

**THE EFFECT OF TRADE LIBERALIZATION ON ECONOMIC GROWTH IN KENYA**

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## DECLARATION AND APPROVAL

### Declaration by the Candidate

This proposal is my original work and has not been presented for a degree in any University or for any other award

Signature:  Date: 11/07/2024


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### Declaration by the Supervisor

I confirm that the work reported in this thesis was carried out by the candidate under my supervision.

Supervisor.

Signature:  Date: 11/07/2024

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## **DEDICATION**

To almighty God for the gift of life and good health, and to my entire family for the moral support they gave me.



## ACKNOWLEDGEMENT

First and foremost I would like to thank our almighty God for his love, grace and protection throughout my studies. Special thanks to my uncle Prof. Cletus Chukwu and my Aunt Dr. Rosebella Chukwu for their endless support and encouragements during my academic journey. I also appreciate my supervisor Dr. Susan Jepkorir for working hard to impart knowledge into me and her professional input in this study. Special thanks to my family for the incredible support and encouragement they accorded me during this academic pursuit. God bless you all so much.



## ABSTRACT

Trade liberalization and its impact on economic growth has been a subject of debate for many years both at international and local level. The debate has been lengthened by the fact that there are not theoretical underpinnings that directly link trade liberalization to economic growth or are there any absolute terms and conditions by which trade liberalization leads to economic growth. Trade liberalization is the removal or reduction of barriers to trade that ensures free movement of goods and services from one nation to another. Kenya liberalized their trade with the hope of having dynamic gains from trade, and that the liberalization will lead to economic growth and, consequently, improve welfare. However, its key development challenges still include poverty, inequality, youth unemployment, continued weak private sector investment, and the vulnerability of the economy to internal and external shocks. This study aims to examine the effect of trade liberalization on economic growth in Kenya and finding empirical answers to this phenomenon is what motivated this study. The objective of the study is to examine the effect of manufacturing output, foreign direct investment and import on Kenya's GDP. Foreign direct investment, import and manufacturing output will be tested to determine their effect on the Kenyan economic growth. The underpinning theories for this study are the theory of comparative advantage, Heckscher-Ohlin factor endowment theory and the new trade theory. This study adopted descriptive research design. Time series data spanning 1990 to 2022 was used for the study. The data was meticulously sourced from the World Bank. Time series diagnostic tests were carried out on the data. This study adopted descriptive designs. Vector Autoregressive (VAR) model was applied. Results showed that Foreign direct investment inflows to Kenya ( $\beta = -17.345$ ,  $p = 0.005 < 0.05$ ), imports of goods and services ( $\beta = 2.259$ ,  $p = 0.045 < 0.05$ ) and manufacturing output ( $\beta = 8.421$ ,  $p = 0.001 < 0.05$ ) had a significant effect on economic growth in Kenya. In conclusion, these findings imply that although foreign direct investment (FDI) may have negative effect on Kenya's economic growth, other factors such as imports and manufacturing output support economic growth. In order to support long-term economic growth, Kenyan policymakers are recommended to consider ways to draw in beneficial FDI while simultaneously emphasizing the manufacturing sector. Furthermore, trade policies that facilitate imports led-growth could also be beneficial for the economy. Future researchers are recommended to focus on trade liberalization and public budget this will examine the relationship between trade liberalization and government income and expenditure in developing nations.

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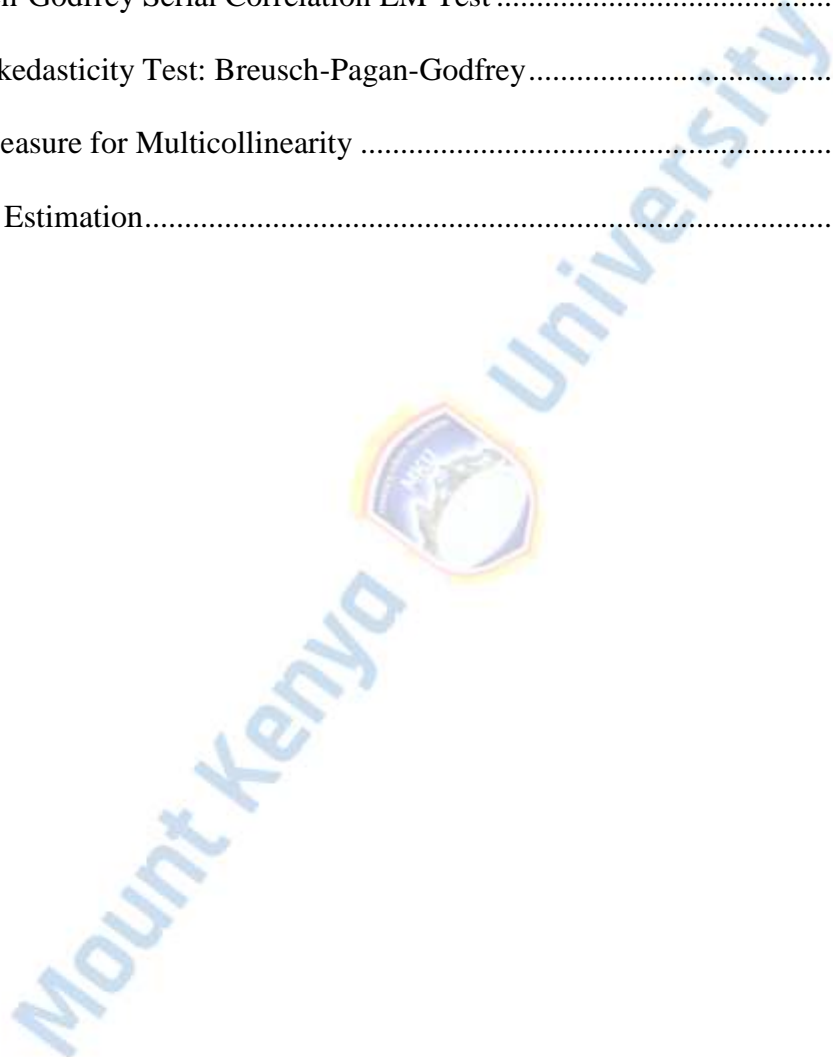
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## LIST OF ABBREVIATIONS AND ACRONYMS

<b>ADF</b>	Augmented Dickey-Fuller
<b>BOT</b>	Balance of Trade
<b>CBK</b>	Central Bank of Kenya
<b>EU</b>	European Union
<b>FDI</b>	Foreign Direct Investment
<b>FIPA</b>	Foreign Investment Protection Act
<b>GDP</b>	Gross Domestic Product
<b>IMF</b>	International Monetary Fund
<b>ISI</b>	Import Substitution Industries
<b>LDC</b>	Less Developing Countries
<b>SA</b>	South America
<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>U S</b>	United States
<b>VAR</b>	Vector Autoregressive
<b>VIF</b>	Variance Inflation Factor
<b>WTO</b>	World Trade Organization

## CHAPTER ONE

### 1.0 Introduction

This section entailed the background of the study, the statement of the problem, purpose of the study, the research objectives and their respective research question, the justification of the study, scope of the study and operational definition of terms.

### 1.1 Background of the Study

Since the early 1970s, trade liberalization has dominated policy discussions in studies on development. The foundation of economic growth for developing nations is trade liberalization, a pathway via which products and services, foreign direct investments, and capital investments move across borders or to specific countries and areas (Zcan et al., 2018). The purpose of liberalizing trade is to improve production of goods and promote exports through the exploitation of fundamental theories of trade that are outcome of enhanced technical development and exposure to foreign competition. Removal or reduction of barriers to trade between countries have been emphasized in a bid to diversify their economies, countries embark on trade liberalization with the aim of boosting their overall economy.

The primary justification for this level of dedication in reforming trade program is the evident conviction that liberalization is a requirement for a change from relatively closed to relatively open economies. Most economists argued that liberalized economies expand more quickly than closed ones. Liberalization is necessary for growth if openness and growth are, in fact, positively correlated. Although they showed promise at first, current evidence indicates that not all trade changes have been as effective as hoped (Singh, 2012).

Trade liberalization has drawn a lot of attention from both established and developing nations since the world is quickly becoming a global village. Trade liberalization has led to a marked increase

in the growth of global trade relative to world production. Global trade volume has grown sixteen times while global production (or GDP) has multiplied by five at an average compound annual growth rate of just over seven percent. In numerous countries, especially in South-East Asia, export growth has exceeded 10% yearly. In countries whose exports have a propensity to increase quickly, more open trade policies have resulted in quicker GDP growth. (Thirlwall, 2014).

Under the leadership of the World Trade Organization (WTO), International Monetary Fund (IMF), and World Bank, developing economies are confronted with new fiscal revenue issues and are compelled to modify their conventional revenue collecting strategies (WTO 2017). On the advice of the WTO, IMF, and World Bank, developing nations are likewise lowering their tariff rates from the previous three decades, following the lead of industrialized nations (Ali 2017).

The continuing US-China trade conflict is seen as evidence of a worldwide battle for technical superiority by many analysts (Schneider-Petsinger, 2019). China is undoubtedly shown its ability to get past the early stages of technological adoption and establish itself as a leader in innovation, while it still appears to be at the imitative stage in certain important industries like semiconductors. China is a sizable market for the United States, but it faces significant obstacles.. The United States is concerned about China's socialist economic practices. (Capri, 2020)

China was found to be engaging in coerced technology transfer, trade secret transfers, unfair and non-market licensing practices, and state-funded strategic purchases of American assets, according to the US. A total of \$370 billion in American imports from China were subject to tariffs by USTR. China's response was to impose tariffs on American goods worth \$110 billion. Most tariffs are still in force, and the situation is still unclear. The U.S. has sought to increase innovation, production, and supply chain resiliency in strategic sectors in response to China and other worries; to bolster

national security; to review foreign investment and export controls; and to limit imports and investment linked to China policies of concern into the U.S. (congressional Research, 2022).

Although increased export development may not necessarily result from trade liberalization, in practice the two appear to be strongly related. The past thirty years have seen significant tariff reductions in China. After China's membership to the WTO in 2001, the average import tariff rate further decreased to around 10% from 24% in 2000 to China's 1995 level of 42% (Huang et al., 2019). As a result of the WTO agreements that followed, the early 2000s saw a substantial fall in the tariff rate; this may be considered an exogenous application of trade policy in China.

Although there are many and established bilateral trade and investment relationships between the United States and the European Union (EU), certain tariff and nontariff obstacles still exist. In addition to further liberalizing bilateral trade and investment relations, improving regulatory cooperation, and cooperating on global trade and economic problems of shared interest, the U.S. has tried to overcome barriers that limit U.S. enterprises' access to EU markets (congressional Research, 2022).

The overall trade gap between the US and the EU has increased since 2009. It was \$101.2 billion in 2017, with the trade deficit in goods (\$152.6 billion) being somewhat offset by the 51.4 billion dollar trade surplus in services. After China's \$335.7 billion in 2017, the US has the second-largest trade imbalance with the EU as a whole. One major factor is the US's large goods trade imbalance with Germany, which totaled 64.1 billion dollars in 2017 and \$66.7 billion, or roughly two-thirds of the EU's overall deficit (Marianne 2019).

Kenya's trade emancipation process developed in stages as a result of numerous trade facilitation techniques. The Kenyan government took action to implement trade policies that would support

and safeguard the indigenous economy as soon as the country gained independence in 1963 (WTO 2013). Since policies promoting economic liberalization were put in place, the economy has undergone significant changes during the past 20 years. Among many other reforms, they include the elimination of import, pricing, and foreign exchange controls. In order to stay competitive, businesses have been forced to adapt their organizational structures, product designs, production methods, corporate cultures, and overall stance.

