were gathered into a report, which was then given the title "Trade Openness Shows a Positive Impact on Growth of the Economy in Saudi Arabia." [Citation needed] Applying panel data and

a pooled mean group estimate, Islam (2021a) studied the feasibility of applying the TLG hypothesis to the nations of South Asia. This was done in order to test the hypothesis. This was done with the goal of determining whether or not the hypothesis is accurate. An experiment was conducted to test the TLG hypothesis, and one of the things that were tested were explanatory variables such as labor force size and "gross fixed capital creation." The fact that there has been a favorable influence of trade on EG, as indicated by the findings of the research, adds legitimacy to the TLG idea for South Asia.

(Khan et al. 2020). Increasing the proportion of energy that comes from renewable sources brings down CO2 emissions and ensures that Pakistan's economy will continue to grow in a way that is not detrimental to the environment. Saudi 2019) examines the evolution of Malaysia's innovative technology landscape, as well as the country's renewable and nonrenewable energy sources, from 1980 to 2017. This long-term correlation between emission factors and CO2 is confirmed by the ARDL bound testing technique, which also demonstrates a large and positive influence on carbon emissions caused by the use of non-renewable energy and economic growth. (Cit Khan et al. (2019) conducted research to determine the impact that Pakistan's GDP and energy consumption had on the environmental deterioration that occurred within the country between the years 1965 and 2015. Researchers are looking at both the long-term and short-term relationships that exist between economic growth and the use of coal, oil, and natural gas in order to figure out whether or not the ARDL will have a positive impact on the environment. This will allow them to determine whether or not the ARDL will be beneficial to the environment. Utilizing traditional energy sources in the context of today's energy needs is part of research being conducted in Pakistan to investigate environmental degradation. The results of the research are summarized in this section. Munir and Riaz (2019) investigate the nonlinear effect on CO2 emissions in South Asian nations by using annual panel data for energy consumption ranging from 1985 to 2017. More specifically, the authors look at the amount of crude oil, coal, and electricity that was consumed during that time period. In addition to this, in order to evaluate both the long-term and the short-term associations, they use a panel based on the nonlinear ARDL methodology. This research was published in the journal Environmental Research Letters. For the purpose of this study, annual panel data on energy consumption were collected for South Asian countries starting in 1985 and continuing through 2017. These conclusions are based on data from the 1985–2017

yearly panel for energy usage, which was gathered from 1985–2017. The data used to compile this panel was collected from 1985 through 2017. The information that was compiled for this panel was gathered from 1985 all the way up until 2017. The findings point to a long-term, nonlinear link between carbon emissions from coal and energy production in South Asia. This link is likely to have an indirect relationship. Granger's theory of causality states that CO2 emissions and overall energy consumption both cause one another in both forward and backward directions. On the other hand, there is a chain of causation that moves in only one direction, and it can be followed all the way from CO2 emissions to the consumption of both positive and negative gases, as well as the use of coal. The researchers examined the link that is presently available between energy consumption, economic boom, and CO2 emissions in the research that was carried out for the article that was authored by Balcilar et al. (2018). The paper was published by Balcilar et al. (2018). According to the findings, it was necessary to give up a number of economic activities in order to restrict consumption of non-renewable energy in nations such as Italy, the United States of America, Japan, and Canada. These countries include Canada, the United States of America, and Japan. Countries such as Canada, the United States of America, and Japan are included in this category. This was proven by the fact that all of these countries have economies that are comparable to one another and are therefore in the same ballpark. On the other hand, it demonstrated to nations like Germany, the United States of America, Canada, Japan, and the United Kingdom that the environment was worthy of environmentally supporting itself on its own without any assistance from people. This was a significant development. In order to investigate the connection between oil consumption, economic expansion, and the worsening of the natural environment in three Asian countries between the years 1980 and 2013, Saboori et al. (2017) used the Johansen cointegration test as a method for assessing the variability of their research. This was done by examining the link between oil consumption, economic growth, and the deterioration of the natural environment. They did this research in order to determine whether or not there was a correlation between these three factors. The authors of this study investigated whether or not there was a connection between these elements by looking at their relationship and determining whether or not there was a correlation between them. According to the findings of the research, systematic causation shifts from energy to growth in China and Japan, whereas in South Korea, oil consumption is the primary driver of carbon dioxide emissions. Because of the results, this was

found to be the case. (Zhang and Cheng, 2009) In order to investigate the relationship in China between rising economic output, rising energy consumption, and rising carbon emissions, a multivariate model was utilized. The Granger unidirectional causality model identifies the gross domestic product (GDP), consumption of energy, and emissions of carbon as the three factors that contribute to the model's outcomes. There is more and more evidence that neither the production of carbon emissions nor the use of energy are the main causes of economic growth.

(Dong et al. 2020) Establish whether or not there is a correlation between the types of industries that are present in a country, the rate at which that country's economy is expanding, and the amount of carbon dioxide that is generated into the atmosphere by that country. If there is a correlation, then the goal of this research is to find out whether or not there is a correlation between these three factors. The findings of the research show that there is, over the course of a considerable amount of time, a symmetry between an improvement, the expansion of the economy, and the emissions of carbon by industrial systems. The fact that there is a correlation between these three parameters lends credence to the symmetry that has been described. The end product of industrial processes often possesses a stronger capacity to positively contribute to the expansion of the economy. This is because industrial processes tend to produce goods and services that are in high demand. The growth of the economy and the number of industrial buildings have both had a favorable effect on carbon emissions, which has led to a reduction in overall emissions as a result of the interaction of these two factors.

The investigation into the variables that contribute to the growth of Nigeria's economy that was carried out by Emehelu focused specifically on the impact that global trade has had on the state of the country's economy since the year 2021. The researchers looked into the information that was provided in the statistics bulletin, which is a yearly report that has been distributed for the past 37 years by the Central Bank of Nigeria (CBN) and the National Bureau of Statistics. The researchers looked into the data that was provided in the statistics bulletin. Examining the data that was presented in the statistical bulletin was the method that the researchers used to carry out their investigation. They carried out their statistical investigation using a technique referred to as the ordinary least squares (OLS) method (1981–2018). According to the results of the study, there is a correlation, albeit a weak one, between the expansion of a country’s economic growth and the rate at which its currency is exchanged for the

finances of other nations. However, this correlation is not directly proportional to the growth of the economy. However, the strength of the correlation is dependent on the level of economic growth in the country. Nevertheless, the strength of this correlation is insufficient for it to be recognized as causal. On the other hand, certain trade agreements in Nigeria have been regarded as being detrimental to the expansion of the Nigerian economy because they have a significant impact, both in a negative and unfavorable direction, on the rate at which the GDP is growing. This is the primary reason why this view has been held. This is because the policies in question have a direct impact on the rate at which the GDP is expanding. It is important to remember that the vast majority of economists agree with this point of view.

Yusuf et al. (2020) did a supplementary study to evaluate how the presence of international trade influences the expansion of the Nigerian economy. It is planned that the results of this study will be made available to the general public in the year 2020. They used the dynamic ordinary least square (DOLS) technique of multiple regression analysis in order to estimate the data that was obtained from the statistics bulletin that was published by the Central Bank of Nigeria between the years 1980 and 2018. This allowed them to obtain a more accurate representation of the information. This technique was utilized in order to provide an approximation of the data that was obtained. This necessary step needed to be completed before arriving at a conclusion based on the data. With the exception of the currency exchange rate, it was discovered that each of the explanation factors had a favorable relationship to the growth of the economy. Even so, it was found that the relationship between the exchange rate and the growth of the economy goes in a negative direction.

Yimer (2022) adopts an analytical categorization of African economies into fragile, factor-driven, and investment-driven. It also takes into consideration interaction effects and the issue of cross-sectional dependency, which prior research neglected. While the long-run influence of FDI on GDP is large in investment- and factor-driven countries, the short-run effect is negligible in the latter. However, the impact of FDI on growth in the fragile group is negligible in both the short and long term.

CHAPTER III

Data and Methodology

Introduction

This part is mostly concerned with answering the questions of how we get our data, where we obtain it, and how long this study will take. In this section, we also explain the tests and variables that we utilized for our study of this thesis. In addition, we discuss the variables that we employed. In the last step of this process, we will talk about the model specification and construct the equation that illustrates the link between the variables that are dependent and those that are independent.

Data

We obtained the secondary data that we needed for this study from the World Bank Data Site. The data that we utilized covered the research period of 1990–2020. The majority of research initiatives depend on two distinct types of data in order to arrive at their final findings: theoretical knowledge and data analysis, which is often used in order to arrive at those conclusions. The author of this research went about things in precisely the same way as the author of the earlier study. It is necessary to use the World Bank Data Center as a resource in order to get quantitative data for a wide range of components and factors.

Variables

GDP growth: There are no exceptions, and the discipline of economics is not one of them. The language used by economists frequently makes extensive use of abbreviations. Abbreviations like GDP, which stands for "gross domestic product," are prevalent in the jargon used by economists. One of the most often used indicators of economic health is the gross domestic product, or GDP. It is often referenced in publications such as newspapers and television news programmes, as well as in reports compiled by governments, central banks, and members of the corporate sector. It is now often used as a benchmark for assessing the state of economies on both a national and international scale. Workers and firms are often in a better financial position when there is an increase in GDP, particularly in the event that there is no concern over inflation.

Real Effective Exchange Rate: The effective exchange rate of a monetary zone is the sum total of the exchange rates that it upholds with all of its different trading partners

and competitors. The real effective exchange rate is the same as the nominal effective exchange rate. To determine what the nominal effective exchange rate is, one must use the nominal elements of the exchange rate and ignore any changes that may have taken place in the relative purchasing power of the two currencies. This is because the calculation of the nominal effective exchange rate uses the nominal components of the exchange rate. The real effective exchange rate, on the other hand, takes into account price indices and the way in which they shift over the course of time.

Net Trade: The difference that occurs between the overall value of the goods and services that are imported and the actual value of the products and services that are exported is referred to as the "net trade balance," and it is measured in terms of dollars. You may calculate this difference by deducting the value of the products and services exported from the value of services and goods imported. This will give you the difference. When the total value of a country's exports is greater than the total value of the nation's imports, the nation is said to have a trade surplus, which is also referred to as having a positive trade balance. This occurs when a nation's exports are valued higher than the total worth of the country's imports. On the other hand, a nation is said to have a shortfall, which is also referred to as a negative trade balance, when the value of that nation's total imports is higher than the value of that nation's entire exports. This happens when the total value of a country's imports is higher than the total value of its exports. As of the year 2016, there are approximately 60 countries out of a total of 200 that have a trade surplus. Nobody who works in international trade or economics subscribes to the view that trade deficits are inherently undesirable, and those who do are unanimous in their opposition to this view.

Inflation: When discussing economics, the word "inflation" refers to an overall and pervasive rise in the prices of goods and services throughout the totality of the economy as a whole (2014). Inflation can be thought of as a downturn in the purchasing power of money because it demonstrates that one unit of currency may be used to buy fewer goods and services when there is an overall increase in the price level in general. The Icelandic Central Bank makes this information available to the public (2008). The opposite of inflation is deflation, which manifests itself as a general fall in prices across the board for all goods and services. Deflation is an illustration. The basic metric that is utilized in the analysis of inflation is known as the inflation rate. This metric can be defined as the annualized percent change in an overall price index. Mankiw (2002), pp. 22–32.

The consumer price index, often known as the CPI, is frequently used for this purpose since prices do not all grow at the same pace. In the United States, salaries are also determined with the use of the employment cost index. The vast majority of economists are of the opinion that persistently excessive expansion in the money supply is the root cause of high levels of inflation as well as hyperinflation, both of which may have profoundly destabilizing impacts on the current economy. Vittorio Grilli and Robert Barro (1994).

Foreign Direct Investment (FDI): A foreign direct investment is an investment that is made by an organization that is headquartered in another nation but purchases a controlling ownership stake in a company that is located in the first nation. This type of investment is known as a cross-border investment (FDI). This type of investment is distinguished from one that is made in an overseas portfolio by the principle of direct control, which is vested in the investor. The definition of "foreign direct investment" does not take into account where the investment came from. It is possible to make an investment either "inorganically" by buying a business in the nation or "organically" by growing the operations of an established company already located in that country. Both of these options are considered "investments." The concept of FDI is not changed in any way by either of these two approaches. The term "foreign direct investment" refers to the inflows of funding that are made with the specific intent of acquiring a long-term management interest in a business that is active in an economy that is distinct from that of the investor. This interest is defined as ten percent or more of the enterprise's voting stock. In the context of the balance of payments, it refers to the aggregate of equity capital, reinvestment of earnings, other long-term capital, and short-term capital. Reinvestment of revenue and other kinds of long-term capital are two examples of alternative forms of capital. This series illustrates the net inflows that overseas companies have made into the economy that is reporting them, which are calculated by subtracting the new investment inflows from the disinvestment inflows. It is then broken down by GDP.