Import substitution was the first phase, which started after independence and lasted until the early 1980s. Following independence, the Kenyan government started to tightly regulate commerce in an effort to preserve the economy. The import substitution approach served as the major compass for Kenya's trade initiatives (Nyaga 2015). The import substitution strategy protected indigenous industries at the price of their competitiveness, allowing firms to generate a profit even when their capacity was not fully employed.

Kenyan firms thus became internally focused and were unable to enter global markets. Kenya secured its first structural adjustment program with the World Bank in 1980, with the understanding that the government would implement more open trade and interest frameworks and an industrial policy that was more focused on the outside world. In fact, however, only some of the reforms were implemented. While requesting money from the IMF in 1982, the government pledged to seek more deregulation (Gertz 2018).

The second phase included the use of export promotion programs and structural adjustment policies (SAPs). This era, which lasted from the end of the 1980s to the beginning of the 1990s, was established to address the structural rigidities, price volatility, and macroeconomic imbalances that had crept into the economy and caused poor service delivery by the public sector. By

implementing an inward-looking strategy, the government greatly safeguarded the local market. Import substitution first appeared to be successful, but over time it failed. Therefore, it was necessary to transition to a more competitive environment that was more global in nature and would lead to an increase in both exports and employment (Nyaga, 2015).

In Kenya, the agricultural sector still generates 67% of overall national exports, 70% of informal job created in rural Kenya, and source of income for about 80% of the population, despite relatively well-developed manufacturing and service sectors (Government of Kenya, 2010). Kenya is a much diversified nation in terms of its agro-ecological systems (World Bank, 2008). The performance of Kenya's agriculture was usually rated as good. Although there were taxes on the agriculture sector, they were not as high as in some other African nations (World Bank, 2014).

Kenya is an international major producer of dairy products, tea, meat, horticultural products, and coffee, and a major supplier of the main staple food crop maize and sugar for the local market, reflecting the high level of agricultural performance diversity within the nation. Strong agricultural activities in specific crops and various locations, however, has not always been enough to considerably alleviate rural poverty (Agricultural Authority Kenya 2022).

The currency rate is a key motivator for exporting produced goods. For the past few decades, Kenya has been undergoing exchange rate adjustments. The changes are aimed at modernizing domestic trade practices to compete with the finest in the world. To increase efficiency, the changes have been tested in Kenya's financial markets (IMF 2020).

The Investment Promotion Centre and the Customs Department work together to carry out the Manufacturing-Under-Bond Scheme, which was established in 1988. It provides incentives including exemptions on import fees and taxes on imports used to generate export goods for

businesses manufacturing just for export. A company that wants to be licensed under it must demonstrate that there is a demand for its goods, that it has access to sufficient technology and knowledge, and that it has enough financial support. Additionally, it has issues with pricey security bonds.

Export-Processing Zones (EPZs) make it easier to produce, assemble, and process products that are primarily aimed at export markets. Transactions in EPZs are exempt from import duties and limitations, which spares them from the administrative burdens and delays sometimes associated with other "partial-export" regimes (WTO 2014).

The EPZ plan, which was established in 1991, offers export-oriented businesses in specified zones a bundle of incentives. Kenya has more than 12 EPZs in various levels of development by 2013. They had made a total of Ksh. 10 million in investments. The EPZ companies are eligible for a number of privileges, including a ten-year exemption from corporation tax, duty and VAT on all of their inputs, stamp tax, rent and tenancy regulations, industrial and statistics registration requirements, and the Factories Act.

These incentives aim to reduce manufacturing costs in comparison to businesses operating outside of the EPZs. (Mwega 2017). Despite all these reforms more effort are been put in place for sustainability and revamping the economy. Moreover, the reforms are aimed at stimulating rapid economic growth

## **1.2 Statement of the problem**

One of the presumptions associated with capital globalization is that developing countries would enjoy the same growth and development as the now-"developed" nations if they participate in international commerce and finance (Santos 2013). It is presumable that the introduction of capital

into manufacturing and trade facilitates in the growth of economies which generate revenue, hastens the transfer of new technologies, boosts the effectiveness of production facilities, and raises the quality of life (Baugh, 2014). Unfortunately, less developed nations' (LDCs) growth and development have never completely realized.

However, according to certain studies, the theories behind the relationship that exists between trade liberalization and economic development are vague. Trade liberalization may have varied effects on various types of economies, according to some academics. Younas & Bandyopadhyay (2019) argued that a reduction in tariffs which typifies trade liberalization brings about a decrease in the revenue thereby resulting in fiscal instability and limited development initiatives.

Right from independence till date Kenya has been partaking in international trade and finance with the aim of achieving economic growth and development. Kenya lowered their barrier to trade in order to accommodate international market and attract foreign investment with the purpose of stimulating their economic growth. Although it can be said that these economic activities have contributed considerably to a certain vibrant sector of the economy this led to the diversification of the economy.

However there is still substantial evidence that shows that its key development challenges such as high rate of unemployment, poverty, inequality, and the economy's openness to both internal and external shocks are still on the high side. Studies have shown that Liberalization of trade in Kenya comes with some challenges like low productivity as a result of over dependency of the country on imported goods, excessive need for foreign goods due to the over exposure of the local consumers to foreign products, decline in government revenue as a result of the removal of tariff which aims at generating revenue for establishing other sectors of the economy, and finally the

exposure of Kenya's domestic firms to foreign competition with no restriction or protection (Simiyu 2021).

Therefore the aim of this study was to examine some trade variable, which will bring light to understand the effect of trade liberalization on economic growth in Kenya.

### **1.3 Purpose of the study**

To examine the effect of trade liberalization on economic growth in Kenya.

### **1.4 Objectives of the Study**

The study was guided by the following objectives:

- i. To examine the effect of foreign direct investment on the economic growth of Kenya.
- ii. To determine the effect of import on the economic growth of Kenya.
- iii. To analyze the effect of manufacturing output on the economic growth of Kenya.

### **1.5 Research hypotheses.**

Based on above research objectives the following are the null research hypotheses to be tested:

H<sub>01</sub>: Foreign direct investment has no significant effect on Kenya economy.

H<sub>02</sub>: Import has no significant effect on Kenya economy.

H<sub>03</sub>: Manufacturing output has no significant effect on Kenya economy.

### **1.6 Significance of the study**

Kenya seeks to implement policies that could promote favorable trading practices in light of the country's recent increase in trade. Doing so would boost export revenues, improve the nation's trade balance, and promote economic growth.

This study aimed to address the existing knowledge gap in literature of trade liberalization in Kenya. The results will increase our understanding of the subject. It will assist future scholars and researchers to carry out further studies in the area of trade liberalization and economic growth as it forms a basis for future research. The study will also help the government to have more knowledge of the effect of trade liberalization to economic growth in Kenya. This study aimed to assist the policy makers to have an empirical way to mitigate the negative impact and also guide them to determine the necessary conditions at which trade liberalization can be of benefit to the economy. Conversely, empirical information on the impact of trade liberalization strategies which need to be regularly tracked and put into practice to guarantee that the economy is managed sustainably will be helpful to the Kenyan people.

Furthermore, this study projected ways and means of employment opportunities since trade liberalization has the potential for creating job prospects.

### **1.7 Scope of the Study**

The study looked at how trade liberalization has affected Kenya's economic development. Time series data was used in the study from 1990 to 2022. This time frame includes Kenya's period of economic expansion and commerce. The dependent variable in the study is gross domestic product (GDP), while the independent variables are import, manufacturing output, and FDI. The research made use of the data supplied by World Bank for the study, from 1990 to 2022. The research period is based on several transitions in Kenya's economic growth and other associated economic activities, such as growing industrial output, trade expansion, and expanding foreign direct investment. Determining the duration of the study is dependent upon providing substantial and statistically significant information.

### **1.8 Study limitations**

The study was limited to Kenya as the unit of analysis and was subjected to three explanatory variables such as FDI, import and manufacturing output. These are considered as factors of trade liberalization and have profound effects on the economic growth of Kenya. There can be other variables that can explain this phenomenon in Kenya. However, these three explanatory variables helped to get the work done. Limited resources and time are some of the challenges the researcher faced during the time of this study.

### **1.9 Delimitation**

Due to macroeconomic nature of the study, the researcher relied on reputable institutions like World Bank and Central Bank of Kenya for its data collection. Therefore, the researcher did not apply any further regulator or adjustment on the data but rather process it the way it is.

### **1.10 Assumptions of the study**

The researcher assumes that Kenya have been practicing trade liberalization for many years, long enough to be benefiting from its trade. The study bring into consideration that, these sectors of the economy that deals with trade and production have been active and vibrant over the decades.

### **1.11 Operational definition of key terms**

**Gross Domestic Product:** The entire value of all products and services produced over a specific time period, often a year. It is a monetary indicator of the total market value of all finished products produced inside a nation's borders at a certain moment.

**Trade liberalization:** The lowering of trade restrictions is referred to as trade liberalization. Therefore, ensuring the free flow of products and services from one country to another depends on the elimination or decrease of trade obstacles.

**FDI:** This is usually a long-term investment made by foreigners in a firm that is resident in a country that the investor is not based. This study conceptualizes FDI as the net inflow of investment from foreigners in a given country.

**Economic growth:** It refers to the addition of the productive potential of an economy, which results in the economy's capability of producing more amounts of goods and services. It is estimated as the change in the GDP of a country over one year, with inflation adjustment to allow for figures comparisons over time.

**Import:** Receiving or bringing in merchandise from overseas for commercial purposes is known as an import. Individuals, businesses, or the government may obtain these items, which are then processed into other products or sold to end users.

**Manufacturing output:** The total amount of products and services produced by a whole nation during a given point in time period. It can be used to refer to all the labor, works, commodities, or services that a person, business owner, business, machine produces or factory. It serves as a gauge for economic output or productivity.

## **CHAPTER TWO LITERATURE REVIEW**

### **2.0 Introduction**

This section covers the major theories underpinning the study, a review of empirical literature on the study variables, and then preceded by the theoretical framework which demonstrates the theories which guided the researcher in the study. Conceptual framework and research gaps that the study sought to fulfill..

### **2.1 Empirical literature**

#### **2.1.1 Foreign Direct Investment and Economic Growth.**

Istaiteyeh and Ismail (2015) use VECM to analyze the effect of FDI on economic growth in Jordan from 2003 to 2013, and the results disprove the theory that FDI and economic growth in Jordan throughout the research period were caused by one another. The Error Correction Model (ECM) is used in other studies to look for causal connections. To determine if there is a causal link between FDI and economic growth in Malaysia between 1972 and 2009, Tang and Tan (2014) applied the ECM; they discovered that FDI drives economic growth.

Zhang, (2016) used data from 11 economies in East Asia and Latin America to present an empirical analysis of the problem. Although it was predicted that FDI would accelerate host nation economic growth, it was discovered that how much FDI accelerated growth appeared to rely on country-specific factors. Particularly, host nations that implemented a liberalized trade policy, improved education and, therefore, human capital conditions, encouraged export-oriented FDI, while sustaining macroeconomic stability appeared to be more likely to use FDI to stimulate economic growth.

Mijiyawa (2015) investigates the FDI determinants for 53 African nations using the systems GMM model. The findings indicate that while inflation has a negative influence on FDI. However, trade openness, infrastructure, market size, and per capita GDP have favorable effects as well. In a more recent research, Rodriguez-Pose and Cols (2017) create a wider range of criteria that attract FDI into 22 SA nations. The authors show that attracting FDI inflows is significantly influenced by a number of characteristics, including low levels of corruption, market size, the effectiveness of the administration, and natural resources.

Khine (2018) used descriptive statistics to depict the Foreign Direct Investment Relations between Myanmar and ASEAN. The author makes an effort to illustrate why FDI is crucial for Myanmar in order to close the growth gap with other top ASEAN nations. After implementing a market-oriented economic strategy, Myanmar has implemented an FDI policy to increase FDI inflows.

Qamruzzaman (2022) used four skilled country groups, middle-low-income countries, low-income countries, middle-high-income nations, and a worldwide model—to explore the connection between renewable energy, FDI, and agricultural production. The empirical findings indicate that they have a typical inverted U-shaped connection. To put it another way, FDI considerably reduces energy use.

Zhang (2011) asserts that FDI promotes economic growth in nations with an open trade administration, a skilled worker force, and a high literacy rate. He continued by reiterating that FDI grants full access to global markets and serves as a conduit for the host nation to participate in the process of globalization.

According to Chakraborty (2021), the relationship between GDP and FDI is mostly causal rather than FDI being the primary driver of India's GDP development. Hsio and Shen (2022), however,

assert that there are two-way correlations between FDI and economic expansion and the supporting feedback loop connecting GDP to FDI.

Jacobs and Coolidge (2019) found a gradual association between foreign direct investment (FDI) and economic development in their research of 81 nations, with the relationship starting to decline in the mid-1980s. They argued that trade liberalization and foreign direct investment (FDI) have favorable effects on economic growth.

Rand and Thanoon (2020) employed dynamic panel models to validate the increasing influence of foreign direct investment on the economic expansion of East Asia. They held the view that, based on data from 28 developing countries, there is no correlation between the long-term and short-term effects of foreign direct investment (FDI) on economic growth; in fact, no single country was found to have a positive unidirectional long-term effect of FDI to GDP.

### **2.1.2 Import and Economic Growth.**

Using quarterly data from 1980 to 2015, Kim et al. (2017) examine the connection between exports, imports, and economic development in the Republic of Korea. He applies an ARDL while doing this. Their findings suggest that whereas exports do not significantly affect productivity development, imports do. Their findings also suggest that the competitive pressures brought on by consumer goods imports and technical transfers from industrialized nations drive imports to Granger cause GDP growth.

The effects of import and export on economic growth in Sri Lanka from 1970 and 2010 are examined by Velnampy and Achchuthan (2015). Their findings indicate that export and import have a strong positive association and that both have big effects on economic growth.

Using yearly data for the years 1969 to 2012, Ronit and Divya (2017) examine the connection between GDP growth and exports in the context of India. A Granger causality test and an Impulse Response Function (IRF) were used to accomplish this goal. As a result of their findings, the alternative, GLE, is preferred above the null hypothesis, ELG.

For the years 1968–2012, Abugamea (2015) examined the long- and short-term correlations between Palestine's economic development, exports, and imports. The analysis employed the co-integration and Granger causality tests. Results from the study's vector error correction models (VECM) analysis support that there is a long-term relationship between imports and economic growth and demonstrate that, in the case of Palestine, both imports and exports are the basic drivers of economic growth.

The relationship between economic growth and imports in Canada was examined using yearly data from the 1990 to 2015 time periods utilizing the co-integration study of the Granger-Causality and Vector Auto Regression Model measurements. The findings point to no causal relationship between economic growth and imports in Canada, as well as strong proof of both a one-way and a two-way causal relationship between imports and economic growth (Sayef, 2016).

Harvey and Sedegah (2011) employed co-integration and error correction models to examine the composition and dynamics of Ghana's imports. Real domestic income (GDP) and relative prices were their primary drivers of total import demand. According to them, the availability of foreign exchange can account for trade barriers that keep domestic imports below demand.

Using Johansen's co-integration analysis of the Vector Auto Regression Model and Granger-Causality investigations, annual data for the years 1980 through 2015 were evaluated to determine the link between economic growth and imports in Canada. The result shows that there is no

correlation between imports and economic growth in Canada, as well as unequivocal evidence of both a one-way and a two-way causal relationship between imports and economic growth (Bakari & Mabrouki, 2017).

Allen & Sandri (2020) used time series analysis and the Granger causality technique to investigate the relationship between import and economic development in 26 countries during the years 2000–2015. Prior to examining the causality test, they used the unit root test to establish that each of the variables is independently stationary. Ultimately, they came to the conclusion that there is a positive, bidirectional association between GDP and exports.

A study conducted by Caleb and Dhoru (2022) examined the relationship between foreign trade and economic development in Zimbabwe between 1998 and 2020. This study aims to investigate the long-term relationships between several macroeconomic variables and commerce between 1998 and 2020. This finding demonstrated the co-integration of trade and economic growth, but the stability of macroeconomic policy supports the relationship.

Emeli (2019) discovered the impact of exports on Ethiopia's economic growth between 1993 and 2018. This study used the Cobb-Douglas model to assess Ethiopia's economic growth in relation to imports. This study employed time series econometric techniques, including the unit root test, co-integration test, and error correction mechanism, to examine this relationship. He came to the conclusion that there is a long-term positive correlation between the rates of economic expansion and the advancement of real imports.

### **2.1.3 Manufacturing output and Economic Growth.**

In a research published in 2019, Araba examined the performance of the Nigerian manufacturing sector in terms of the correlation between energy consumption, performance, and productivity for

manufacturing firms. The study's aggregate model led to the conclusion that the efficiency and productivity of Nigerian manufacturing companies are certainly influenced by the availability and cost of energy.

For a sample of 76 nations, Fagerberg (2020) examines the effects of manufacturing and service shares on economic development across three time periods. They discover that manufacturing contributed far more favorably before 2013 than it did thereafter claiming that the adoption of mass production techniques in the manufacturing sectors over the years 1960–2000 provided unique prospects for catching up. ICT technologies started to take on increased significance as a source of productivity development around 2000, particularly in the middle of that decade. These technologies now function in the service industry rather than being exclusive to the industrial industry.

Abdul-Khaliq (2019) examined the causal relationship between Jordan's production growth and the country's economic growth using time series data from 2000 to 2016 and the Granger approach. Using the Granger causality test, this investigation determined which variables were causally related. They employed the co-integration test to determine whether or not there was a long-term relationship. This study revealed evidence of a unidirectional association between output and economic growth.

Szirmai and Verspagen (2015) reviewed the importance of manufacturing as an important catalyst for growth in industrialized and emerging economies during the 1950–2013 period using manufacturing value added (MVA) as a variable for manufacturing output. In advanced economies, increase in production in agriculture is faster than in manufacturing. According to the analysis, MVA has a reassuringly favorable impact on economic growth.

Herman (2016) said, using statistical analysis of economic data from Romania, that the reduction in manufacturing sector to GDP and employment creation is evidence of deindustrialization. Since 2000, the deindustrialization process has weakened, allowing industry to remain the engine of the Romanian economy.

Manufacturing boosts growth through structural change involving an increase in productivity, according to Cantore et al. (2017), who break down the impact of the manufacturing sector on economic development into structural transformation and employment impacts in 80 nations. Keho (2018) believes that in the majority of ECOWAS nations, industrial production boosts economic development. Moreover, the impact is especially noticeable in Senegal and Nigeria, where increased industrial production stimulates growth in the services and agricultural sectors.

Another result by Timmer and de Vries (2012) in a sample of Asian and Latin American countries is the rising importance of the service industry. Using growth accounting techniques, they examine the effects of different sectors during periods of growth accelerations, periods of regular growth, and periods of slowdown. They find that when there is usual expansion, manufacturing has the most influence. While manufacturing still makes a significant positive contribution, the service sector increasingly assumes this dominant position during periods of economic growth. Samiraj (2015) used panel data from industrialized and developing nations to examine the links between the contribution of the manufacturing and services sectors to GDP and the increase of GDP per capital.

Su and Yao's (2017) research of long-run Granger causality tests, panel regression, and cross-sectional regression demonstrated that the expansion of the manufacturing sector propels the growth of the services sector. Based on their findings, the authors have concluded that

manufacturing plays a crucial role in driving economic growth and that premature deindustrialization can have adverse impacts on economic growth.

According to research by Can and Okdi (2019), manufacturing production boosts economic development in newly industrialized nations. Arthur and Cook (2016) arrive to the conclusion that increasing manufacturing strengthens the incentives for saving and acquiring new technologies, both of which are essential for middle-income nations to see economic development. The findings of Arthur and Cook (2016) are supported by Marconi, and Araùjo (2016), who concluded that growth in manufacturing production is crucial for economic development and productivity, especially in middle-income nations.

## **2.2 Theoretical literature review**

### **2.2.1 The theory of comparative advantages**

One of the conventional theories of global trade is known as the Theory of Comparative Costs or Advantage. In his book "Principles of Political Economy and Taxation (1815)," David Ricardo defined it. Using Ricardo's comparative cost advantage, the classical approach essentially strives to explain how and why countries benefit from trade. Therefore, trade benefits all nations if each one focuses on manufacturing the items in which it has a competitive advantage. To achieve this, however, the international terms of trade for both items must be equal to or below the opportunity costs of both nations.

The foundation of David Ricardo's theory of comparative advantages is the idea that trade may benefit a nation even if it is a lower-than-average producer. The model just takes labor into account as a factor of production; as labor is limited, the amount that any trade nation can produce is constrained. The quantity of work that could have been employed to make a different product is essentially the opportunity cost of creating one product. Each country will profit from using labor

to manufacture a mix of goods if it produces the goods with the lowest opportunity cost and trades the excess with the other countries (Feenstra & Taylor, 2017).

The concept of manufacturing and importing as a factor in trade liberalization is explained by Ricardo's theory of absolute advantages. According to this theory, countries stand to gain from specializing in the production of goods and services over which they have a comparative advantage (e.g., at the lowest cost, fastest, or most effectively), and they can trade their excess output with other countries that have an advantage over them in other goods.

This theory implies that a country should export that which it manufactures cheaply and import that which it produces expensively. Therefore, it factors in the import objective of the study. Since it suggests that countries should trade their excess goods and import those which they have little or no comparative advantage in the international market.

### **2.2.2 Heckscher-Ohlin Factor Endowment Theory**

A nation's exports are based on its resource endowment, whether it is capital- or labor-rich, according to the Heckscher-Ohlin hypothesis, which pre-dominated studies of international commerce between the 1920s and the early 1980s. Eli Heckscher and his pupil Bertil Ohlin, two Swedish economists, created it at the beginning. If a nation which is self-sufficient in capital, will create and export capital-intensive commodities at a price that is comparatively lower than that of the rival nation. Similar to how a country with a lot of manpower would create and export labor-intensive commodities more affordably than another.

There are two ways in which the HO model and the Ricardian model diverge. First of all, by accepting capital as a second element of production, it adopts a more realistic framework than the Ricardian model. Second, rather than disparities in technology, the Heckscher-Ohlin model

determines comparative advantage based on variations in the endowments of components among nations. Countries under the Heckscher-Ohlin model use identical industrial technology. Its many predictions on the connections between real trade patterns, factor endowments, and product and factor prices, however, have a tremendous allure. Nevertheless, empirical researchers attempting to formally test this hypothesis have encountered significant dissatisfaction.

According to the first innovation, opportunity costs will rise as the production possibility frontier becomes concave. Trade will also result in a redistribution of income between capital and labor. According to the model's second innovation, a nation will export commodities that heavily rely on its plentiful component. For instance, Canada exports petroleum, agricultural and forestry products, and high-skilled labor and capital from its vast landmass; the United States, Western Europe, and Japan, on the other hand, export sophisticated manufactured goods and services; China and other Asian nations, on the other hand, export low-skilled labor and low-capital goods.