The Important of Net Trade: The difference between the value of a nation's exports and the value of its imports over the course of a set period is described as the balance of trade (BOT), which is an alternative name for the trade balance in a variety of settings. Both as a part of a country's total balance of payments and as an indicator of the condition of a country's commercial activity, the balance of trade is a crucial indicator. This is because the balance of trade serves as an indication of the state of a

nation's commercial activity. When the balance of trade reveals a positive figure, a nation is said to have a trade surplus; on the other hand, a nation is said to have a trade deficit when the balance of trade reveals a negative number. A trade imbalance occurs when a nation's total annual imports of products exceed its total annual exports of those same products. On the other hand, a trade surplus is realized by a nation whenever it is able to export more items than it brings into the country Adithya (2022).

The surplus or deficit in trade that is shown by a country's balance of trade is not a reliable indication of the state of the country's economy; yet, the balance of trade is still an important indicator. Many people are under the impression that a trade surplus indicates a healthy economy, while a trade deficit indicates an economy that is in decline. However, this is not the case at all.

Many nations are in the same situation as the United States of America, which is that they consistently have a trade imbalance because they export many goods. This in no way indicates that the economy is struggling. The impacts of the trade balance on the economy are not dependent on the trade surplus or trade deficit but rather on a large number of other elements of the nations' economies, such as trade policy, the magnitude of the trade imbalance, and the length of a positive or negative trade balance. The magnitude of the trade deficit has an effect on the composition of the labor force, not just across industries but also, given the economic geography of the United States, across regions. The economy of the United States is not comprised entirely of service-based sectors. There are areas of the nation that are more dependent on the manufacture of commodities than others are. In addition, a bad shock in one place can have effects that last for a long time: companies close down and the skills needed in that industry become outdated (link).

The balance of trade, often known as the BOT, may only reveal the trade balance of the nation; it is not sufficient on its own to tell whether the economy of the country is strong or weak Brad W. Setser (2017).

Model Specification

The process of choosing which variables will be included in a model is referred to as the model specification (MacCallum, 1995). In the process of model definition, there is a conflict between the desire to include all-important variables and the need to conserve statistical power. In order to produce models that are both as precise and as simple as is humanly feasible, varieties of techniques for specifying models have been

created. The use of p-values is the approach that is most often used in DBER, while information criterion is the way that is most frequently utilized by data scientists. In most cases, the p-value technique results in models that are simpler, in the sense that they include fewer variables. The research questions that can be answered and the conclusions that can be drawn from them are determined by the variables that are included in a model. As an example, in order to analyze the connection between international trade and economic growth, we will be using a mathematical model called a multiple regression model. This is how the model works:

$$Economic\ Growth = \beta 0 + \beta 1NT + \beta 2FDI + \beta 3REER + \beta 4INF + \mu$$

Where:

Economic Growth = GDP growth

NT= Net Trade

FDI= Foreign direct investment

REER = Real effective exchange rate

INF = Inflation

μ *= Error Term*

$\beta 0$ *= Intercept*

$\beta 1$ *=coefficient of net trade*

$\beta 2$ *= Coefficient of foreign direct investment*

$\beta 3$ *= Coefficient of real effective rate*

$\beta 4$ *= Coefficient of inflation*

According to the aforementioned model, NT, FDI, REER, and INF. determine GDP growth.

Descriptive Statistic

Descriptive statistics can be considered as concise and helpful coefficients that explain the data collection at hand. A given data collection may be a representation of an entire population, or it may only be a sample of that population. There are a few different names for descriptive statistics, including "descriptive data" and "descriptive indices." Some of these titles are more common than others. There are two subcategories that may be found within the statistical category that is referred to as "descriptive statistics. Measures of core tendency and measurements of variability are the names given to the two groups that fall under this heading (spread). The standard deviation, the variance, the kurtosis, and the skewness, as well as the minimum and

maximum values of the variable in question, are all examples of measures of variability. Other measures of variability include the range of possible values for the variable. Informational coefficients that have been condensed and that refer to a process are known as descriptive statistics. It's possible that this procedure will be a description of the complete population, or it might be a sample picked from that larger group. There are a few different names for descriptive statistics, including "descriptive data" and "descriptive indices." Some of these titles are more common than others. The average, the median, and the most common example are just three of the ways in which central tendency can be measured. Other methods include the mode and the median. A few instances of measurements of variability also include standard deviation, the variance, the kurtosis, and the skewness, in addition to the minimum and maximum values of the variable in question. Other examples of measurements of variability include the range of values for the variable. Within the realm of statistics, the word "descriptive statistics" serves as an umbrella term that encompasses a number of subfields, two of which are known as "measures of central tendency" and "measures of variability" (spread). The average, the median, and the most common example are just three of the ways in which central tendency can be measured. Other methods include the mode and the median. On the other hand, the variables that make up the standard deviation, variance, minimum and maximum variables, kurtosis, and skewness are the ones that make up the measurements of variability. All of these are presented in the table below. In conclusion, descriptive statistics are utilized to clearly outline and comprehend the characteristics of a specific data set by providing a succinct summarization of the data set's samples as well as its measurements. These summaries are provided in order to aid in the process of defining and comprehending the characteristics of the data set. The most well-known types of descriptive statistics are those that measure the center of a distribution. These measures, which include the mean, the median, and the mode, are utilized almost universally across all educational levels of mathematics and statistics. Adam Hayes (2022)

Stationary Test

The unit root analysis is something that needs to be done first before any kind of estimation can be made. This is because the vast majority of macroeconomic variables follow trends and are non-stationary for the most part of the time (Wadad, 2011; Asterious & Hall, 2009). In the discipline of statistics, a type of test known as a

unit root test is utilized to evaluate the extent to which a time series parameter is non-stationary and to determine whether or not the variable in question possesses a unit root. This can be accomplished by comparing the outcomes of the test to a reference point that has already established. Although it is normal practice to describe to the presence of a unit root as the "null hypothesis," the alternative hypothesis is usually referred to either as "stationarity," "trend stationarity," or "explosive root," based on the specific test that is being carried out. It is common procedure to refer to the existence of a unit root as the "null hypothesis," despite the fact that it is standard procedure to relate to the presence of a unit root as the "null hypothesis." The term "the presence of a unit root" is used to refer to the null hypothesis, while the term "stationarity" is used to refer to the alternative hypothesis. The vast majority of the time, the unit root test procedure operates under the assumption that the time series under consideration is one that can be examined statistically.

$[yt]^T$ can be as, $y_t = D_t + Z_t + \mathcal{E}_t$

D_t = *is the deterministic component (trend, seasonal component, etc.)*

Z_t = *is the stochastic component.*

$\mathcal{E}_t$ = *is the stationary error process.*

ADF Unit Test

In the fields of statistical analysis and econometrics, a test known as an augmented Dickey-Fuller test, more commonly abbreviated as an ADF, is utilized to examine the validity of the null hypothesis, which states that a time series sample possesses a unit root. The acronym ADF is what most people use when referring to this test. However, in the overwhelming majority of instances, the second hypothesis will either be stationarity or trend-stationarity. Trend-stationarity is a combination of the two. There is a chance that the alternative hypothesis will be entirely dependant on which version of the test is carried out; on the other hand, there is also a chance that the second hypothesis will be the same. It is an improved version of the Dickey-Fuller test that can be used on a greater variety of time series models that call for a more in-depth investigation. These models include:. These models include: The augmented Dickey-Fuller (ADF) statistic that was applied in the test gave a negative result when it was calculated. The more strongly one disagrees with the premise that there is a unit root while maintaining a particular level of confidence, the more unfavorable the

result. "A dictionary of terms used in economics" The content was obtained from the archive on March 2, 2009.

The Dickey-Fuller test is used in the field of statistics to examine the null hypothesis. This is done by testing whether or not an autoregressive time series model comprises a unit root. It is possible for the alternative hypothesis to vary depending on the version of the test that is performed; nevertheless, in the majority of instances, the alternative hypothesis will either be stationarity or trend-stationarity. Two statisticians named David Dickey and Wayne Fuller were responsible for developing the test in 1979, and they are recognized for their contributions by having their names linked to it. Both W. A. Fuller and A. Fuller were (1979).

ARDL Bound Test

The ARDL model's analysis approach kicks off with a test for cointegration as the very first step in its progression through the steps. To carry out this test, one might make use of the Wald test, which is intended to test the "null hypothesis" that there is no co-integration occurring in the data. This "null hypothesis" states that there is no co-integration taking place in the data. According to this "null hypothesis," the data do not exhibit any signs of co-integration. The joint F-statistic is the primary factor that determines the outcome of the bound test. The asymptotic distribution of the joint F-statistic deviates from the norm when the null hypothesis, which argues that there is no cointegration, is present. The null hypothesis states that there is no cointegration. The ARDL-limits approach kicks off with the estimation of the equations that are involved. This is accomplished by the use of the method of least squares ordinary (OLS). Throughout the process of estimating the equations, a test is carried out to determine whether or not it is important to consider the combined importance of the coefficients of the lag thresholds of the variables. This examination is known as a "F-test," and its name originates from an abbreviation that stands for the letter F. This test's objective is to establish whether or not the variables are linked in a fashion that remains stable throughout the course of time.

Residual Diagnostic and Stability Tests

The Breusch-Godfrey serial correlation LM test is used to assess the probability of autocorrelation as a consequence of mistakes in the regression model. The residuals that were generated by the model that is being discussed right now are

utilized in a regression analysis in order to construct a test statistic. This model is being analyzed. According to the proposition known as the null hypothesis, there is no serial link up to rank p. This results in a concentration of volatility. Normality tests are used to assess whether or not a set of data can be presented by a normal distribution and to figure out the likelihood that a linked random variable is also normally distributed. Normality tests are also used to determine the likelihood that a set of data can be sufficiently described by a normal distribution. It is also possible to employ normality tests in order to ascertain whether or not a normal distribution is capable of effectively describing a collection of data. Serial correlation using the Breusch-Godfrey method The LM test investigates the possibility of autocorrelation in the mistakes produced by regression models. During a regression analysis, it determines a test statistic by computing it with the help of the residuals from the modeling that is being considered. As far as the null hypothesis is concerned, there is no evidence of a sequential connection up to rank p. When conducting regression analysis or an analysis of variance, the presence of heteroscedasticity is a significant issue that needs to be resolved. This is because the presence of heteroscedasticity renders statistical significance tests meaningless because they assume that all modeling errors have the same variance. When there is heteroscedasticity, the ordinary least squares estimator can still be considered reasonable; however, it is not as excellent as the generalized least squares approach, which is why it is recommended that you use that method instead. A normality test can be used to find out if a normal distribution is a good way to classify a set of data or to find out how likely it is that a random variable linked to another variable also follows a normal distribution. It is also possible to apply normality tests in order to determine whether or not a gathered information can be satisfactorily classified by a normal distribution.

In a model of multiple linear regression of this type, the Cusum tests are utilized in order to establish whether or not the coefficients in the model are stable. $y = \beta X + \varepsilon$. The conclusion is reached by iteratively deriving a sequence of sums or sums of squares of recursive residuals. These residuals represent standardized one-step-ahead prediction errors. Ultimately, this leads to the conclusion. These residuals are computed using nested data subsamples as their source. The null hypothesis of coefficient stability claims that the structure of a model has changed over the course of time and must be rejected if the variables in a sequence fall outside of a specified range. This means that the null hypothesis cannot be accepted.

CHAPTER IV

Results and Discussion

Introduction

This chapter presents the results of the empirical analysis as well as an interpretation of those results. This section of the research is broken up into four parts: the first part discusses the descriptive statistic; the second part discusses the stationarity of our variables; the third part discusses the results of the bound test as well as both the long and short run ARDL tests; and the fourth part discusses the residual diagnostic tests as well as the CUSUM and CUSUM of square tests that were run to determine the significance level of the relationship between every single one of these tests when EViews was utilized.