The theory explains why there is an imbalance in the distribution of natural resources globally and explains why countries export the resources they have in the greatest abundance. This theory factors in the manufacturing output objective of the study, it suggests that countries should produce and trade items they have in abundance and can produce efficiently than other nations for this will ensure even distribution of a nation's natural endowment with the less endowed nation.

### **2.2.3 New Trade Theory**

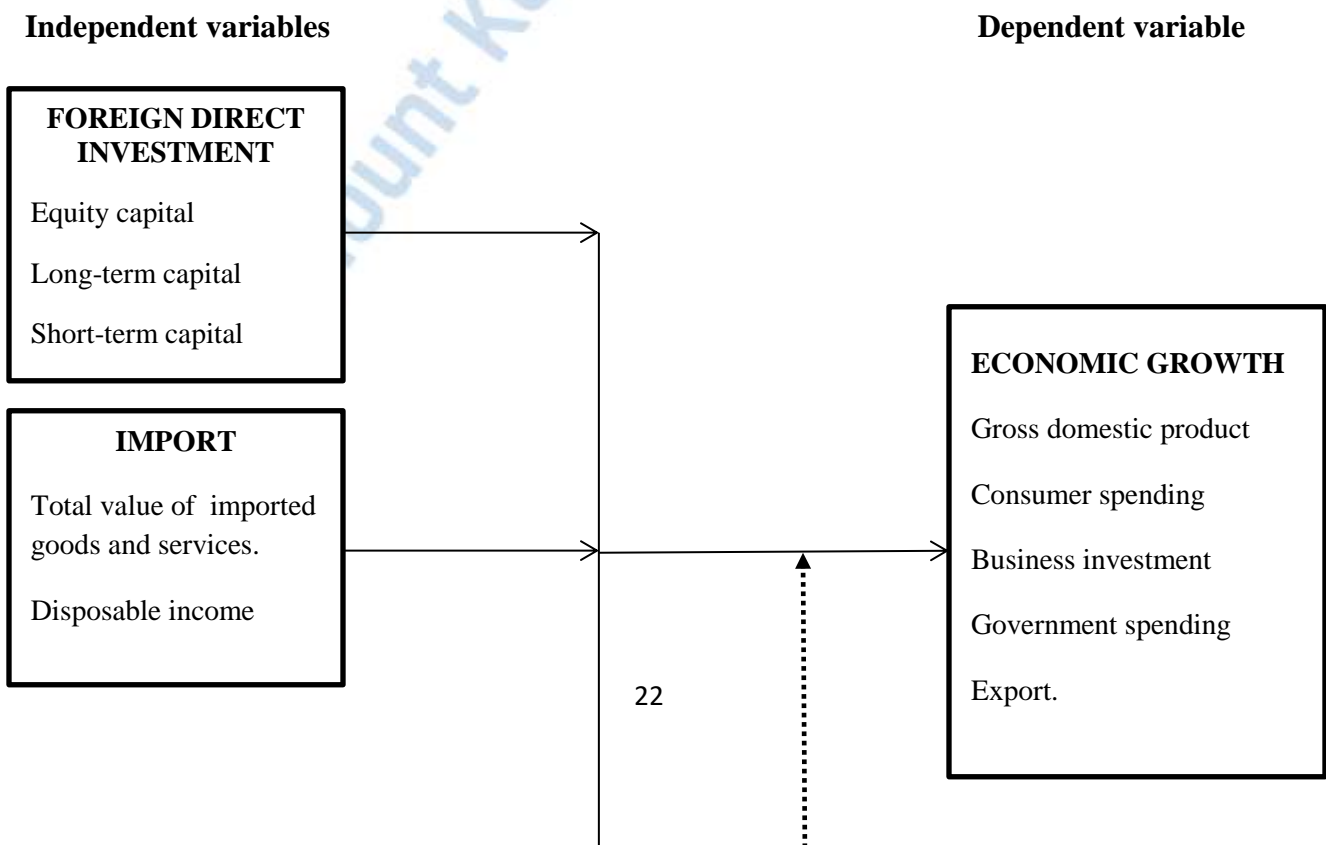
According to Paul Krugman's new trade theory, which was put forward in the late 1970s, advantage in current economic theory. It implies that specialization and greater output can occur even when nations have identical factor endowments due to the existence of growing returns to scale and imperfect competition (Helpman and Krugman, 2005). In addition to helping to alter the economy,

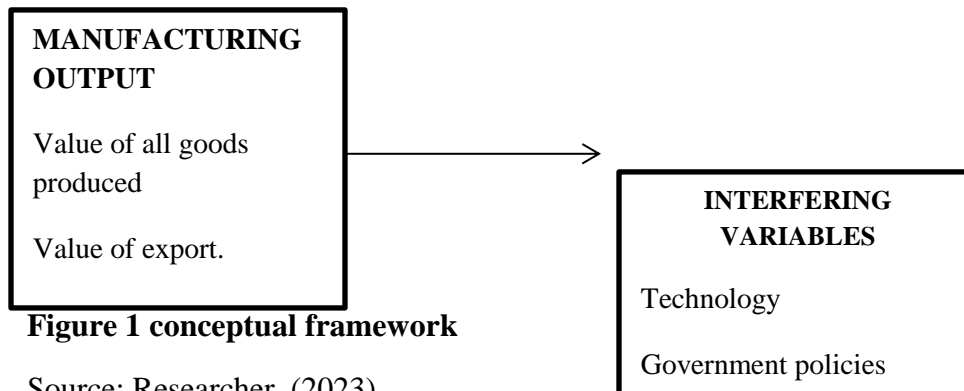
the significance of growing returns to scale and imperfect competition also significantly influences economic innovation and renovation. The theory takes into account the impact of foreign direct investment in the objective. Through foreign direct investment, there is an introduction of foreign affiliates which brings about new technology, which intensifies the rate of manufacturing and production of capital intense good.

### 2.3 Conceptual framework

A conceptual framework, according to Rocco and Plakhotnik (2009), is a description of how a researcher portrays the elements and/or variables involved in the study and how they relate to one another.

Manufacturing output, imports, and FDI was used in this analysis as the factors of trade liberalization. This is based on theoretical and empirical literature. In order to illustrate the link between the independent variables which are manufacturing output, import, FDI, and GDP as the dependent variable. This study presented the conceptual framework shown in the figure below.





**Figure 1 conceptual framework**

Source: Researcher, (2023).

The conceptual framework contained both the independent variable and the dependent variable. The independent variable includes trade liberalization of foreign direct investment, import and manufacturing output while the dependent variable is gross domestic product (GDP). FDI was measured by equity capital, long-term capital and short –term capital. Import was examined by total value of goods and services imported and disposable income. Manufacturing output was measured by value of all goods produced, value of export and production cost. Additionally economic growth (GDP) was measured using consumers spending, business investment, government expenditure and export.

## **2.4 Recap of literature review**

The argument for trade liberalization is that it can help to bring about nations growth and development as it gives their goods and services access to international markets. As a result, it promotes economic development and lowers poverty levels in emerging nations (Winters et al., 2004). Nevertheless, there is compelling empirical support for the link between trade liberalization and economic expansion.

Most developing countries are liberalizing and reforming their economy particularly their trade (Ama, 2005). Huchet-Bourdon (2018) stated that, not only is trade openness important; nations

that specialize in the manufacture and export of high-quality commodities are more likely to see economic progress, Thereby, the importation of large equipment, goods and services are important for the acquisition of knowledge and facilitating the increase in production for the purpose of benefiting from trade is necessary, as it was recommended in the new trade theory.

The literature review indicates that previous researchers concentrated more on variables like FDI, export-led trade and trade openness as factors of trade liberalization, this study tends to include import and manufacturing output variables. This consideration is based on the recommendations made by different international trade theorists.

From the empirical review different approaches and methodologies have been used which mostly focuses on ARDL, co-integration and an error-correction model. For the aim of having robust statistical evidence and adding knowledge to the existing literature, this study made use of VAR model.

## **CHAPTER THREE RESEARCH METHODOLOGY**

### **3.0 Introduction**

This chapter presents discussions on step by step procedures that will be followed in addressing the research problem. This chapter outlines the Study area, Research methodology and design, Target population, Data collection procedure, Measurement of variables, Data analysis and presentation techniques, Model specification, Diagnostic tests and Ethical considerations.

### **3.1 Research methodology.**

This study made use of the quantitative research paradigm. Creswell (2013) argues that the quantitative research paradigm is acceptable in cases where the study makes use of instruments that are completely structured for the purpose of gathering data. The quantitative research

paradigm is appropriate for studies where the research design is predetermined and the data collected are quantifiable. Cointegration analysis was used to assess the dynamic link between multivariate time stochastic differential equations.

The dynamic correlations between variables were tested using the design (Magister, 2011). This is due to the fact that the study focused on the combined relationships between many time series variables in a dynamic macroeconomic setting. Multivariate time series approaches analysis provides a clear explanation for this problem. This methodical approach looks into how variables relate to one another over a specific duration. The relationship between the time series variables under examination, as well as the trends and drifts, were quantitatively described by comparing the dynamic relationships.

Additionally, this study employed descriptive and inferential statistics for data analysis—both of which are quantitative in nature—the quantitative research paradigm is suitable for the study.

### **3.2 Research design**

According to Sekeran and Bougie (2015), a study design is the overall strategy for gathering, measuring, and interpreting data. According to Mugenda and Mugenda (2003), the technique allows researchers to assess the objectives in a way that increases the results' validity and dependability. Building on the existing theoretical and empirical literature, research design is a blueprint, framework, or arrangement used to obtain explanations for a research problem. It is a method of gathering and analyzing data in a way that is appropriate for research purposes (Creswell & John, 2003). In relationship analysis, the focus is on how one variable may affect or change another variable (Cooper & Schindler, 2006). This is because it establishes the cause-and-effect relationship between the dependent and independent variables.

With a focus on Kenya, the study aimed to comprehend the relationship between trade liberalization, manufacturing output, import and FDI, and GDP. Time series data on these variables were obtained from the World Bank, Kenya National Bureau of Statistics (KNBS), Foreign Trade publications, and the Central Bank of Kenya (CBK). Secondary data was used in the study because it is easily accessible and therefore saves time when collecting and analyzing data.

The study employed descriptive research design which was used to identify the causal relationship between the independent and dependent variables. This involved collection and analyzing of secondary data that will help to ascertain the relationship between the independent variable by the correlation coefficient, it indicated that perfect reliability was present, indicating the reliability of the research tables; manufacturing output, import and FDI and the GDP as the dependent variable for the period of 32 years from 1990 to 2022.

### **3.3 Location of the Study**

The effect of trade liberalization on economic growth in Kenya was the main topic of the study. Due to a variety of internal and foreign funding sources for development initiatives, Kenya is one of the Sub-Saharan African nations with significant levels of commercial activity. Furthermore, there is proof of slow economic development rates, which are shown by high unemployment, poor infrastructure, and low living standards. This explains, then, why Kenya was chosen as the study's geographic location. It was necessary to conduct this study because, as of yet, Kenya lacked precise evidence about the contribution of foreign direct investment (FDI) to economic growth. Furthermore, the nation serves as the natural gateway into the area and the center of commerce and banking for East Africa. Due to its liberalized international trade policies and market-based

economy, the nation is a popular destination for investors. It is the most industrialized nation in East and Central Africa, with agriculture serving as its primary economic sector.

The study was done in Eldoret town, Uasin Gishu County, Kenya and the data were sourced from World Bank and CBK database which was used in analyzing of the following indicators Manufacturing output, Import and Foreign Direct Investment of Kenya.

### **3.4 Target population**

Population is defined by Sekaran and Bougie (2011) as the total group of individuals, occasions, or items of interest that the researcher intends to study. A population, according to Lavrakas (2008), is any finite or infinite grouping of distinct items. A population, according to Kombo and Tromp (2011), is a collection of people, things, or entities from which samples are gathered in order to perform measurements.

Population, according to Kothari (2004) and Zikmund et al. (2010), is made up of all the objects in any field of study or "universe." Population, according to Polit and Beck (2003), is the total number of people who meet a certain set of requirements. Population is defined by Sekaran and Bougie (2011) as the total group of individuals, occasions, or subjects of interest that the researcher is going to study

According to statistics, a population is defined as a particular group of people from whose information is sought. According to Ngechu (2004), a defined population is a precisely defined collection of individuals, services, objects, occasions, gatherings, or homes that are the subject of an investigation. These academics argued that a study population needs to have traits that align with the researcher's areas of interest.

The purpose of the study was to ascertain the connection between Kenyan economic development and trade liberalization. Therefore, the targeted population is the GDP which serves as indicator of economic growth as the dependent variable and Kenya's manufacturing output, imports, FDI

which have some significant effects on trading activities in Kenya as the independent variable for the period of 32 years from 1990 to 2022.

**Table 3. 1 Target population**

Category	Population Size	Variable
Economic growth (GDP)	1990-2022 (32 years)	Dependent
Manufacturing Output	1990-2022 (32 years)	Independent
Import	1990-2022 (32 years)	Independent
Foreign Direct Investment	1990-2022 (32 years)	Independent

**Source: Research, 2024**

### 3.5 Study area

The Kenyan economy, a center of commerce in East Africa, served as the study's basis. It examined the three main trade variables—FDI, imports, and manufacturing output. A 2008 research by Simon and David found that all four had a significant impact on Kenya's economic expansion. Kenya's economy was chosen because it is one of the developing nations that primarily depend on the agricultural sector for growth (MoA, 2010). It was also thought that the period from 1990 to 2022 would be appropriate to include the government's transition, as the country reported different trade policies and rates of economic growth during that time.

The region was deemed suitable in light of the current national transformation, which aims to increase the production of trade through the initiative known as Food Secured Nation (Mwangi, 2013). The choice of study region was also influenced by the data's accessibility and the simplicity of comparing the trend and business cycle. The existence of documented data describing and

demonstrating the agricultural sub-sectors' reforms aimed at promoting more private sector participation and investments in the sector—known as the Public Private Partnership (PPP) program—and fostering market competition by doing away with government price controls have made these necessary. The program's goal is to increase output both in the short and long term.

The study aimed to examine the relationship between trade liberalization and economic growth in Kenya. Therefore, Kenya economic activity was the unit of analysis. According to Trochim & Donnelly, (2001) a unit of analysis is the major entity being analyzed in a study. The country is the regional hub for economic activities in East Africa and the natural entry point in the region. However, there is little or no corresponding growth in the economy. This justifies why Kenya was the geographical area of the study.

### **3.6 Sample size**

According to Chandran (2004), a sample is a method for choosing a subset of the population that accurately reflects the full population. A sample is required since an inaccurate research is time and resource inefficient and unable to reject a false null hypothesis. A systematic list of people, components, attributes, businesses, or study items is called a sample size. To create a sample, the necessary number of subjects, respondents, elements, and companies are chosen from the population. A sample size is defined by Gill and Johnson (2002) as a list of things from which a random sample might be taken. Sample size was defined by Mugenda & Mugenda (2003) and Kothari (2014) as a list containing all of the elements' names in a universe. The study cannot be certain that the findings would apply to the full community since the samples are not precisely representative of the population from which they are taken (Shahidul and Sheikh, 2006). Ngechu (2016) highlights how crucial it is to choose the sample size in order to choose a representative sample. A sample size, as defined by Polit and Beck (2018), is the technical term for the set of

items that are used to choose the sample. Ngechu, M. (2022) emphasizes how crucial it is to create a sampling frame in order to choose a representative sample. A sample is a limited portion of a statistical population whose characteristics are examined in order to get generalized information that represents the entire universe, according to Kombo and Tromp (2009). It makes it possible to reach conclusions that are applicable to the target group in general (Sekaran & Bougie, 2011).

A sample, according to Kombo and Tromp (2019), is an assortment of representative units selected from the whole universe. Sample selection may be done in a number of ways, each requiring a different level of talent, time, and money. According to Zikmund et al. (2010), the sample's quality is determined by how well it reflects the population in relation to the study's variables.

As a result, prior to gathering data, the researcher established the sample size criteria of a study (Gerstman 2013). The study used secondary data from 1990 to 2022. Therefore, the study used a census of all 32 yearly observations of each variable, without the use of sampling. The argument is based on the fact that the number of years with observations is restricted. Confidence intervals are increased using census technique. The census technique of data collecting allows researchers to conduct in-depth analysis of a topic. When the observations are few and appropriate for heterogeneous units, the census is more accurate.

### **3.7. Data Collection Instrument and Procedure.**

Data collection is integral part of the research study. Data is everything provided or acknowledged as a fact upon which a study inference would be built, according to Oso and Onen (2011). The methods and techniques used to assess variables in research are referred to as data collecting instruments by Cooper and Schindler (2011) and Mugenda and Mugenda (2012).

According to Dawson (2019), secondary research involves gathering data by utilizing information from previous studies conducted by researchers in the same field or subject. Ember & Ember (2009) define secondary data as information gathered by other parties. Kothari (2004) defines secondary data as newly gathered information with original character that comes from dependable sources. Secondary data, according to Louis, Lawrence, and Morrison (2007), are those that are unique to the issue being researched. According to Dawson (2019), secondary research data is information gathered from studies that other researchers have conducted on a certain topic. Secondary data is defined by Ember and Ember (2009) as information gathered by third parties that the comparative researcher discovers in histories, censuses, and ethnographies.

The study used annual secondary data for each of the variable. A data capture sheet was used to obtain the information. The sheet contained an annual observation of each of the variables of this study relating to the effect of trade liberalization on economic growth in Kenya. The independent variables consisted of manufacturing output, import and FDI while gross domestic product is the dependent variable. The data was collected from database held by central bank of Kenya for the period of 32 years from 1990 and 2022. The study's macroeconomic focus motivated the use of secondary data, which was also selected for its accessibility and organized nature. Additionally, secondary data was convenient and cost effective for this research. This ensures the credibility of the dataset.

### **3.8 Validity of Research Instrument**

Validity is the extent to which an instrument truly measures what it is supposed to measure, according to Khotari and Garg (2014). To establish the validity of the data needed for the study, a pilot test was conducted. According to Kothari (2004) and Kombo and Tromp (2009), a pilot test is an exact duplicate and practice run for the primary survey. Pilot testing, according to Dawson

(2002), helps researchers determine if the data have produced the necessary findings. A pilot study or test, according to Polit and Beck (2006), is a trial run or small-scale version carried out in advance of a larger investigation. Pilot tests are used to evaluate methods, data collecting tools, sample recruitment tactics, and other study-related factors before a bigger study is conducted. They are not intended to test research ideas.

Validity, as defined by Mugenda and Mugenda (2008), is the degree to which findings derived from the examination of data gathered for a study accurately depict the phenomena being studied. Veal and Darcy (2017) define validity as the extent to which the data gathered by the investigator accurately represents the phenomena under investigation. The degree to which the data measures what it purports to measure is referred to as its validity (Mugenda & Mugenda, 2003). Stated differently, validity refers to the extent to which findings derived from data analysis accurately depict the phenomenon being studied. The university supervisors' professional opinion was sought in order to administer the content validity test. Their opinions were assessed and taken into consideration to improve the data's construct validity and substance.

The content validity of the data that was obtained from the World Bank and CBK was evaluated for this study. The extent to which a measurement tool adequately captures every facet of the research is known as content validity. The scale ratings received was utilized to calculate the item content validity index, which allows for the determination of the research tool's content validity.

The research item was deemed valid when the item content validity index produced a coefficient larger than 0.78. If the item content validity coefficient falls between 0.6 and 0.77, the

corresponding items were eliminated. Additionally, when the item content validity index coefficient was below 0.6, then it meant that the individual items needed a deletion.

### **3.9. Reliability of Research Instrument**

Reliability testing usually gets a research project started. This pre-test is conducted to ascertain the correctness of the research instruments used to get the needed information before the start of data collection (Cooper & Schindler, 2011; Punch, 2006; White, 2000). It is possible to make adjustments before to the start of the study by pre-testing the research design, including the instruments. Pilot testing, in particular, offers proxy data for sample selection and aids in identifying equipment and design flaws. Pilot testing also helps with other things like determining whether a study is feasible, creating a research protocol and evaluating its viability, determining the efficacy of the technique and sample size, and more; detecting potential logistical issues with the study methodology, estimating the resources required for the intended investigation, and evaluating the study data analysis methods to find any issues. According to King 'ori (2008), reliability is a gauge of the research instrument's consistency. The test-retest procedure was used to validate the results and assess reliability. It is anticipated that the pilot study's sample tests would fall within the suggested parameters. As a result, the chosen data were loaded into SPSS, the Statistical Package for Social Sciences, to perform a reliability test.

When a research instrument is put through a series of tests or trials, its reliability is on its capacity to produce consistent results (Mugenda, & Mugenda, 1999). Test-retest methodology was used to assess the reliability of the study's instruments; data was reorganized and retested for the second test. The results of the first and second tests was correlated once they were administered to calculate the reliability coefficient using the correlation coefficient .A correlation coefficient that shows a coefficient of reliability of = or > 0.7, by the correlation coefficient, it indicated that

a perfect reliability was present, indicating the reliability of the research tool. The secondary data reliability was also through giving references to their information sources.

### **3.10 Measurement of variable**

An economy's ability to facilitate cross-border movement of commodities, services, and other production inputs can be correlated with its level of trade liberalization. Higher trade flows and a greater selection of goods and services, frequently at more affordable costs, are indicators of greater openness. The ratio of GDP to the total of imports and export is used to calculate trade openness (Martin, 2012). The ratio of export prices to import prices is known as the terms of trade, and it describes the relative cost of exports in relation to imports (Martin, 2012).

The amounts of inward direct investment made in the reporting economy by non-resident investors are known as FDI Net Inflows (Martin, 2012). The World Bank defines the Gross Domestic Product as the entire output of goods and services produced globally for ultimate consumption. According to the World Bank (2019), it was expressed as a ratio of the percentage change over the prior year.

The purpose of this study was to ascertain how trade liberalization has affected Kenya's economic expansion. Therefore, the dependent variable was the GDP of Kenya. The literature study determined that manufacturing output, import, and FDI may be regarded as indices or determinants of trade liberalization. These indicators or determinants served as the independent variables in this study. This section explained the methodology for gathering the variables' data. The form of measurement a researcher uses is critical in determining the kind of analysis to be performed (Cohen et al. 2000). The World Bank and the Central Bank of Kenya (CBK) served as the primary sources of secondary data for the study. This study made use of annual observations of each variable and was measured in US dollars.