Descriptive Statistic

Table 1.1: Descriptive Statistics

	GDP	*FDI*	*INF*	*NT*	*REER*
Mean	*1.957280*	*1.117547*	*8.019217*	*1.58E+09*	*98.36616*
Media	*2.485468*	*0.884902*	*6.952172*	*2.04E+09*	*98.52273*
Maximum	*5.603806*	*5.368357*	*15.65452*	*1.51E+09*	*134.0901*
Minimum	*-6.431975*	*-0.060074*	*3.956474*	*-8.51E+09*	*70.44163*
Std. Dev	*2.506644*	*1.125981*	*3.269165*	*4.75E+09*	*19.36987*
Skewness	*-1.228622*	*1.948247*	*1.107846*	*0.06713*	*0.333067*
Kurtosis	*5.289498*	*7.676865*	*3.208598*	*3.851719*	*1.953482*
Jarque Bara	*14.56980*	*47.86365*	*6.397374*	*0.956053*	*1.987793*
Prob.	*0.000686*	*0.0000*	*0.040186*	*0.620006*	*0.370132*
Sum	*60.67569*	*34.64394*	*248.5957*	*4.90E+10*	*3049.351*
Sum Sq Dev	*188.4979*	*38.03500*	*320.6232*	*6.76E+10*	*11255.76*
Observation	*31*	*31*	*31*	*31*	*31*

Source: (E-Views 12 Author's Computation)

Based on the data and time period investigated, the mean for net trade according to table 4.1 is projected to be 1.58E+09. GDP growth, on the other hand, is estimated to be 1.957280. Studies show that the highest real exchange rate is 134.0901. This is an impressive figure for a country that belongs to this category. Especially when weighed

against past findings, the descriptive statistics on FDI for the timeframe examined for the investigation, 1990–2020, are quite excellent. The average yearly rate of FDI during the last 31 years has been 1.117547. Consequently, this period is historically significant. The second item to examine is FDI, which is quite important. Foreign investment is often seen as a stimulant for South African investment and economic development. Since 1996, the Growth, Employment, and Redistribution Strategy and other government statements have talked about how important FDI is for growth.

Unit Root Test

Table 2.1: Unit Root Test

ADF unit root test without trend and with trend						
	Constant without trend			***Constant with trend***		
Variable	*Level*	*1st difference*	*Order of integration*	*Level*	*1st difference*	*Order of integration*
GDP	*0.5378*	*0.0015*	*I (1)*	*0.1544*	*0.0001*	*I (1)*
FDI	*0.0005*	*-*	*I (0)*	*0.0000*	*-*	*I (0)*
INF	*0.1197*	*0.0000*	*I (1)*	*0.0175*	*0.0000*	*I (1)*
NT	*0.4677*	*0.0401*	*I (1)*	*0.1197*	*0.0048*	*I (1)*
REER	*0.6960*	*0.0008*	*I (1)*	*0.2736*	*0.0001*	*I (1)*
Philips-Perron unit root test without trend and with trend						
	Constant without trend			***Constant with trend***		
Variable	*Level*	*1st difference*	*Order of integration*	*Level*	*1st difference*	*Order of integration*
GDP	*0.5532*	*0.0031*	*I (1)*	*0.0699*	*0.0000*	*I (1)*
FDI	*0.0005*	*-*	*I 0)*	*0.0000*	*-*	*I (0)*
INF	*0.1102*	*0.0000*	*I (1)*	*0.0175*	*0.0000*	*I (1)*
NT	*0.1096*	*0.0000*	*I (1)*	*0.1620*	*0.0040*	*I (1)*
REER	*0.8521*	*0.0000*	*I (1)*	*0.2736*	*0.0001*	*I (1)*

Source: E-Views 12 Author's Computation)

Prior to any estimate, the unit root test is performed since the majority of macroeconomic variables are trending and are generally non-stationary (Wadad, 2011; Asterious & Hall, 2009). The unit root test is applied using the ADF and PP tests, and the results are shown in table 4.2 above for both levels and the first difference The

results for the ADF test indicate that four of our variables—GDP, inflation, net trade, and exchange rate—were stationary at first difference, with p values of 0.0001, 0.0000, 0.0048, and 0.0008 respectively, and that only one of our variables—FDI—was stationary at level, with a p value of 0.0005. For the same four variables that were stationary at first difference for the PP unit root, GDP, Inflation, Net trade, and exchange rate, with p values of 0.0001, 0.0000, 0.0000, and 0.0000, respectively, only FDI was stationary at level with a p value of 0.0005.

ARDL Bound Test

In addition, in order to determine whether or not the cointegrated variables or have an equilibrium connection in the long run, we made application of the recently invented ARDL (Auto Regressive Distributed Lag) bound testing concept. This methodology allowed us to determine whether or not the variables are cointegrated. Pesaran and Shin (1999) as well as Pesaran themselves came up with this methodology. Moreover, in order to assess whether or not the variables are cointegrated or have an equilibrium connection in the long run, we utilized the recently developed ARDL (Auto Regressive Distributed Lag). et al. (2000). This method was created by Pesaran and Shin (2001). In order to accomplish this goal, the AIC criteria are applied to the problem of determining the ideal lag duration. The ARDL model system has many benefits over traditional techniques, including being more flexible, being able to be used with I (0) or I (I) variables, being able to be used comfortably with small samples, and offering us an unbiased estimation of long-run relationships and long-run parameters. In addition, the ARDL model technique has several advantages over traditional techniques (Harris and Sollis, 2003).

Bond Test

Table 3.1: Bond Test

Model	*Lag.*	*F-Statistic*	*Decision*
GDP, NT, REER, INF, FDI	*(3,4,2,4,4)*	*5.036859****	*Co-Integration Exist*
Bond Value	*Critical*		

		I (0)	I (1)
Sign.	*10%*	*1.9*	*3.01*
	5%	*2.26*	*3.48*
	2.5%	*2.62*	*3.9*
	1%	*3.07*	*4.44*

Source: (E-Views 12 Author's Computation)

Table 4.3 displays the ARDL estimations of F statistics that were performed. This number is compared to the upper and lower limit crucial values provided by Saran and Narayan to determine whether or not there is cointegration. Pesaran and Naranyan kindly offered us the use of their tables, which we gladly accepted. Narayan's important values are more appropriate for small samples. The critical values are expressed in terms of an upper bound of I (1), and a lower bound of I (0). The top bound assumes that all of the variables are of order 1, while the lower bound assumes that all of the variables are of order 0. If the obtained F statistics are lower than the I (0) values, then it is determined that there is no cointegration; on the other hand, if the F statistics are higher than the I (1) values, then it is deduced that there is cointegration. On the other hand, if the f statistics are somewhere in between these two values, the conclusions are inconclusive, and we will have to rely on a different cointegration method. According to the findings of the tests, the F statistics in our case are much higher than the permissible maximum at all significant levels. As a consequence of this, the variables are cointegrated, and they all share a connection to the long-term equilibrium state

ARDL Long Run

***Table* 4.1 ARDL Long Run**

Variables	*Coefficient*	*Prob.*
FDI	*-2.0047*	*0.0384*
INF	*1.235*	*0.018*
REER	*-0.037480*	*0.0185*
NT	*-7.05*	*0.005*

Source: (E-Views 12 Author's Computation)

The long run test result demonstrates a long-term link between the dependent and independent variables according table 4.4. Net trade is statistically important (p =

0.005), but it hurts South Africa's economic growth. For every 1% increase in net trade, GDP growth slows by -7.05%. This finding is consistent with the findings of Sakaria Angula Kalumbu's (2014) research, which examines the variables that contribute to changes in terms of trade and the effect of such changes on Namibia's economic development. In this study, the years 1980 through 2012 were analyzed using a vector auto-regression model and various time-series approaches. These methods included unit root, Granger causality, co-integration, and impulse response functions. Findings indicated a negative association between trade terms and economic progress when applied to the case of Namibia. In addition, there is a relationship of causality that runs in just one direction between economic growth and terms of trade.

It has been determined by Qaiser Munir and Kasim Mansur that an inflation rate of 5% is statistically significant, and its p value is 1.235. Furthermore, inflation has been beneficial to the expansion of the South African economy (2009). From 1970 to 2005, the authors of this study investigated how the rate of inflation in Malaysia relates to the country's overall pace of economic growth. The time period covered is from 1970 to 2005. The topic of the Malaysian inflation rate that is considered acceptable by the government is investigated in this study. According to the available statistics, Malaysia has a single threshold value for inflation. The results of this study led to the conclusion that the link between inflation and economic development is nonlinear. This conclusion is supported by the findings of the research. According to the threshold regression model that was built, the current inflation rate is of 3.89% is the point at which inflation begins to significantly limit the development of GDP. In addition, there is a positive correlation that can be statistically proven to exist between the inflation rate and growth that is below the threshold level. If there are no supply shocks, the gross domestic product (GDP) will be equivalent to its potential, the unemployment rate will be equivalent to the non-accelerating inflation rate of unemployment (NAIRU), and the inflation rate will remain unchanged. The idea that the Phillips curve ought to be vertical in the long run is one that is advocated for by Neo-Keynesians, who hold the perspective that this ought to be the case. On the other hand, the actual effective exchange rate has a negative influence that slows down the expansion of the South African economy. This is a direct result of the negative impact that the exchange rate has. It has a p value of 0.0185, which indicates that it is significant in terms of statistical analysis. Foreign direct investments are substantial but have a dampening influence on the rate of economic expansion in South Africa. This finding is consistent

with the findings of the studies that Mazenda (2014) carried out on the foreign direct investment's impact on the advancement of economic growth, with a specific concentration on the economy of South Africa. The years 1980 through 2010 are the focus of this particular research endeavor. Estimation strategies included the use of the Johansen cointegration and the Vector Error Correction Modeling (VECM) framework. The method specifies variables like "real gross domestic product" (RGDP), "foreign direct investment" (FDI), "domestic investment" (INVE), "real exchange rate" (REXCH), and "foreign marketable debt" (DEBT). During the course of a nation's economic development, foreign direct investment (FDI), foreign exchange (REXCH), and debt all have the effect of stifling growth. The growth process is aided in a positive way by INVE's contributions. Both the impulse response analysis and the variance decomposition were utilized in order to supplement the long-run data and the short-run data, respectively. These findings were utilized so that conclusions could be drawn and potential policies could be suggested.

ARDL Short Run

Table 5.1 ARDL Short

Variables	*Coefficient*	*Prob.*
D(GDP)-2)	*0.546*	*0.010*
D(FDI)-2)	*0.846*	*0.033*
D(INF)	*1.887*	*0.000*
D(NT)-1)	*4.68*	*0.005*
D (REER (-3)	*-0.092793*	*0.0293*
ECM (-1)	*-0.3970*	*0.0000*

Source: (E-Views 12 Author's Computation)

With a p-value of 0.005 and a coefficient value of 4.68, international commerce has a statistically significant influence on the economic development of South Africa. A 1% increase in the net trade would boost the economic growth of South Africa by 4.68%. This finding pertains to Mustafa Cakir's study (2009) Using panel data analysis, this research examines the link between terms of trade and economic development of emerging market countries, using yearly data for eighteen emerging market nations from 1990 to 2004. The findings give some evidence that trade terms impact economic growth favorably. In addition, the data demonstrates convergence across the growing

economies. This shows that the countries are growing at the same rate and that developing economies are likely to catch up to more developed ones. Furthermore, inflation and FDI are substantial and have a favorable influence on GDP growth. The exchange rate has a negative impact on South Africa's economy in the near term. For the ECM to demonstrate the speed of adjustment from the short run to the long run, the speed of adjustment for this thesis is 39%, demonstrating a high speed of adjustment.

Residual Diagnostic Test Result

Table 6.1 Residual Diagnostic

Name of the Test	*The Null Hypothesis result*	*Statistics value*	*Probability*
Serial Correlation Test	*No serial correlation at 2 logs*	*3.034175*	*0.0707*
Jarque-Bera (JB) Examination	*The serial has normal distribution*	*2.898421*	*0.234756*
White (CH-sq) Test	*No heteroskedasticity*	*1.026911*	*0.5436*

Source: (E-Views 12 Author's Computation)