### 3.11 Data analysis and presentation techniques

According to Saunders, Thornhill, and Lewis (2019), processing the data obtained is necessary to provide information that may be used to draw conclusions. The data collected was subjected to both descriptively and inferentially analysis which entails testing the data for completeness and controlling for outliers. Descriptive statistics encompasses sum, minimum, maximum, percentages, mean, standard deviations and trend analysis. Inferential statistical tools included panel covariance analysis, panel correlation analysis, panel co-integration analysis and multiple regression analysis. Tables and graphs were used for data presentation. The p value of each variable was calculated to establish the significance in the model in which the threshold for rejecting null hypothesis was set. This study made use of statistical package for social service (SPSS) to assess the effect of trade liberalization on the economic growth of Kenya. By controlling individual heterogeneity, these techniques enable the exclusion of biases resulting from the presence of individual effects (Hsiao, 2007). It also produces data that is more useful, increases degree of freedom, decreases collinearity across variables, and increases efficiency (Baltagi, 2005). Ultimately, it will be applied to acquire estimators that are consistent (Wooldridge, 2005).

### 3.12. Model specification

The study adopted multiple regression models this is to ensure correct estimation of variables.

Adopting the above model, the study presented it in a general form as;

$$GDP_t = f(FDI, IMPORT, MANO) \dots\dots\dots (i)$$

Where;

$GDP_t$  = the proxy of economic growth at time.

FDI = foreign direct investment

IMPORT = import

MANO = manufacturing output.

t = time

$f$  = function vector.

This was presented in a multiple regression model as below:

$$Y_t = \beta_0 + \beta_1 FDI + \beta_2 IMP + \beta_3 MANO + \varepsilon_t \dots\dots\dots(ii)$$

Where:

$Y_t$  represents GDP a proxy for economic growth.

Other variable remain the same remain as in eq. (i)

$\varepsilon$  is the error

$\beta_0$  is a constant,

$\beta_1 \dots \beta_3$  are the coefficients

t represents time.

To counter the problems associated with the other forms of co-integration; this study adopted vector autoregressive (VAR) approach, developed by (Sims et al., 1980) which eliminates uncertainty by not pre-testing the variables. A single-equation, single-variable linear model called a univariate autoregression uses the lagged values of a variable to explain its present value. An n-equation, n-variable linear model, or VAR, has n variables and n lagged values for each variable, plus the present and historical values of the remaining n - 1 variables.

Rich dynamics in many time series may be systematically captured using this straightforward structure, and using and interpreting the statistical toolbox that comes with VARs was a breeze. In a number of seminal early studies, Sims (1980) and others claimed that VARs had the potential of offering a logical and reliable method for forecasting, structural inference, data description, and policy analysis. VARs are, very correctly, widely used nowadays as strong and dependable tools for data description and forecasting. However, because structural inference and policy analysis need distinguishing between correlation and causation, they are intrinsically more challenging.

There are three types of VARs: structural, recursive, and reduced form. Each variable in a reduced form VAR is expressed as a linear function of its own historical values, all other variables' historical values, plus a serially uncorrelated error term. Regression using ordinary least squares is used to estimate each equation. There are several techniques for figuring out how many lags to employ in each equation; in our examples, we'll use four lags. The fluctuations in the variables after accounting for their historical values are the error terms in these regressions. The error components in the reduced form model will also be correlated across equations if the various variables are correlated, as they usually are.

The error terms in each regression equation are constructed by a recursive VAR to be uncorrelated with the error in the equations that came before it. This is accomplished by carefully selecting a small number of current values to act as regressors. Ordinary least squares estimation of each equation yields residuals that are not correlated between equations.<sup>4</sup> It appears that the order of the variables affects the results since there are  $n!$  recursive VARs that reflect all conceivable orderings and because altering the order also affects the VAR equations, coefficients, and residuals.

To identify the contemporaneous relationships between the variables, a structural VAR applies economic theory (Bernanke, 1986; Blanchard and Watson, 1986; Sims, 1986). "Identifying assumptions" that let correlations to be understood causally are necessary for structural VARs. These identifying assumptions might apply to the whole VAR, so illuminating every causative relationship in the model, or they can be limited to a single equation, thereby revealing only one particular causal relationship. This yields instrumental factors that allow instrumental variables regression to be used to estimate the contemporaneous relationships. The researcher's creativity is the only factor limiting the number of structural VARs.

The vector auto-regression (VAR) model is one of the most trustworthy, flexible, and straightforward methods for the analysis of multivariate time series. The forecasting and characterization of the dynamic behavior of economic and financial time series have proven to be especially successful applications of the VAR model. One benefit of VAR is that it lacks the presumptions necessary for a structural model. Certain limits are put in place before a structural model may be estimated, allowing variables to interact. The researcher does not need to add any criteria to the data in order to estimate a VAR, though. Rather, let the facts speak for it.

The Wald or F-statistic in a generalized Dickey-Fuller type regression is the statistic that drives the method. Pre-testing is a problem in the unit root co-integration literature in particular because the short-run and long-run parts of the model can be estimated simultaneously and the power of the unit root test is frequently very low. In addition, there is a shift in the distribution function of the test statistic as more roots of  $X$  are added, and this process tends towards unity (Pesaran and Shin, 1996).

### **3.13 Diagnostic test**

#### **3.13.1 Normality Test**

To ascertain if the data sets are regularly distributed, a normality test is utilized (Saunders et al., 2007). Since normal data is a fundamental premise of both parametric testing and Classical Linear Regression Modelling (CLRM), an evaluation of the data's normality is required for many statistical tests. To ascertain if sample data was taken from a population that was normally distributed (within a certain tolerance) and whether the data set was adequately represented by a normal distribution, one can do a normality test. Furthermore, it is significant because it makes it possible for a researcher to calculate the probability that a random variable underlying the data set would have a normal distribution (Cooper & Schindler, 2011).

According to the theory of normalcy, the test's distribution is bell-shaped, with a mean of 0 and a standard deviation of 1, producing a symmetric bell-shaped curve. The residuals of variables are thought to have a normal distribution. It is necessary to demonstrate the normalcy assumption in statistical processes. This will help with the graphical tests that are used to verify the test's normality by looking up the kurtosis and skewness coefficients. These tests help identify if the data has a normal distribution or an asymmetrical distribution. In situations where normalcy wasn't attained, the data might not accurately depict the relationship between the variables.

The Jarque-Bera Test was utilized in the study to ascertain whether or not the data was regularly distributed. When the distribution of the data is not bell-shaped, it is said to be non-normal. Initial proposals for the Jarque-Bera (1975) normalcy test were from Bowman and Shenton.

To guarantee that the findings of any regression analysis are consistent, it is crucial to make sure that the error term is normally distributed (Hopkins & Weeks, 1990). This test was used to determine whether the error term is normal. In order to ensure that regression findings are accurate,

this test is crucial since it helps determine if variables are regularly distributed. A negative error term should be eliminated from some variables if the P value is less than 0.05, which indicates that the error term is not normally distributed..

### **3.13.2 Serial-Correlation**

When there is a correlation between the independent variable and the error terms in a regression model, a variable is said to be endogenous. Measurement mistakes, simultaneity, auto-regression with auto-correlated errors, and variable omission are the causes of endogeneity. The study employed the studentized residual Breusch-Godfrey LM test to test for autocorrelation. Additionally, the study employed the Lagrange Multiplier (LM) analysis from the Durbin-Watson test (1978) to supplement the test. Durbin-Watson (d) statistics that lie between zero (0) and four (4) are generally considered acceptable. D values less than two (2) show a positive serial correlation, whereas values larger than two (2) imply a negative serial correlation. The d values around two (2) indicate no serial correlation in the error terms. As a result, (d) larger than 1.5 and less than 2.5 would be permitted.

According to Wooldridge (2012), serial correlation describes the relationship over time between a variable and a lagged version of the variable. It serves to explain the relationship between observations of the same variables over a certain time period and is crucial for spotting dynamic misspecification. When the error term for one observation is modified by the error term for another observation, it happens. The Breusch-Godfrey Lagrangian Multiplier (LM) test was adopted in this investigation. It is believed that an error term exists independently of one another. This applies more to time series data, where the data is organized according to time.

### **3.13.3 Heteroscedasticity test**

According to Gujarati (2003), heteroscedasticity is the absence of a consistent error variance. The problem results in biased test statistics, biased standard errors, and incorrect confidence intervals for the outcomes. According to Schuttenmeister et al. (2012), homoscedasticity is the opposite of heteroscedasticity and denotes that the variability of the dependent variable is constant across values of the independent variables. When the error term's variance fluctuates across all independent variable values, heteroscedasticity occurs. The variance of the error term depends on the size of the independent variables as the error term might differ from one observation to the next. By making sure the data used to test the hypothesis is normal and appropriately transformed, heteroscedasticity is reduced or completely eliminated.

Due to its applicability to error terms that are non-normal and non-linear models, Breusch-Pagan was chosen. Due to this problem, the standard errors become biased, invalidating test statistics and confidence intervals that skew the results. Because the Breusch-Pagan test may be used to error terms in non-normal and nonlinear models, it was necessary to choose it. (Friedman & Berry, 1985). The chi square test is expressed as  $mR^2$ , where  $m$  is the number of independent variables,  $df$  is the degrees of freedom, and  $R^2$  is the unadjusted coefficient of determination of the auxiliary regression (a regression equation between lagged squared error terms and predictor variables). Heteroscedasticity shouldn't be a problem until there are really grave circumstances because it doesn't lead to skewed parameter estimations (Gujarati, 2003).

### **3.13.4 Multi-collinearity Test**

When there is a perfect linear relationship between the variables in a research study, multi-collinearity may happen. This causes the research study's findings to be biased. It is possible to predict one variable from another. Regression model outputs become skewed as a result of the

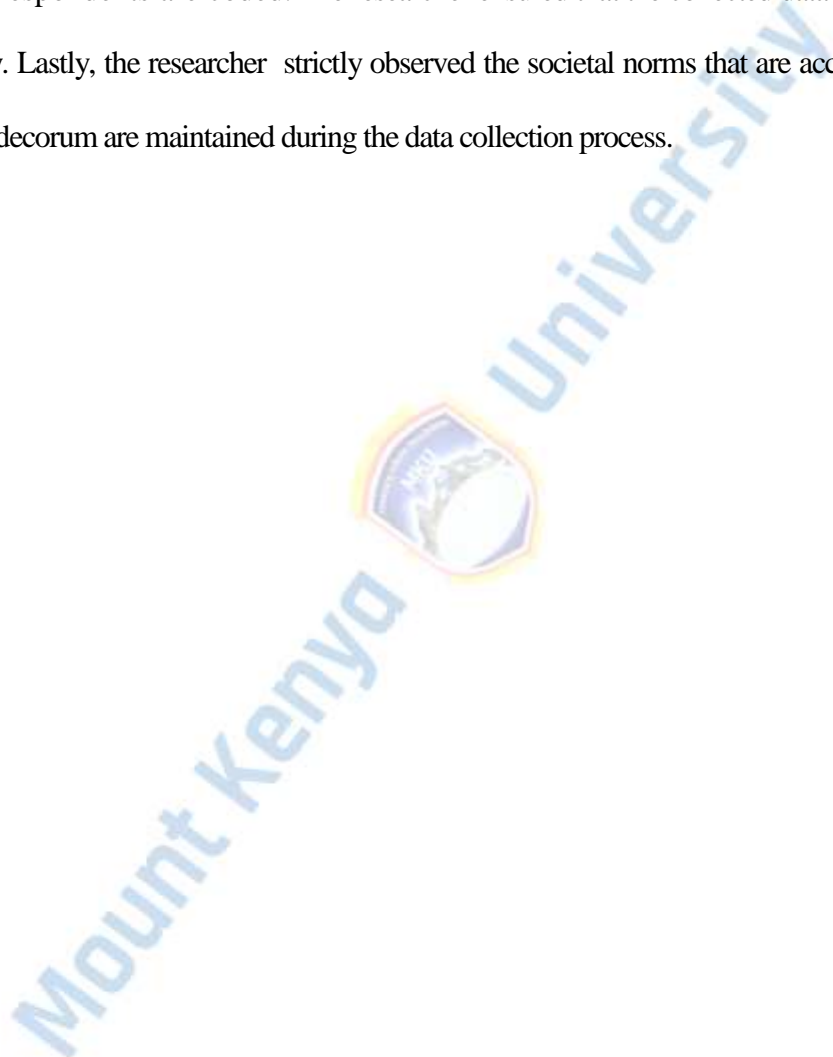
duplicate information. Correlation coefficients are used to determine multicollinearity for all independent variables. Utilizing variance inflation factors (VIF), multicollinearity was investigated in this work. Variance inflation factors (VIFs) and correlation coefficients were used in this test. In this case, there is a strong degree of correlation between the independent variables (Kothari, 2004). The instability caused by the distortion of the regression coefficients makes them difficult to understand, which renders significance tests erroneous (Cooper & Schindler, 2006). The multicollinearity-related inflation of standard errors of slopes is measured by VIF. The presence of multi-collinearity was determined for those variables having at least 0.8 coefficients or a VIF of at least 5 after the coefficients were compared with 0.8 or 5 (Gujarati, 2003). All of the VIF values were below 5, indicating that the collinearity was not detrimental, according to the data.

All VIFS will equal one if there is a correlation between two variables (Hansen et al. 2013). Multicollinearity is also present if the variance in variance for any one of the variables is equal to or higher than five. Since there is no multicollinearity, all of the VIFs are less than 5. The counterpart of tolerance is called VIF. Therefore, collinearity exists if one of the variables' tolerances is equal to or less than 0.2. Once more, since every tolerance result was higher than 0.2, the presumption that multicollinearity does not exist was not broken.

### **3.14. Ethical Consideration**

According to Sullivan (2001), social researchers must take ethical issues into account when doing their study. The researcher sought approvals for data collection from the School of Business and Economics, Mount Kenya (MKU) and the Ethical Review Committee (ERC). Once approval was given from MKU, Further, the researcher applied to the National Commission for Science, Technology and Innovation (NACOSTI) seeking approval to collect data. Once approval was

granted by all the parties highlighted, data collection was initiated. The researcher proceeded to obtain the data from the CBK and World Bank. Using a data collection sheet the data collected was used purely for the purposes of this study and was not used in a way that will cause any disadvantage to the reliability of the research. Anonymity was also observed in this study by ensuring that the respondents are coded. The researcher ensured that the collected data are stored safely under lock and key. Lastly, the researcher strictly observed the societal norms that are acceptable to make sure that mien and decorum are maintained during the data collection process.



## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### 4.0 Overview

The primary goal of this study was to experimentally investigate the relationship between Kenya's economic growth and trade liberalization. Data was gathered and analyzed. Results are presented in the section using both descriptive and inferential statistics. Descriptive entails mean, standard deviations, minimum and maximum values. The patterns of correlation between the variables are also shown along with a graphical depiction of the univariate characteristics of each variable, the unit root test findings and multivariate regression assumptions are shown. Correlation analysis, regression model estimation, and hypothesis testing are all examples of inferential statistics. Tables and graphs were used to present the results.

#### 4.1 Descriptive Statistics for Each Variable

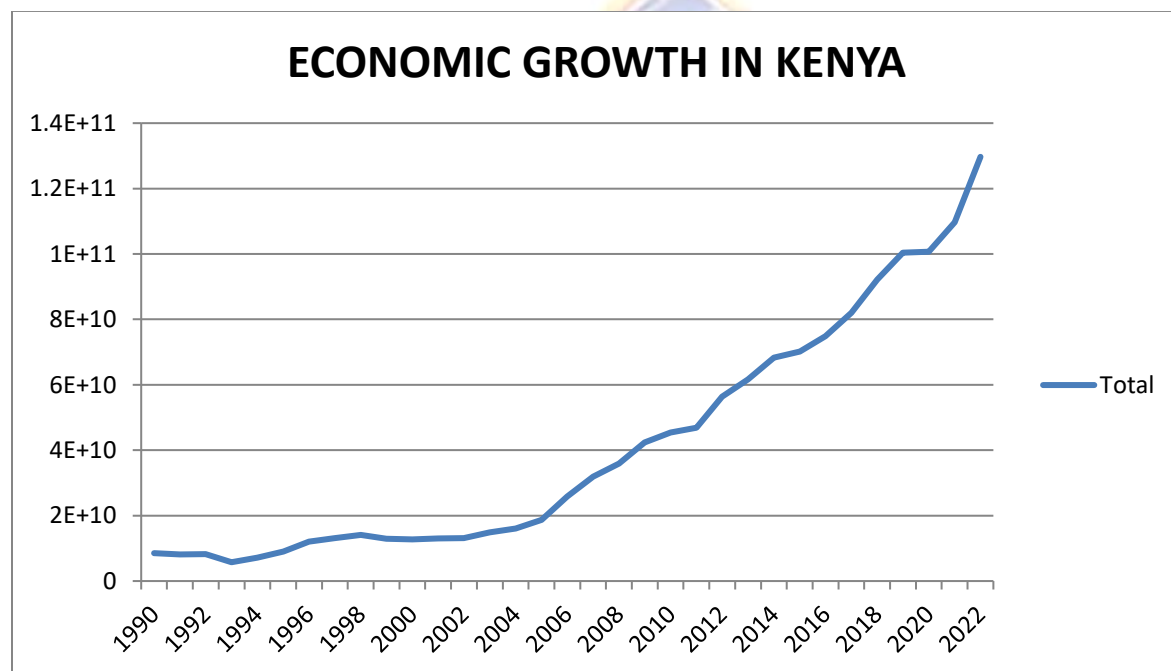
Description of data are provided for a number of variables in Table 4.1, including GDP, foreign direct investment inflows, imports of goods and services into Kenya, and manufacturing production in Kenya. It offers details on the mean, standard deviation, and range of each variable's values, as well as the minimum and maximum values. These statistics facilitate the comprehension of the characteristics and variability of the dataset across these several categories. The entire monetary value of all goods and services produced within a nation's borders over a specific time period is represented by the GDP. According to the information presented here, Kenya's GDP numbers vary considerably across observations, with a mean value of about 41.30 billion USD. According to the data, Kenya's GDP has fluctuated between a minimum of 5.75 billion USD to a maximum of 130.0 billion USD. Kenya's economy has experienced significant fluctuations, with a relatively large standard deviation indicating a wide range of GDP values. The minimum and

maximum values highlight the variability and the country's economic diversity over the observed period.

**Table 4. 1 Descriptive Statistics**

Variable	Obs	Mean (Billion USD)	Std. Dev. (Billion USD)	Min (Billion USD)	Max (Billion USD)
GDP of Kenya	33	41.30	36.10	5.75	130.00
FDI Inflows	33	0.357	0.44	0.05	1.45
Imports	33	11.10	6.76	2.17	22.90
Manufacturing output	33	4.12	2.97	0.49	9.08

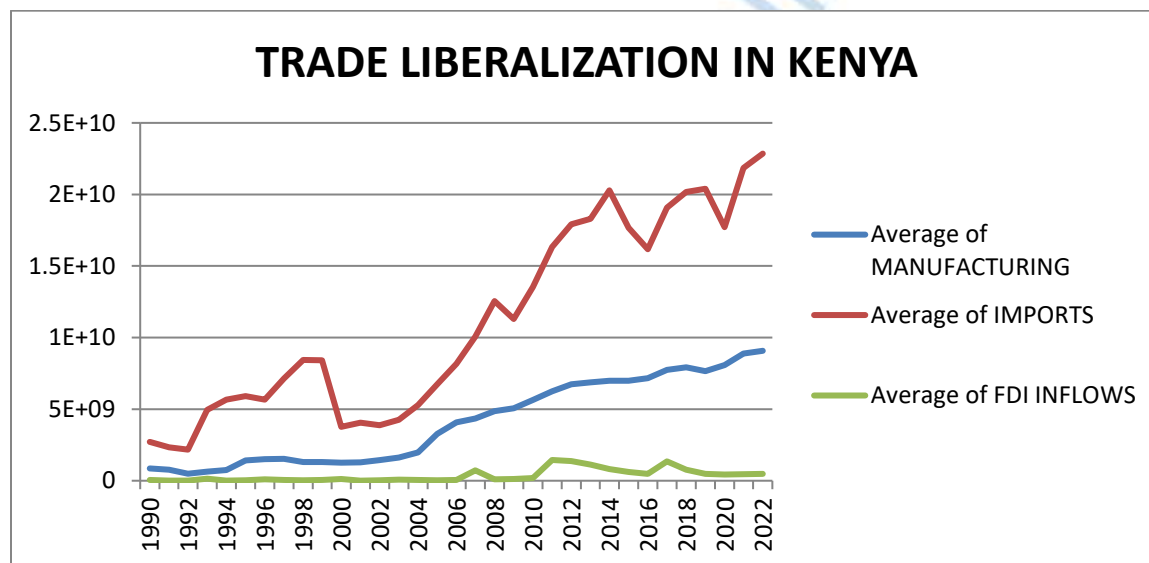
Source: Research, 2023



**Figure 4. 1 Economic growth of Kenya**

Source: Research, 2023

Figure 4.1 shows Kenya's economy has been on a positive trend and sharp growth between 2005 to 2022. FDI is the term used to describe direct foreign investment in a nation's economy. According to the statistics, FDI in Kenya has varied, with a mean amount of about 0.357 billion USD. The FDI amounts range from 0.05 at the lowest end to 1.45 billion at the highest. Kenya's foreign direct investment has shown moderate fluctuations. The relatively small range between the minimum and maximum values suggests certain stability in FDI inflows compared to the GDP. Imports are value of products and services imported into a nation. According to the figures, the average value of imports is about 11.10 billion dollars. For the whole study period (1990-2022), import amounts range from a minimum of 2.17 billion to a maximum of 22.90 billion dollars.



**Figure 4. 2 Trade liberalization in Kenya**

**Source: Research, 2023**

Kenya's imports show significant variability, as indicated by the relatively large standard deviation. The wide range between the minimum and maximum values highlights the diversity in imported goods and the country's trade activities

Finally, the value of the goods produced by Kenya's manufacturing sector is referred to as manufacturing output. According to the figures, the average manufacturing production is roughly 4.12 billion USD. Minimum and maximum manufacturing output values are 0.49 billion dollars and 9.03 billion dollars, respectively. These data show the variances and trends within these particular variables, providing an overview of Kenya's economic indicators as shown by Figure 4.2. Kenya's manufacturing sector shows moderate variability. The standard deviation suggests some fluctuations around the mean value. The range between the minimum and maximum values indicates the diversity in manufacturing activities within the country. In summary, these statistics provide insights into the economic performance and trade activities of Kenya. The interpretation underscores the variability and diversity within the country's economy and highlights potential areas of interest for further analysis or policy considerations.