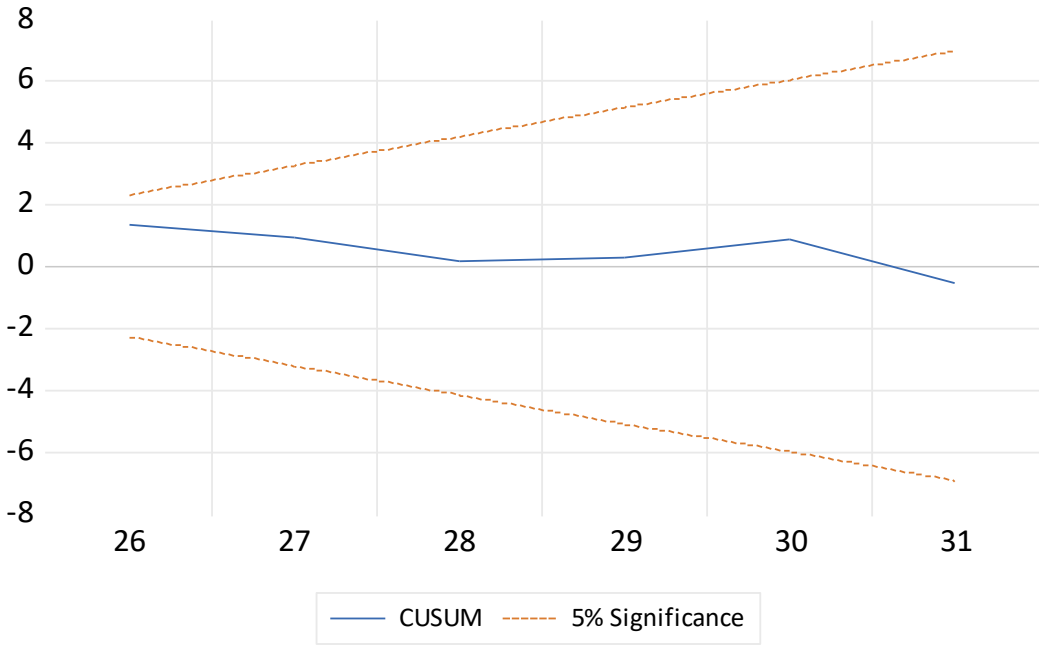
It has been determined that there is no serial correlation, that there is no conditional heteroskedasticity, and that the residuals adhere to a normal distribution, all of which are deduced from the data that is presented in table 4.6. It is possible to make the assumption that the residuals reflect a normal distribution when applied in actual practice. In contrast to the null hypothesis, which states that serial correlation does not occur in the model, the alternative hypothesis argues that serial correlation does, in fact, exist in the model. This is because the null hypothesis assumes that serial correlation does not exist. This is in contrast to the null hypothesis, which suggests that serial correlation does not exist. The value of the likelihood is more than the threshold, which is set at 0.05 percent, as it is 0.0707 percent. As a consequence of this, we have reached the conclusion that the model does not include any components that are serially connected with one another, and as a result, it validates the null hypothesis. In example, the results of the heteroskedasticity test indicate, in accordance

with the null hypothesis of the test, that the model does not display heteroskedasticity at the 5% level but that it does become stationary at the 10% level. Because the probability value of 0.5436 is greater than the threshold of 0.05 percent, which is utilized in the residual diagnostic test, one can deduce that the problem is of a serious nature. Taking into consideration the outcomes of the test allow one to arrive at this conclusion. Because of this, and because the level of significance for rejecting the null hypothesis has been set at 5%, we is unable to arrive at the conclusion that the model does not demonstrate heteroskedasticity. This is because the significance threshold for the null hypothesis rejection is set at 5%. However, if we choose a significance level of 10%, we can come to the conclusion that the null hypothesis is false and state that the model displays heteroskedasticity.

The alternative hypothesis demonstrates that residuals follow a regular distribution, in contrast to the null hypothesis, which demonstrates that residuals do not follow a normal distribution at 5%. There is a greater than 5% chance that the Jarque-Bera probability will be 0.234756. As a result, we come to the conclusion that the null hypothesis should be rejected and that the residuals have a regularly distributed value of 5% but only reach statistical significance at the 10% level.

Stability Test Results

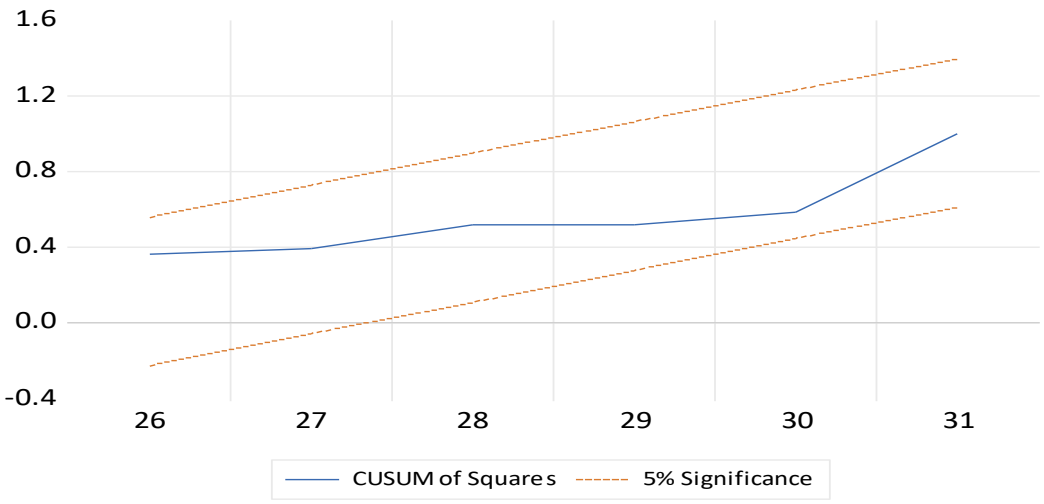
Figure 1.1: Cusum Test Result



Source: (E-Views 12 Author's Computation)

Cusum of Square Test Result

Figure 2.1 Cusum of Square Test Result



Source: (E-Views 12 Author's Computation)

For this, there is a scientific theory that indicates the variables are consistent, but there is no such hypothesis for the alternative. Based on the findings of the experiment, it appears that the red line serves as a boundary for the blue line. In order to make things even more favorable, we will assume that the residual variances are stable rather than unstable. This will allow us to achieve even better results. As a result of this, we will agree with the hypothesis that the null value is true while disagreeing with the hypothesis that the alternative value is true. In addition, we are of the perception that the residual variance is constant, as compared to being unstable. This is in contrast to a previous belief that it was unstable. In conclusion, the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares (CUSUMQ) were utilized in order to check the long-term stability of the ARDL model's long-term coefficient in full compliance with the short-term dynamics between the parameters of economic development and trade. Both of these methods were utilized in order to check the long-term stability of the ARDL model's long-term coefficient. In order to find out whether or not the long-term coefficient is consistent over the long term, this was done. This was done in order to determine whether or not the long-term coefficient is stable over the course of the entire period of study. The assumption on which the null hypothesis is based is that there will be no change to any of the error correction variables in the error correction model within a confidence level of 5%. This is the assumption that underpins the null hypothesis. (Bahmani, Oskooee & Ng, 2002). At a significance level of 5%, the null hypothesis of consistent coefficients can be rejected if it is discovered

that any of the lines have been crossed. Because of this, there is room for the possibility of many different outcomes. If the foreign trade coefficient is going to be stable over the long run, the plot of CUSUM and CUSUMQ data needs to stay within the crucial limitations specified in the images that came before it. These confines were laid out for them through the images that came before them.

CHAPTER V

Executive Summary, Conclusion and Recommendations

Executive Summary

I made the decision to conduct the necessary research for my thesis in the country of South Africa instead of in any other nation because there were a variety of considerations to take into account prior to making this decision. To get things started, it is generally agreed upon that this nation is one of the top places on the planet to go on safari in order to see the "Big 5" animals. This opinion is shared by a large majority of people. This is due to the fact that it possesses a number of the worlds greatest conservation areas and national parks, such as Kruger National Park, in addition to a variety of the world's greatest private game reserves, like Sabi Sands, Thornybush, Londolozi, MalaMala, Lion Sands, and Dulini. Another reason for this is that it contains a number of the world's finest private game reserves. Londolozi is just one example of the kind of world-class private game reserve that can be found in this region, which is another reason why it is so desirable. Because of this, it is sometimes regarded to as the "conservation capital of the world," and it is one of the reasons why. To begin, South Africa is host to a staggeringly large quantity of a diverse range of mineral resources, all of which are readily available in ample supply. This country is home to a diverse collection of mineral reserves, including but not limited to iron ore, platinum, manganese, chromium, copper, uranium, silver, beryllium, and titanium, to name just a few of the many different types. Copper, chromium, and uranium are some of the other reserves that are available. The economy of South Africa is the most industrialized, technically advanced, and diversified of any economic system on the African continent. It is also the third largest economy on the continent. Additionally, it holds the position of the third biggest economy in all of Africa. South Africa's economy is widely regarded as the most robust and successful on the whole of the African continent. Additionally, this nation's economy is the third largest in all of Africa, making it the country of focus in this particular statistic. South Africa's economic system is one of only eight in all of Africa that is classified as having an upper-middle income, causing it one of a very select group of countries on the continent. This places South Africa in a very privileged position.

In addition to this, its economy is highly susceptible to changes in the general economic climate of the rest of the world due to the fact that it is highly dependent on international trade and highly exposed to changes of this kind. Precious and base

metals have traditionally been the most lucrative exports, but exports of agricultural goods and hardware for the military also play a significant role in the economy.

The purpose of this study is to analyze the relationship between South Africa's economic development and the expansion of its international commercial ties from the years 1990 to 2020. At the beginning of the 1990s, South Africa made the unprecedented decision to significantly alter the prior unilateral trade policy that it had been enforcing throughout the preceding decade (Inglesi-Lotz 2018). Following this, ambitious programs of free trade agreements (FTAs) with the European Union (EU), higher tariff liberalization as part of its proposal in the General Agreement on Tariffs and Trade (GATT) Uruguay round, regional integration, the Southern Africa Development Community (SADC), and more modest trade treaties intended to complement the European Free Trade Association (EFTA) and Mercosur closely followed. The time period also coincided with the electoral election of a new administration in 1994, which launched a series of changes aimed at shifting the economic model of the country away from export promotion with import bans and toward increased trade openness. These changes were made in an attempt to move the nation's economic model away from export promotion with import bans and toward increased trade openness. These alterations were made with the intention of shifting the focus of the nation's development policy away from the promotion of exports and the limitation of imports and toward an increase in the openness of trade. These changes were made with the intention of moving away from the traditional strategy of export promotion and import prohibitions, which was the previous approach, so that the country's development policy could become more business-friendly. In addition, the changes brought about a significant reorganization and simplification of South Africa's tariff system, which led to the elimination of a list of prohibited imports and a significant drop in the number of tariff lines, which went from 12,000 in the early 1990s to 6,420 in 2006. In 2006, the number of tariff lines had been reduced by a third. These alterations are a direct result of the removal of the list of items that were previously prohibited from being imported. In the United States, the non-ad valorem tariff rates that were common throughout the early 1990s have been replaced with the ad valorem tariff rates that are currently in effect. It was determined that non-tariff impediments, import levies, and export subsidies should all be eliminated. Because there is evidence indicating that similar shifts in trade policy have occurred in South Africa, we have decided to conduct our case study there, as it is an appropriate place.

The adoption and implementation of these adjustments to South Africa's trade policy have resulted in the country having greater access to the international goods market. It enables her to make full use of her comparative advantage, which, despite an excess of low-skilled labor, leads to great returns on capital in the industries in which she operates. It promotes resource allocation efficiency, resulting in enhanced economic development. This increased openness is a crucial process that promotes economic expansion. In addition, South Africa has witnessed an increase in the number of technological innovations, which has resulted in an increase in the number of entrepreneurs as a result of an increase in the level of market access and competition; an increase in the number of opportunities for new investments, which has resulted in an increase in productivity, which has stimulated employment and resulted in an increase in real wages; and an increase in the number of opportunities for foreign direct investment, which has resulted in an increase in employment and real wages. (Kong et al., 2020): It is a well-known fact in international economic theory that a greater degree of market liberalization is usually linked to higher rates of economic growth.

The World Bank Data Site provided us with the secondary data we needed for our investigation. The study period covered by the data we used was 1990–2020. The bulk of research projects rely on two unique forms of data to get their ultimate results: theoretical knowledge and data analysis, which is often used to reach these conclusions. The author of this study used the exact same methodology as the author of the preceding study. It is important to use the World Bank Data Center as a resource to get numerical information about a wide range of parts and elements.

This thesis used the analytical procedure of the ARDL model. The Wald Test is a statistical procedure that can be used to determine whether or not the "null hypothesis," stating that co-integration is not at play, is supported by the data. The vast part of the bound test is predicated on the joint F-statistic, the asymptotic distribution of which strays from the norm in the context of the alternative hypothesis, which states that there is no cointegration. The estimation of the equations by employing the method of ordinary least squares constitutes the initial phase of the ARDL limits methodology (OLS).

An analysis known as the F-test for the joint significance of the coefficients of the lagged levels of the variables is carried out while the equations are being estimated. The purpose of this analysis is to determine whether or not the variables are connected in a manner that is stable over the course of time. The descriptive statistic for this thesis

is based on the data that was analyzed and the time period; the mean value that is projected for net trade is 1.58E+09. On the other hand, analysts anticipate a growth rate of 1.95728 percent for the GDP. Studies indicate that the greatest actual exchange rate is 134.0901 dollars to one euro. This is quite a significant amount for a country that falls into this group.

The foreign direct investment (FDI) descriptive statistics for the study period chosen, 1990–2020, are outstanding, particularly when compared to the outcomes of the past. Over the course of the previous 31 years, the yearly rate of FDI has averaged out to be 1.117547%. As a consequence of this, this time period is significant in historical terms. The second thing to think about is foreign direct investment, which is of the utmost importance. In South Africa, international finance is frequently viewed as a driver of both economic expansion and new business formation. Since 1996, the Growth, Employment, and Redistribution Strategy, as well as other official government papers, have discussed the importance of foreign direct investment (FDI) to economic growth.

Since the majority of macroeconomic variables tend to be trending and frequently non-stationary, the unit root test should be performed before any estimate can be made, as the findings of the unit root suggest (Wadad, 2011; Asterious & Hall, respectively, 2009).The ADF and PP tests are utilized in the execution of the unit root test, and the outcomes for both levels as well as the first difference are presented in the table that can be found above. Only one of our variables, FDI, was stationary at level, and its p value was 0.0005; the other four, GDP, inflation, net trade, and exchange rate, had matching p values of 0.0001, 0.0000, 0.0048, and 0.0008, respectively, when they were stationary at the first difference. Only foreign direct investment (FDI) was stationary at the same level for the same four variables that were stationary at the first difference for the PP unit root. These variables are GDP, inflation, net trade, and exchange rate, and their respective p values are 0.0001, 0.0000, and 0.0000. FDI was the only variable that was stationary at zero.

The bound test of ARDL estimations of F statistics is presented in the table that may be found below. In order to establish whether or not there is cointegration, this number is compared to the upper and lower limit critical values that were provided by Saran and Narayan. We took advantage of the tables that Pesaran and Naranyan made available to us. The important values of Narayan are more appropriately represented by tiny samples. The critical values are defined in terms of an I(1) upper limit and an

I(0) lower bound. The I(1) upper limit assumes that all variables are of order 1, while the I(0) lower bound assumes that all variables are of order 0. If the derived F statistics are higher than the I (1) values, then it is determined that cointegration does occur; on the other hand, if the generated F statistics are lower than the I (0) values, then it is determined that cointegration does not exist. However, if the f statistics are somewhere in between these two values, then the findings are confusing, and a different method of cointegration will need to be utilized. According to the findings of our tests, the F statistics are much higher than the prescribed upper limit at each and every significance level. Because of this, the variables are said to be cointegrated, and they all have a connection that is in a state of long-term equilibrium.

In the meantime, based on the findings of the long-run test, it would appear that the independent variable and the dependent variable do, in fact, have a relationship over the course of the entire study. Although it is possible that the value of South Africa's net trade is statistically significant ($p = 0.005$), this does not change the fact that it acts as a drag on the country's total economic growth. When there is an increase of one percentage point in the level of net trade, there will be a corresponding reduction of -7.05 percentage points in the rate of GDP growth. This conclusion is consistent with the findings of Sakaria Angula Kalumbu's (2014) study, which investigates the factors that contribute to shifts in terms of trade and the effect that these shifts have on the expansion of Namibia's economy. This conclusion is supported by the findings of Sakaria Angula Kalumbu's (2014) study. The outcomes of the study conducted by Sakaria Angula Kalumbu (2014) are in agreement with this conclusion. In this particular research project, the years 1980–2012 were investigated using a vector auto-regression model, and the data were handled using a variety of different time series methodologies. These methods were all applied to the same set of information. Some of the methodologies that were discussed within these strategies included things like unit root, Granger causality, co-integration, and impulse response functions. The investigation revealed that there is a link that can be damaging to economic growth in Namibia, and that link is between trade conditions and market conditions. A further point to consider is that there is a correlation between the growth of the economy and the terms of trade, but this correlation only runs in one direction. According to the findings of Qaiser Munir and Kasim Mansur (2009), the inflation rate in South Africa is statistically significant at 5% with a p value of 1.235 and has a positive impact on the country's overall rate of growth. This finding was made possible by the fact that

the rate of inflation in South Africa is statistically significant. The period from 1970 to 2005 is covered by this study, during which the relationship between inflation and economic growth in Malaysia is analyzed. The years 1970 through 2005 are included in the scope of this study. One of the many topics that are investigated in this study is the inflation rate at which Malaysia is considered to have reached a tipping point. According to the available data, Malaysia utilizes a single value as the benchmark for determining whether or not inflation has occurred. The findings of this study indicate that there is no clear linear pattern to be found in the association between rising prices and growing economies. According to the findings of the threshold regression model that was constructed, the point at which inflation begins to significantly hinder the growth of GDP is when the inflation rate reaches 3.89 percent or higher. There is a correlation that points in a positive direction between the rate of inflation and growth that is lower than the threshold level, and this connection is statistically significant. In addition, there is a significant correlation between growth that is lower than the threshold level and the inflation rate. If there are no unexpected changes in supply, the inflation rate will remain reliable if the gross domestic product (GDP) is equivalent to its potential and the unemployment rate is equivalent to the non-accelerating inflation unemployment rates. In other words, these conditions will ensure that there will be no acceleration in the rate of inflation. In other words, if both of these requirements are met, there will not be any change in the rate of inflation (NAIRU). There is a method of thinking among Neo-Keynesians that upholds that the Phillips curve will, in the extremely long run, eventually converge to a vertical position. This school of thought is called the Vertical Phillips Curve Hypothesis. The actual effective exchange rate, on the other hand, has a p-value of 0.0185, which suggests that it is significant statistically. This can be seen in the table below. The current rate is one of the factors that is working against the expansion of the South African economy. Moreover, with a p-value of 0.005 and a coefficient value of 4.68, international trade has a statistically significant impact on South Africa's economic growth. A 1% increase in net trade will raise South Africa's economic growth by 4.68 percent. This result belongs to Mustafa Cakir's 2009 research. Using panel data analysis, this study explores the relationship between trade terms and the economic progress of emerging market nations, using annual data for eighteen emerging market nations from 1990 to 2004. The results provide some evidence that favorable trade terms influence economic growth. In addition, the statistics reveal convergence among the expanding economies. This

indicates that the nations are expanding at the same pace and that emerging economies are likely to catch up with more advanced economies. Moreover, inflation and FDI are significant and have a positive effect on GDP growth. The exchange rate has an immediate negative effect on South Africa's economy. For the ECM to exhibit the speed of adjustment from the short run to the long run, the speed of adjustment for this thesis is 39%, which demonstrates a rapid rate of adjustment.

In addition, one can see that there is no serial correlation, neither conditional heteroskedasticity, and that the residuals follow a normal distribution from looking at Table 4.6. When performing real-world statistical analysis, it's common practice to distribute the residuals in conformity with a normal model. In contrast to the first hypothesis, which asserts that there is no such thing as serial correlation, the second hypothesis suggests that the model does, in fact, contain some instances of serial correlation. The null hypothesis states that there is no such thing as serial correlation. On the other hand, the null result suggests that there are no components within the model that are directly linked in a sequential manner. This is in contrast to the alternative hypothesis. The fact that the probability value of 0.0707 is higher than the threshold is sufficient evidence to suggest that the limit of 0.05 percent has been exceeded. As a result of this, we are forced to the realization that the model does not contain any serial correlation, which lends credence to the decision that we made to continue using the assumption as the primary pillar of our analysis. To be more specific, the findings of the test for heteroskedasticity indicate, in accordance with the test's null hypothesis, that the model does not exhibit heteroskedasticity at the 5% level but that it does become stationary at the 10% level. This is contrary to the hypothesis that the model will remain heteroskedastic at all levels. The fact that the probability value of 0.5436, as determined by the residual diagnostic test, is larger than the threshold value of 0.05 percent, is indicative of how serious the issue is. This can be deduced from the fact that the value of 0.05 percent serves as the threshold. As a direct consequence of this, we are unable to draw the conclusion at a significance level of 5% that the model does not exhibit heteroskedasticity. At this level of significance, it is not possible to rule out the possibility of the null hypothesis. On the other hand, if the value is greater than 10%, we can draw the conclusion that the null hypothesis is false and refer to the model as one that uses heteroskedastic distributions. The null hypothesis suggests that residuals are not consistently distributed at the 5% level, which is in contrast to the alternative hypothesis, which says that they are. The

alternative hypothesis suggests that residuals are regularly distributed at the 5% level. In this case, the Jarque-Bera probability of 0.234756 is higher than the cutoff of 0.05 percent. As a consequence of this, we have reached the conclusion that the null hypothesis ought not to be accepted. Rather, we have come to the realization that the residuals have a normal distribution at 5%, but they do not become statistically significant until they reach 10%.

It includes a scientific hypothesis that says the parameters are stable, but none of the supporting evidence contradicts this hypothesis. This is because the parameters have been measured repeatedly and consistently. The results of the tests indicate that the red line encompasses the blue line within its scope of coverage. In addition, we support the assumption that residual variances are stable rather than unstable; as a result, we accept the null hypothesis and reject the alternative hypothesis. This is because we favor the assumption that residual variances are stable rather than unstable. This is due to the fact that we tend to operate on the assumption that residual variances are consistent. In addition to this, we find that the residual variance is very stable, as opposed to being unstable. This comes as a pleasant surprise. With the help of the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares (CUSUMQ), it was determined whether or not the long-term stability of the ARDL model's long-term coefficient was stable over the long term in relation to the short-term dynamics between the variables of foreign trade and economic growth (CUSUM). CUSUM and CUSUMQ are the abbreviations that are used to refer to both of these measurements, respectively. The 5% confidence range for the null hypothesis specifies that all of the error correction coefficients in the error correction model are considered to be constant. The null hypothesis states that this is the case. (Bahmani, Oskooee, & Ng, 2002). At a level of significance of 5%, one could draw the conclusion that the null hypothesis of consistent coefficients cannot be sustained if any of the lines are found to be crossed. This would be the case if any of the lines were found to be crossed. In order to maintain the long-term stability of the international trade coefficient, it is imperative that the data plots for CUSUM and CUSUMQ continue to remain contained within the fundamental constraints that are depicted in the images that are located in front of them.

Conclusion and Discussions

My decision to conduct the research for my thesis in South Africa rather than in any other country came about as a result of a number of different considerations. To begin, this nation is widely regarded as one of the top destinations on the planet for going on a safari to see the "Big 5" animals. This is owing to the fact that it encompasses a number of the world's greatest conservation areas and national parks, such as Nature Reserves, in relation to the total number of the world's finest private game reserves, like Sabi Sands, Thornybush, Londolozi, MalaMala, Lion Sands, and Dulini. Another reason for this is that it contains a lot of the world's leading conservation areas and national parks, such as Kruger National Park. This is one of the reasons why it is known as the "conservation capital of the world." To begin, South Africa possesses a substantial quantity of a diverse range of mineral resources in abundant supply. Iron ore, platinum, manganese, chromium, copper, uranium, silver, beryllium, and titanium are just some of the mineral reserves that this country possesses. It also has reserves of a wide variety of other minerals. The economy of South Africa is the most industrialized, highly developed, and diverse of any economy on the entire African continent. It is also the third largest economy in Africa. South Africa is the economic powerhouse of the African continent. Additionally, it holds the position of the third largest economy in all of Africa. There are only eight countries in all of Africa that have an economy that is considered to be upper-middle income, and South Africa is one of those countries.

In addition to this, its economy is highly susceptible to shifts in the general economic climate of the rest of the world as it is highly dependent on international trade and highly exposed to such shifts. Historically, the most successful exports have been precious and basic metals, but exports of agricultural products and military hardware also play a significant role in the economy.

This study's objective is to analyze, between the periods of 1990 and 2020, the relationship that occurs between South Africa's expanding standard of living and its increasing engagement in international trade. Specifically, the research will focus on the relationship between these two factors. In conclusion, the findings of this thesis demonstrate that there is a relationship between the dependent and independent variables over both the short and long terms, as can be observed in tables 4.4 and 4.5, respectively, above. This connection can be seen in both the short and long terms. In addition, there is an inverse correlation between the country's net trade and economic

expansion, and this negative effect could be linked to South Africa's excessively high level of imports in comparison to the country's high level of exports.

On the basis of the studied data and time period, the descriptive statistic for this thesis is the expected mean for net trade, which is 1.58E+09. On the other side, GDP growth is anticipated to be 1.95728%. Studies indicate that the maximum real exchange rate is 134.0901. This is a considerable sum for a country in this category. The FDI descriptive statistics for the selected research period, 1990–2020, are exceptional, particularly when compared to previous findings. The average yearly rate of FDI over the last 31 years has been 1.117547%. Consequently, this time period is historically significant. FDI is the second item to examine, and it is quite important. Foreign investment is often seen as a stimulus for economic development and investment in South Africa. The Development, Employment, and Redistribution Strategy and other government publications have discussed the significance of foreign direct investment (FDI) to economic growth since 1996.

Similarly, the unit root results suggest due to the fact that the majority of macroeconomic variables are trending and often non-stationary, the unit root test is performed prior to estimation (Wadad, 2011; Asterious & Hall, 2009).

The unit root test is performed using the ADF and PP tests, and the results for both levels and the first difference are shown in the table 4.2 above. Four of our variables—GDP, inflation, net trade, and exchange rate—were stationary at the first difference, with p values of 0.0001, 0.0000, 0.0048, and 0.0008, respectively; just one variable—FDI—was stable at level, with a p value of 0.0005.

With p values of 0.0001, 0.0000, 0.0000, and 0.0000, respectively, only FDI was stationary at level for the same four variables that were stationary at the first difference for the PP unit root: GDP, inflation, net trade, and exchange rate.

The bound test for ARDL estimations of F statistics is presented in the table that can be found below. In order to determine whether or not there is cointegration, this number is matched to the upper and lower limit critical values that were provided by Saran and Narayan. It was decided to make use of the tables that Pesaran and Naranyan had provided. The use of smaller samples is preferable when determining significant Narayan values. The critical values are represented as an I(1) upper limit and an I(0) lower bound, with I(1) assuming that all variables are of order 1 and I(0) assuming that all variables are of order 0. The critical values are also represented as an I(1) upper limit and an I(0) lower bound. If the resulting F statistics are lower than I (0), then it

is assumed that cointegration does not take place; on the other hand, if they are higher than I (1), then it is inferred that cointegration does take place. However, if the f statistics are somewhere in between these two values, then the findings are unclear and a different strategy for counteraction will need to be utilized. When applied to our data, all degrees of significance point to the conclusion that the F statistics are higher than the maximum allowed. As a consequence of this, the variables are intertwined, and they all have a relationship to the state of equilibrium over the long run.

Meanwhile the result of the long-run test suggests that the dependent and independent variables have a long-term association.

Even though South Africa's trade deficit is statistically significant ($p = 0.005$), it nonetheless holds down the country's economic expansion. When there is a one percent increase in net trade, there is a -7.05 percent slowdown in GDP growth. This result is consistent with the findings of the research that was carried out by Sakaria Angula Kalumbu (2014). That research explores the causes that contribute to alterations in the terms of trade as well as the impact that these fluctuations have on the expansion of Namibia's economy. Time series analysis methods such as unit root, Granger causality, co-integration, and impulse response functions were used to analyze the years 1980–2012 within the context of a vector auto-regression model. This study concentrated on the years 1980 to 2012.

According to the numbers, there is an inverse relationship between Namibia's trading conditions and the country's rate of economic expansion. In addition, there is a link of causality that runs in just one direction between economic expansion and terms of trade. The authors, Qaiser Munir and Kasim Mansur (2009), state that inflation is statistically significant at 5% with a p value of 1.235 and that it contributes positively to the growth of South Africa's economy. The authors of this paper examine the relationship between inflation and economic growth in Malaysia between 1970 and 2005. One of the topics that is investigated in this research is the point at which the inflation rate in Malaysia becomes unacceptable. The data indicate that there is a single inflation threshold for Malaysia. This study demonstrates that the relationship between inflation and economic expansion has a nonlinear component. The threshold regression model that was developed reveals that a rate of inflation of 3.89 percent is the point at which inflation begins to significantly limit the development of GDP. In addition, there is a positive association between the rate of inflation and growth that is below the threshold level, and this correlation is supported by statistically significant

evidence. If there are no unexpected shifts in supply, the inflation rate will remain stable if the gross domestic product (GDP) is equal to its potential and the unemployment rate is equal to the non-accelerating inflation rate of unemployment (NAIRU). Neo-Keynesians maintain that in the long run, the Phillips curve will always be vertical. With a p-value of 0.0185, the actual effective exchange rate is statistically significant, and it hinders South Africa's economic development. Moreover, with a p-value of 0.005 and a coefficient value of 4.68, the influence of foreign commerce on South Africa's economic development is statistically significant.

A 1% rise in net trade will contribute 4.68 percentage points to South Africa's economic development. This finding comes from Mustafa Cakir's 2009 study. This research examines the link between trade terms and the economic development of emerging market countries using panel data analysis and yearly data for eighteen emerging market nations from 1990 to 2004. The data indicate that advantageous trade terms impact economic growth. Moreover, the numbers demonstrate convergence among the rising economies. This suggests that the countries are growing at a similar rate and that developing economies are likely to catch up to more developed economies. Furthermore, inflation and FDI are substantial and positively impact GDP growth. The exchange rate has an immediate negative impact on the economy of South Africa. For the ECM to illustrate the speed of adjustment from the short run to the long run, the speed of adjustment for this thesis is 39%, indicating a quick rate of adjustment.

In addition, table 4.6 of residual diagnostic tests shows that there is no serial correlation, no conditional heteroskedasticity, and that the residuals have a normal distribution. These findings are consistent with the hypothesis that there is no conditional heteroskedasticity. In fact, residuals are dispersed in a typical manner. The alternative hypothesis contradicts the null hypothesis by showing that serial correlation does, in fact, exist in the model. However, the null hypothesis suggests that serial correlation does not exist. The calculated probability of 0.0707 percent is higher than the cutoff value of 0.05 percent. As a result, we decide to go with the null hypothesis and draw the conclusion that the model does not contain any serial correlation.

At the 5% significance level, the null hypothesis of the heteroskedasticity test implies that there is no heteroskedasticity in the model; however, at the 10% significance level, it shows that it becomes stationary. The severity of the issue can be deduced from the fact that the probability value of 0.5436 is greater than the cutoff value of 0.05 percent,

which was determined by the residual diagnostic test. Because of this, we are unable to reject the null hypothesis and conclude that the model does not contain heteroskedasticity when using a significance threshold of 5%. However, if the difference is greater than 10%, we can come to the conclusion that the null hypothesis is not correct and label the model as heteroskedastic.

The alternative hypothesis proposes that residuals are normally distributed at 5%, in contrast to the null hypothesis, which proposes that they are not. With a value of 0.234756, the Jarque-Bera probability is greater than 0.05 percent. As a result, we conclude that the null hypothesis should not be accepted and instead draw the conclusion that the residuals have a normal distribution at 5% but only become statistically significant at 10%.There is a scientific hypothesis that asserts the parameters are constant; however, there is no evidence to contradict this notion. The results of the tests indicate that the red line is capable of enclosing the blue line. In addition, we provide evidence in support of the premise that there is no change in the residual variances; hence, we agree with the null hypothesis and disagree with the alternative. Furthermore, we find that the residual variance is stable, as opposed to being unstable. This comes as a pleasant surprise. The long-term stability of the ARDL model's long-term coefficient was determined by calculating the cumulative sum of recursive residuals (CUSUM) in conjunction with the cumulative sum of squares (CUSUMQ). This was carried out with consideration given to the short-term dynamics that exist between the factors of global commerce and economic expansion. The null hypothesis, which is backed by a confidence interval of 5%, makes the assumption that the error correction model only contains constant error correction coefficients. This assumption is based on the fact that the null hypothesis is supported (Bahmani et al., 2002). If any of the lines are discovered to be crossed, it is possible to conclude that the null hypothesis of consistent coefficients should be rejected at a significance level of 5%. In order to maintain the long-term stability of the international trade coefficient, the data plots for CUSUM and CUSUMQ have to continue to stay within the essential constraints that were described earlier. This is necessary in order to keep the plots accurate.

There is a direct relationship between a country's overall economic health and the state of its businesses. A nation that has a fiscal situation that is stable and an economy that is growing has key attributes for the establishment of new businesses, the growth of existing businesses, and the expansion of existing businesses. When

economic growth has a very positive effect on businesses, it's likely that those businesses will see an increase in the number of customers they serve, a rise in their level of profitability, and a lot of chances to grow and expand even more. When it comes to the expansion of the economy, companies are able to better predict and forecast how their businesses will fare in the near future, as well as find ways to make the most of the booming economy. Companies of any size and scope, from sole proprietorships to multinational conglomerates, have the ability to choose to grow their operations, increase the number of people they employ, and step up their level of research and development activity. On the other hand, when the economy is weak, a company might decide to be more frugal with its spending so that it can make it through the difficult period.

When determining whether to raise or lower the interest rate on loans and lending, the Reserve Bank of a nation must keep a close eye on the Gross Domestic Product as well as the economy of the nation. If the economy is doing well, the Reserve Bank may decide to raise interest rates in order to rein in rising prices and keep inflation under control. On the other hand, if it seems like the economy is going nowhere; the government might reduce interest rates in order to encourage growth in businesses. Businesses can keep an eye on their surroundings and make well-informed decisions about expanding their operations.

A prosperous economy enables firms to invest more funds for their own advancement, and increased investment ultimately results in an improved economic condition, forming a healthy cycle of investments and expansion that benefits both the nation and the business. Investors like to invest in situations like this because it makes them feel safe. This is one reason why a sudden change in the GDP can have such a big effect on the stock markets.

If the economy is doing well, people will have a higher standard of living, and as a result, consumers will have the ability to make more purchases and take advantage of more services. Because of this, companies can import products that people want at prices that are much more profitable for them. This helps the economy grow, which is good for everyone.

As was mentioned in the short-run portion of the thesis, favorable economic development leads to a booming economy, which also means that the country can spend money on its infrastructure, such as roads, electricity, transportation, and communication. This is because a booming economy means that more people have

money to spend. There have been a number of studies that point to a positive relationship between economic growth and infrastructure. Because of this, companies will not have to exert as much effort to acquire fundamental conveniences such as electricity, water, and advanced technology. They are able to give their full attention to running their company!

The effects of economic growth on businesses, in particular, are significant because, in turn, they promote further expansion of the economy. This is true for everyone who is involved in the process of economic growth. Because of the nation's strong financial position, an increasing number of companies and investors are drawn to the country, creating the ideal conditions for the nation's continued expansion and improvement. Because of this, business people, investors, and researchers all have strong opinions about economic growth and will continue to do so. It can help you figure out how to solve problems with investments, sales promotions, competitive forces, financial positions, worker relations, and government policies.

The rate of economic growth in South Africa is slowed down by the substantial amount of foreign direct investments, which have a dampening impact on the pace of economic expansion. This finding is consistent with the findings of the research that Mazenda (2014) carried out on the impact of foreign direct investment on the advancement of economic development, with a specific focus on the economy of South Africa. The years 1980 through 2010 are the focus of this particular research endeavor. As methodologies for estimation, the Johansen cointegration and the Vector Error Correction Modeling (VECM) framework were utilized. The method specifies variables like "real gross domestic product" (RGDP), "foreign direct investment" (FDI), "domestic investment" (INVE), "real exchange rate" (REXCH), and "foreign marketable debt" (DEBT). During the course of a nation's economic development, foreign direct investment (FDI), foreign exchange (REXCH), and debt all have the effect of stifling growth. The growth process is aided in a positive way by INVE's contributions. Both the impulse response analysis and the variance decomposition were utilized in order to supplement the long-run data and the short-run data, respectively. These studies were utilized so that conclusions could be drawn and potential policies could be suggested.

This finding is in opposition to Yimer (2022) uses an analytical classification system to divide the economies of Africa into three distinct groups: fragile, factor-driven, and investment-driven. In addition to this, it takes into account interaction effects as well

as the problem of cross-sectional dependency, both of which were ignored by earlier research. The short-run effect of foreign direct investment (FDI) on GDP in investment- and factor-driven nations is essentially nonexistent, despite the fact that the long-run effect is significant. However, in both the short and the long term, foreign direct investment has a negligible effect on economic growth in the fragile group.

Our findings from the ARDL long and short run analyses indicate that although inflation is high, it does have a positive impact on the economy. The standpoint that he presented in his work about the economy of Nigeria is supported by a portion of the Literature Review that was written by Umaru, A., and Zubairu, A. A. (2012). This section was written by Umaru, A. The findings of the research that was carried out by Hodge, D. (2006), however, contradict this notion. According to Hodge's research results, inflation has an adverse impact on the growth of the South African economy; he considers this to be a contradiction in his studies because of the previous statement. According to the findings of our research, the expansion of South Africa's gross domestic product is significantly influenced by international trade. Moreover, this influence is statistically significant. This finding is consistent with the findings of one of the articles that was utilized at various points throughout the course of this study project. This research project made use of the article that Sakyi and co-authors wrote, and it was cited multiple times throughout the process (2015). To determine whether or not there was a connection between a nation's level of economic openness and its per capita income, Sakyi analyzed data from 115 developing countries between the years 1970 and 2009. The data was collected between 1970 and 2009. He discovered that there was a strong link, or correlation, between the two different aspects of the study.

The results of our research indicate that, over the course of a longer period of time, the real effective exchange rate has an impact that is both significant and deleterious on the rate of economic expansion in South Africa. Despite this, the findings of the study that Tarawalie, A. B. (2010) conducted in Sierra Leone indicate that this is not the case. According to Tarawalie, there is a significant correlation between the real effective exchange rate and the development of the economy, and the coefficient of this correlation is significant statistically. Additionally, this correlation has a positive association with the growth of the economy.

In accordance with the study results of our research, GDP is positive and makes a positive contribution to the growth of the South African economy. This was found to

be the case. The findings of this investigation are in line with the findings of the research that was conducted out by Malefane, M. R. (2018), who looked into the impact of trade openness on economic development in South Africa.

Recommendations

It is consequently advised that the government at all levels implement comprehensive policies and approaches to strengthen South Africa's non-oil exports, particularly those related to manufacturing and industry.

It is also suggested that South African policymakers open up to foreign investment in more sophisticated technologies in order to see increases in the rate of innovation and the pace of economic development.This indicates that trade policies aiming at restoring global competitiveness for the purpose of export expansion and diversification have the potential to produce and keep economic growth in the medium and long term for the South African economy.

When it comes to policy, the conclusions that can be drawn from our research may be of use to decision-makers and the global community as they examine the benefits of free trade agreements. According to our findings, excessive trade concentration, which is experienced by developing nations whose trade is concentrated by a massive economic power, may not be a cause for concern. This is the case because our study suggests that excessive trade concentration may not be a cause for concern.

Democratic values should be promoted in order to lessen the general body politics instability. This is because foreign investors are least interested in a politically unstable economy. Dependence on imported commodities, both at the residential and industrial production levels should be discouraged in order to start on an import substitution strategy for South African economic growth. Also, steps should be taken to give people access to a wider range of technical knowledge, make it easier to share technology, encourage research, and get rid of duplicate research.

Based on what the research found, it suggests that other emerging nations embrace global trade in the export market to help their own economies grow. South Africa's government should step up efforts to diversify its export base, utilizing earnings from gold sales wisely. She should work to improve her position on the gold market, but she should also try to bring the commodity export sector back to life and find ways to export solid minerals.

The service business should also be investigated. This is a clarion call for educational progress in order to strengthen the nation's technical foundation

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Appendices

Appendix 1: Descriptive Statistics

Date: 09/27/22 Time: 12:11
Sample: 1 31

	GDP	FDI	INF	NT	REER
Mean	1.957280	1.117547	8.019217	1.58E+09	98.36616
Median	2.485468	0.884902	6.952172	2.04E+09	98.52273
Maximum	5.603806	5.368357	15.65452	1.51E+10	134.0901
Minimum	-6.431975	-0.060074	3.956474	-8.51E+09	70.44163
Std. Dev.	2.506644	1.125981	3.269165	4.75E+09	19.36987
Skewness	-1.228622	1.948247	1.107846	0.060713	0.333067
Kurtosis	5.289498	7.676865	3.208598	3.851719	1.953482
Jarque-Bera	14.56980	47.86365	6.397374	0.956053	1.987793
Probability	0.000686	0.000000	0.040816	0.620006	0.370132
Sum	60.67569	34.64394	248.5957	4.90E+10	3049.351
Sum Sq. Dev.	188.4979	38.03500	320.6232	6.76E+20	11255.76
Observations	31	31	31	31	31

Appendix 1: Unit Root Test Results

ADF Unit Root Test Results

FDI

Null Hypothesis: FDI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.882238	0.0005
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI(-1)	-0.900864	0.184519	-4.882238	0.0000
C	1.045425	0.293432	3.562753	0.0013

GDP

Null Hypothesis: D(GDP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.433966	0.0015
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP,2)
Method: Least Squares
Date: 09/27/22 Time: 12:18
Sample (adjusted): 3 31
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.026839	0.231585	-4.433966	0.0001
C	-0.186282	0.412773	-0.451293	0.6554

Null Hypothesis: GDP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.463722	0.5378
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 09/27/22 Time: 12:18
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.286528	0.195753	-1.463722	0.1544
C	0.437133	0.582769	0.750098	0.4595

INF

Null Hypothesis: INF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.525776	0.1197
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 09/27/22 Time: 12:19
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.258034	0.102160	-2.525776	0.0175
C	1.753776	0.891854	1.966438	0.0592

Null Hypothesis: D(INF) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.043481	0.0000
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF,2)
Method: Least Squares
Date: 09/27/22 Time: 12:19
Sample (adjusted): 3 31
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-1.415466	0.175977	-8.043481	0.0000
C	-0.514793	0.350582	-1.468395	0.1536

NT

Null Hypothesis: NT has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.605088	0.4677
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NT)
Method: Least Squares
Date: 09/27/22 Time: 12:20
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NT(-1)	-0.274228	0.170849	-1.605088	0.1197
C	6.09E+08	7.15E+08	0.851436	0.4018

Null Hypothesis: D(NT) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.071374	0.0401
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NT,2)
Method: Least Squares
Date: 09/27/22 Time: 12:20
Sample (adjusted): 3 31
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NT(-1))	-0.737958	0.240270	-3.071374	0.0048
C	3.81E+08	7.28E+08	0.523464	0.6049

REER

Null Hypothesis: REER has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.116652	0.6960
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REER)
Method: Least Squares
Date: 09/27/22 Time: 12:21
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
REER(-1)	-0.087283	0.078165	-1.116652	0.2736
C	6.862050	7.896604	0.868987	0.3922

Null Hypothesis: D(REER) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.706640	0.0008
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REER,2)
Method: Least Squares
Date: 09/27/22 Time: 12:21
Sample (adjusted): 3 31
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(REER(-1))	-0.896998	0.190581	-4.706640	0.0001
C	-1.868465	1.549710	-1.205687	0.2384

PP UNIT ROOT TEST

FDI

Null Hypothesis: FDI has a unit root
Exogenous: Constant
Bandwidth: 8 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.861696	0.0005
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	1.207617
HAC corrected variance (Bartlett kernel)	1.051689

Phillips-Perron Test Equation
Dependent Variable: D(FDI)
Method: Least Squares
Date: 09/27/22 Time: 12:35
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI(-1)	-0.900864	0.184519	-4.882238	0.0000
C	1.045425	0.293432	3.562753	0.0013

GDP

Null Hypothesis: GDP has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.432301	0.5532
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	4.140552
HAC corrected variance (Bartlett kernel)	4.079124

Phillips-Perron Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 09/27/22 Time: 12:36
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.286528	0.195753	-1.463722	0.1544
C	0.437133	0.582769	0.750098	0.4595

Null Hypothesis: D(GDP) has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.151612	0.0031
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	4.599990
HAC corrected variance (Bartlett kernel)	3.288844

Phillips-Perron Test Equation
Dependent Variable: D(GDP,2)
Method: Least Squares
Date: 09/27/22 Time: 12:37
Sample (adjusted): 3 31
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.026839	0.231585	-4.433966	0.0001
C	-0.186282	0.412773	-0.451293	0.6554

INF

Null Hypothesis: INF has a unit root
Exogenous: Constant
Bandwidth: 13 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-2.570042	0.1102
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	3.047273
HAC corrected variance (Bartlett kernel)	1.289274

Phillips-Perron Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 09/27/22 Time: 12:37
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.258034	0.102160	-2.525776	0.0175
C	1.753776	0.891854	1.966438	0.0592

Null Hypothesis: D(INF) has a unit root
Exogenous: Constant
Bandwidth: 6 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-9.082212	0.0000
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	3.199382
HAC corrected variance (Bartlett kernel)	1.941934

Phillips-Perron Test Equation
Dependent Variable: D(INF,2)
Method: Least Squares
Date: 09/27/22 Time: 12:38
Sample (adjusted): 3 31
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-1.415466	0.175977	-8.043481	0.0000
C	-0.514793	0.350582	-1.468395	0.1536

NT

Null Hypothesis: NT has a unit root
Exogenous: None
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.561570	0.1096
Test critical values:	1% level	-2.644302	
	5% level	-1.952473	
	10% level	-1.610211	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	1.36E+19
HAC corrected variance (Bartlett kernel)	1.46E+19

Phillips-Perron Test Equation
Dependent Variable: D(NT)
Method: Least Squares
Date: 09/27/22 Time: 12:43
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NT(-1)	-0.234936	0.163717	-1.435015	0.1620

Null Hypothesis: D(NT) has a unit root
Exogenous: None
Bandwidth: 9 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-2.514660	0.0139
Test critical values:	1% level	-2.647120	
	5% level	-1.952910	
	10% level	-1.610011	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	1.44E+19
HAC corrected variance (Bartlett kernel)	9.92E+18

Phillips-Perron Test Equation
Dependent Variable: D(NT,2)
Method: Least Squares
Date: 09/27/22 Time: 12:43
Sample (adjusted): 3 31
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NT(-1))	-0.743830	0.236876	-3.140168	0.0040

REER

Null Hypothesis: REER has a unit root
Exogenous: Constant
Bandwidth: 14 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-0.617842	0.8521
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	59.74922
HAC corrected variance (Bartlett kernel)	19.43467

Phillips-Perron Test Equation
Dependent Variable: D(REER)
Method: Least Squares
Date: 10/04/22 Time: 13:39
Sample (adjusted): 2 31
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
REER(-1)	-0.087283	0.078165	-1.116652	0.2736
C	6.862050	7.896604	0.868987	0.3922

Null Hypothesis: D(REER) has a unit root
Exogenous: Constant
Bandwidth: 26 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-7.494643	0.0000
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	62.28170
HAC corrected variance (Bartlett kernel)	5.809190

Phillips-Perron Test Equation
Dependent Variable: D(REER,2)
Method: Least Squares
Date: 10/04/22 Time: 13:41
Sample (adjusted): 3 31
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(REER(-1))	-0.896998	0.190581	-4.706640	0.0001
C	-1.868465	1.549710	-1.205687	0.2384

Appendix 2: Bond Test Result

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.036859	10%	1.9	3.01
k	4	5%	2.26	3.48
		2.5%	2.62	3.9
		1%	3.07	4.44

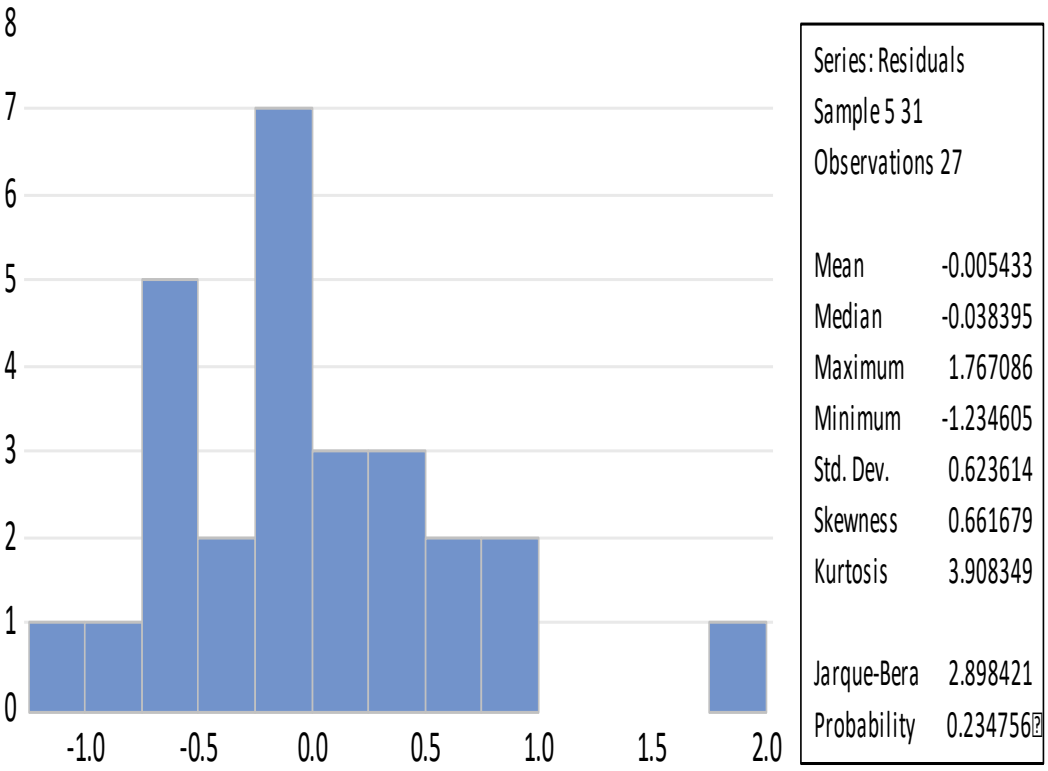
Appendix 3: ARDL Shot Run

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-0.110289	0.167924	-0.656775	0.5357
D(GDP(-2))	-0.546278	0.149874	-3.644925	0.0108
D(FDI)	-0.622073	0.221920	-2.803141	0.0310
D(FDI(-1))	-0.164577	0.321384	-0.512090	0.6269
D(FDI(-2))	0.846781	0.307270	2.755817	0.0330
D(FDI(-3))	-0.732004	0.298647	-2.451070	0.0497
D(INF)	1.887839	0.309809	6.093554	0.0009
D(INF(-1))	0.291032	0.152245	1.911609	0.1045
D(NT)	-7.05E-10	8.13E-11	-8.676371	0.0001
D(NT(-1))	4.68E-10	1.09E-10	4.287067	0.0052
D(NT(-2))	-6.01E-10	1.26E-10	-4.755999	0.0031
D(NT(-3))	5.09E-10	1.18E-10	4.298614	0.0051
D(REER)	-0.038444	0.036540	-1.052107	0.3333
D(REER(-1))	0.253488	0.051544	4.917900	0.0027
D(REER(-2))	-0.037480	0.043361	-0.864392	0.4206
D(REER(-3))	-0.092793	0.032582	-2.847956	0.0293
CointEq(-1)*	-0.397095	0.061292	-6.478721	0.0006

Appendix 4: Long- Run Test

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)*	-0.397095	0.411069	-0.966006	0.3713
FDI(-1)	-2.004793	0.758478	-2.643178	0.0384
INF(-1)	1.235717	0.383580	3.221541	0.0181
NT(-1)	-2.06E-10	1.64E-10	-1.259643	0.2546
REER(-1)	-0.046346	0.030635	-1.512858	0.1811
D(GDP(-1))	-0.110289	0.305333	-0.361208	0.7303
D(GDP(-2))	-0.546278	0.248874	-2.194997	0.0706
D(FDI)	-0.622073	0.411668	-1.511101	0.1815
D(FDI(-1))	-0.164577	0.545570	-0.301661	0.7731
D(FDI(-2))	0.846781	0.494710	1.711670	0.1378
D(FDI(-3))	-0.732004	0.480222	-1.524305	0.1783
D(INF)	1.887839	0.436811	4.321870	0.0050
D(INF(-1))	0.291032	0.379414	0.767056	0.4721
D(NT)	-7.05E-10	1.09E-10	-6.473226	0.0006
D(NT(-1))	4.68E-10	2.16E-10	2.168965	0.0732
D(NT(-2))	-6.01E-10	1.68E-10	-3.564615	0.0119
D(NT(-3))	5.09E-10	2.45E-10	2.072844	0.0836
D(REER)	-0.038444	0.085488	-0.449699	0.6687
D(REER(-1))	0.253488	0.079113	3.204141	0.0185
D(REER(-2))	-0.037480	0.066392	-0.564534	0.5929
D(REER(-3))	-0.092793	0.048724	-1.904465	0.1055

Appendix 5: Jaque-Bera Normality Test Reslt



Appendix 6: Heteroskedasticity Test Result

Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	1.026911	Prob. F(21,5)	0.5436
Obs*R-squared	21.91815	Prob. Chi-Square(21)	0.4042
Scaled explained SS	1.561173	Prob. Chi-Square(21)	1.0000

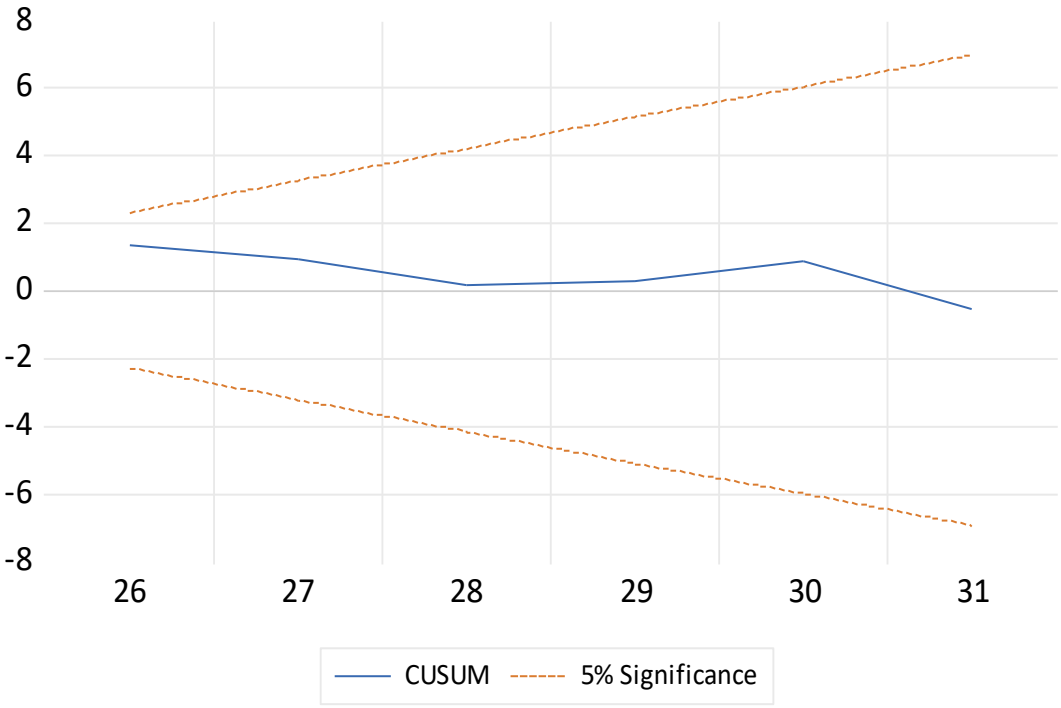
Appendix 7: Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

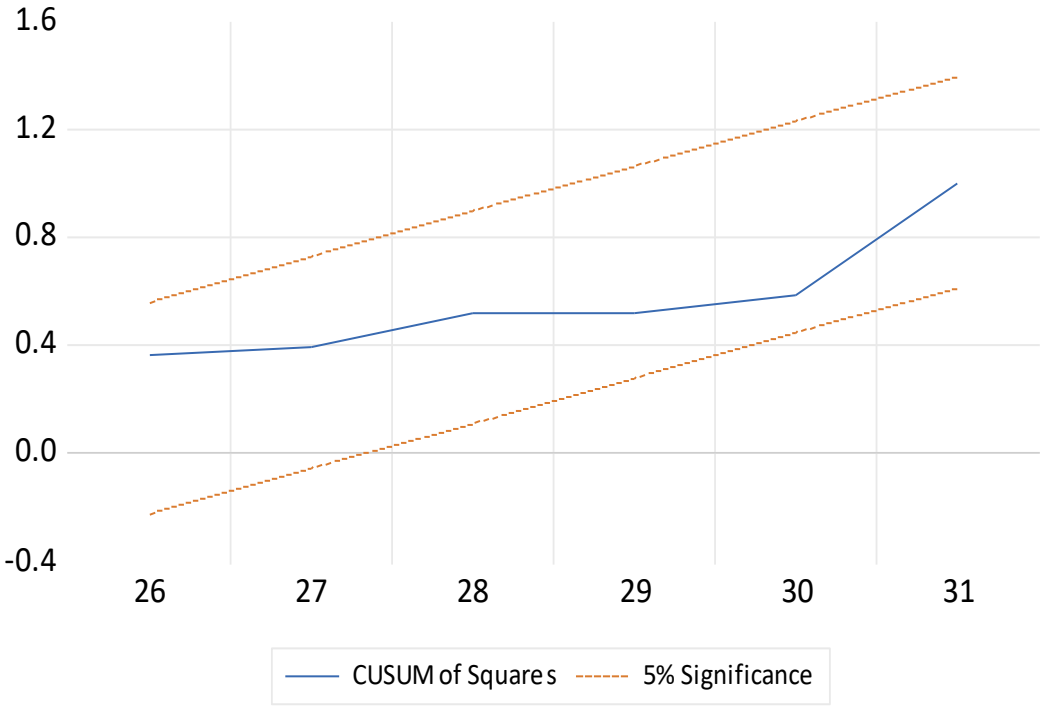
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	3.034175	Prob. F(2,20)	0.0707
Obs*R-squared	6.750797	Prob. Chi-Square(2)	0.0342

Appendix 8: Cusum Test Result



Appendix 9: Cusum of Square



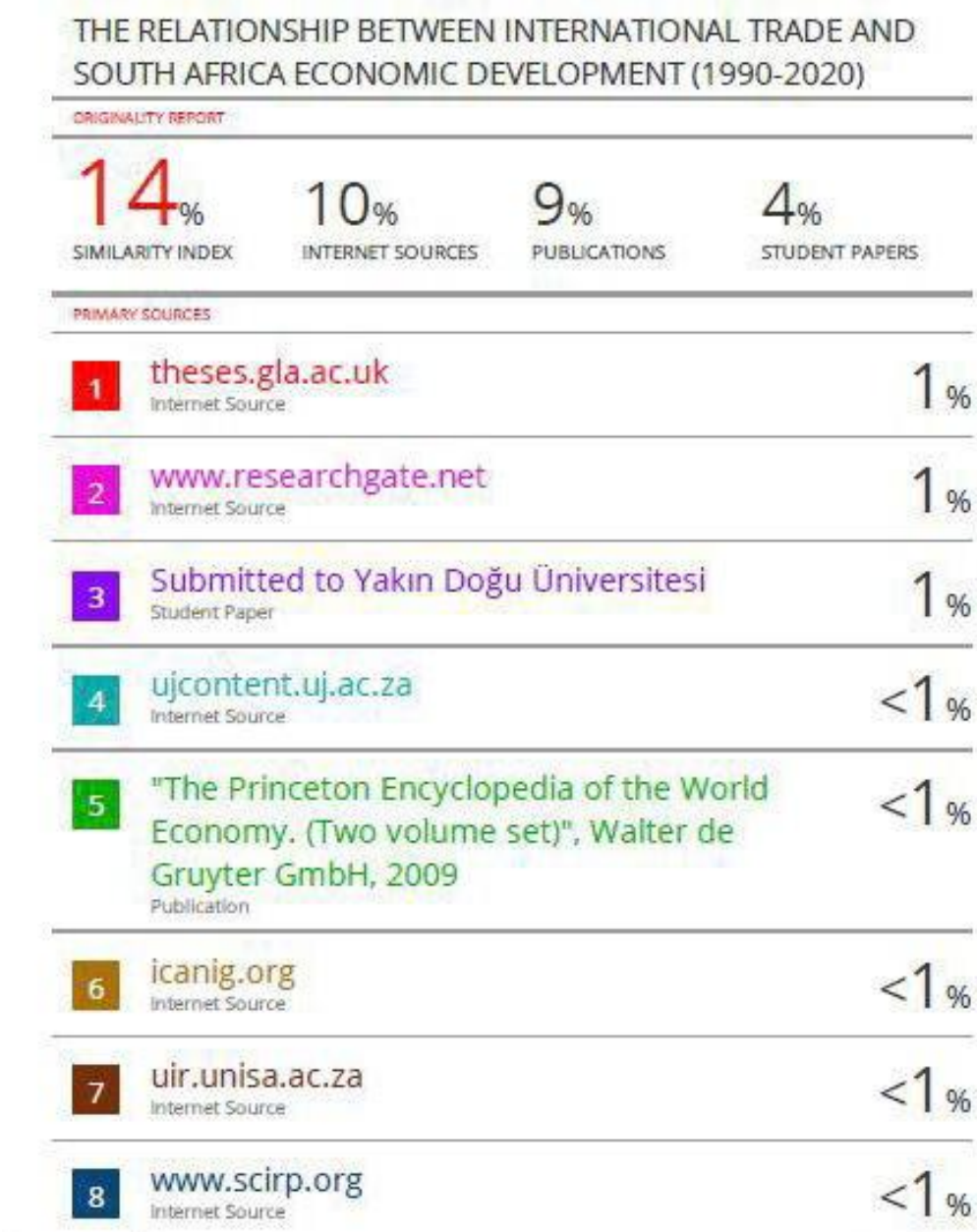
Appendix 10: Pairwise Granger Causality Test Result

Pairwise Granger Causality Tests
Date: 09/27/22 Time: 13:01
Sample: 1 31
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause GDP	29	0.13226	0.8768
GDP does not Granger Cause FDI		3.86389	0.0351
INF does not Granger Cause GDP	29	1.21433	0.3145
GDP does not Granger Cause INF		0.95089	0.4005
NT does not Granger Cause GDP	29	0.50563	0.6094
GDP does not Granger Cause NT		2.37949	0.1141
REER does not Granger Cause GDP	29	1.65993	0.2112
GDP does not Granger Cause REER		0.56766	0.5743
INF does not Granger Cause FDI	29	2.30418	0.1215
FDI does not Granger Cause INF		6.23960	0.0066
NT does not Granger Cause FDI	29	1.01645	0.3769
FDI does not Granger Cause NT		0.23744	0.7905
REER does not Granger Cause FDI	29	1.44975	0.2545
FDI does not Granger Cause REER		5.83398	0.0086
NT does not Granger Cause INF	29	0.96139	0.3966
INF does not Granger Cause NT		0.86840	0.4324
REER does not Granger Cause INF	29	3.31476	0.0536
INF does not Granger Cause REER		8.69066	0.0014
REER does not Granger Cause NT	29	0.70200	0.5055
NT does not Granger Cause REER		1.66866	0.2096

Turnitin Report

Appendix 10: Turnitin Report



THE RELATIONSHIP BETWEEN INTERNATIONAL TRADE AND SOUTH AFRICA ECONOMIC DEVELOPMENT (1990-2020)

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Ethical Committee Approval

Appendix 11: Ethical Committee Approval

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

27.10.2022

Dear Henry Roberts

Your project **"The Relationship between International Trade and South Africa Economic Development "(1990-2020)"** has been evaluated. Since only secondary data will be used the project does not need to go through the ethics committee. You can start your research on the condition that you will use only secondary data.

Prof. Dr. Aşkın KİRAZ

The Coordinator of the Scientific Research Ethics Committee