According to the graph, Kenya's GDP has been rising gradually whereas FDI inflows have been unpredictable (have trends and drifts). Additionally, imports have favorable tendencies. A country's overall economic growth over the observed period may be indicated by the trend of its GDP figures. A rising mean GDP indicates that economic output is on the improvement. The import trend may be a reflection of shifts in consumer demand and economic activity. Rising imports may be a sign of expanding economic activity and rising consumption. Finally, the trend in manufacturing output reveals the growth of the manufacturing sector. A rising trend suggests an expanding industrial base. In summary, these trends and drifts provide insights into the overall direction and gradual changes in economic variables over time. Monitoring these patterns is crucial for policymakers, analysts, and businesses to make informed decisions and forecasts about the Kenya's economy in general.

## 4.2 Correlation Analysis

The correlation matrix between the GDP and trade liberalization (FDI Inflows, Imports, and Manufacturing Output) and are shown in Table 4.2. Correlation coefficients, which show the strength and direction of the linear relationship between two variables, are represented by the numbers in the matrix. These correlation coefficients highlight the relationships between the variables in the dataset. The strong correlations between GDP and both imports and manufacturing output suggest that these factors are integral components of Kenya's economic growth. Additionally, the moderate correlations between FDI inflows and other variables indicate the interconnections between foreign investment, imports, and manufacturing output in the country's economy.

**Table 4. 2 Pairwise correlation**

Variables	GDP	FDI Inflows	Imports	Manufacturing output
GDP of Kenya	1.0000			
FDI Inflows	0.5824*	1.0000		
Imports	0.9397*	0.7285*	1.0000	
Manufacturing output	0.9535*	0.7024*	0.9695*	1.000

**Source: Research, 2023**

The significance levels (\*) suggest the level of statistical significance of the correlations. The lower the p-value, the more significant the correlation is, indicating that the observed relationship is unlikely to have occurred by chance. There was a moderate positive correlation (0.5824) between GDP and FDI inflows in Kenya. This implies that as the GDP of Kenya increases, there is a tendency for FDI inflows to increase, although the relationship is not extremely strong. There was

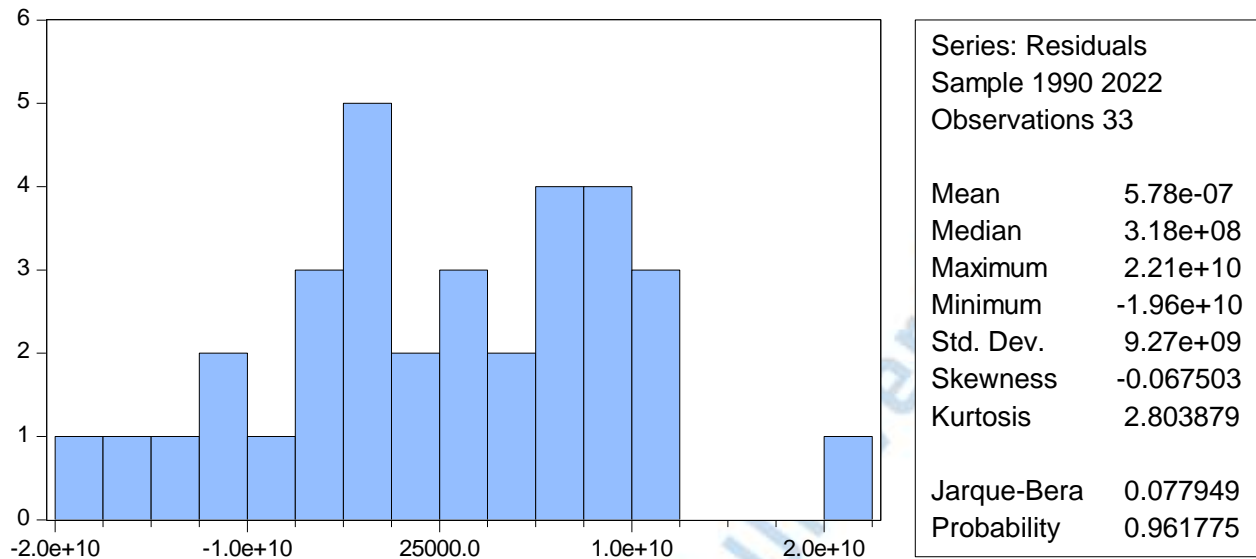
a very strong positive correlation (0.9397) between GDP and imports in Kenya. Kenyan GDP was highly correlated with the volume of imports. This suggests that as the GDP of the country grows, the demand for imports also increases significantly. Further, there was an extremely strong positive correlation (0.9535) between GDP and manufacturing output in Kenya. Kenyan GDP was almost perfectly correlated with manufacturing output. This indicates that the growth in GDP is closely related to the performance of the manufacturing sector. There was a moderately strong positive correlation (0.7285) between FDI inflows and imports, suggesting that an increase in foreign direct investment is associated with a rise in imports. FDI inflows and manufacturing output are moderately correlated. This implies that FDI might have a positive impact on the manufacturing sector in Kenya. Imports and manufacturing output are almost perfectly correlated, indicating that the performance of the manufacturing sector is highly reliant on imported goods and materials.

### **4.3 Diagnostic Results**

#### **4.3.1 Normality Assumption Using Jarque-Bera Test**

One of the assumptions of linear regression is normality. The errors or regression should be normally distributed. This assumption is necessary for making statistical inferences about the regression coefficients (such as hypothesis testing and confidence intervals). However, for large sample sizes (typically above 30), the Central Limit Theorem often ensures that the distribution of the sample means (and, consequently, the residuals) tends to be normal even if the underlying data is not. The findings of the Jarque-Bera Test, which was used to determine if the data were normally distributed, demonstrate that the null hypothesis—that the data which follows a normal distribution—cannot be rejected because a normal distribution of the residuals was found. The Jarque-Bera test statistic in Figure 4.3 was 0.0779, and its p-value was 0.962, which is larger than

0.05 and shows that the null hypothesis cannot be ruled out. Thus, there has been no alteration to the data supporting normal distribution.



**Figure 4. 3 Jaeque-Bera test for Normal Distribution of Residual.**

**Source: Research, 2023**

#### **4.3.2 Serial Correlation**

The residuals were tested for serial correlation using the Breusch-Godfrey LM test. No serial correlation is the test null hypothesis, whereas serial correlation is the alternative hypothesis. According to Breusch and Godfrey (1978), the null hypothesis that there is no serial connection should be rejected if the p-values are less than the 5% level of significance. On the other hand, the null hypothesis needs to be accepted if the chi-square p-value is greater than the 5% level of significance. The findings showed that the chi-square p-value was 0.0741. The study came to its conclusion by accepting the null hypothesis that there was no serial correlation. Additionally, Durbin Watson (1951), who proposed that the d-statistic lay between 1.5 and 2.0, provides support for the findings. The table show Durbin Watson statistic was 1.77 confirming no serial correlation.

**Table 4. 3 Breusch-Godfrey Serial Correlation LM Test**

F-statistic	20.29601	Prob. F(2,27)	0.0000	
Obs*R-squared	1.81797	Prob. Chi-Square(2)	0.0741	
Sample: 1990 2022				
Included observations: 33				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDIINFLOWS	10.53493	4.151425	2.537665	0.0172
IMPORTS	-0.865266	0.719753	-1.202171	0.2397
MANUFACTURING	1.387699	1.566163	0.886050	0.3834
C	9.03E+08	2.44E+09	0.370414	0.7140
RESID(-1)	0.563273	0.183666	3.066839	0.0049
RESID(-2)	0.490784	0.197952	2.479311	0.0197
R-squared	0.600545	Mean dependent variable	5.78E-07	
Adjusted R-squared	0.526571	S.D. dependent variable	9.27E+09	
S.E. of regression	6.38E+09	Akaike info criterion	48.15231	
Sum squared residuals	1.10E+21	Schwarz criterion	48.42440	
Log likelihood	-788.5131	Hannan-Quinn criterion.	48.24386	
F-statistic	8.118402	Durbin-Watson stat	1.77173	
Prob(F-statistic)	0.000088			

Source: Research, 2023

#### 4.3.3 Homoscedasticity Using Breusch-Pagan / Cook-Weisberg

The homoscedasticity implies the variance of the errors (residuals) is constant across all levels of the independent variable(s). In other words, the spread of the residuals should be roughly the same as the values of the independent variable(s) increase. Heteroscedasticity (where the spread of residuals varies) can affect the accuracy of the regression coefficients and hypothesis testing. The null hypothesis for the Breusch-Pagan/Cook-Weisberg model is homoscedasticity (constant variance), whereas the alternative hypothesis is heteroscedasticity. According to Breusch and Pagan (1979), the null hypothesis is believed to be true if the relevant chi-square test statistics' p-values are greater than the 5% level of significance. On the other hand, if the p-values corresponding to the chi-square test statistics are lower than the 5% level of significance, the homoscedasticity null hypothesis is rejected. The test's findings, presented in Table 4.4, reveal that the residuals of the model exhibit a homoscedastic distribution. The null hypothesis is supported

by the p-values for the chi-square test statistics of 0.0598, which are greater than the significance cutoff of 5% (0.05).

**Table 4. 4 Heterskedasticity Test: Breusch-Pagan-Godfrey**

F-statistic	4.987885	Prob. F(3,29)	0.0065	
Obs*R-squared	11.23202	Prob. Chi-Square(3)	0.0105	
Scaled explained SS	7.823540	Prob. Chi-Square(3)	0.0598	
Test Equation:				
Method: Least Squares				
Date: 10/06/23 Time: 14:47				
Sample: 1990 2022				
Included observations: 33				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.75E+19	3.70E+19	0.743511	0.4632
FDI INFLOWS	-1.59E+11	5.67E+10	-2.800888	0.0090
IMPORTS	-5.47E+09	1.07E+10	-0.509384	0.6143
MANUFACTURING	4.21E+10	2.36E+10	1.784895	0.0847
R-squared	0.340364	Mean dependent variable	8.33E+19	
Adjusted R-squared	0.272126	S.D. dependent variable	1.14E+20	
S.E. of regression	9.69E+19	Akaike info criterion	94.99107	
Sum squared residual	2.72E+41	Schwarz criterion	95.17247	
Log likelihood	-1563.353	Hannan-Quinn criterion	95.05211	
F-statistic	4.987885	Durbin-Watson stat	1.892540	
Prob(F-statistic)	0.006532			

**Source: Research, 2023**

#### 4.3.4 Multicollinearity Using Variance Inflation Factors (VIF)

In multiple regression (when there are more than one independent variable), there should not be perfect multicollinearity, meaning that one independent variable should not be a perfect linear function of any other independent variable(s). High multicollinearity can lead to unreliable coefficient estimates. VIF measures how much the variance of the estimated regression coefficients increases if your predictors are correlated. Specifically, VIF quantifies how much larger the standard error of the estimated coefficient is compared to what it would be if that predictor were uncorrelated with the other predictors in the model. The VIF test produced values

ranging from 1.13 to 2.98. Variables with a high VIF of 10 indicate substantial multicollinearity (Newbert, 2008). There can be no problems with this study from the VIF's point of view. As a result, based on the results of the diagnostic tests, multicollinearity does not appear to be a problem.

**Table 4. 5 VIF Measure for Multicollinearity**

<b>Variables</b>	<b>Variance inflation Factors (VIF)</b>	<b>Tolerance (1/VIF)</b>
Imports	2.98	0.3356
Manufacturing output	1.65	0.6061
FDI inflows	1.13	0.8850
<b>Mean VIF</b>	<b>1.93</b>	

Source: Research, 2023

When numerous explanatory variables exhibit a significant association with one another, there is a strong connection between several different independent variables. High correlation between the predictor variables in a multiple regression model leads to unstable estimations of the regression coefficients. The degree to which fluctuations in the outcome variable are explained by independent factors frequently leads to unexpected results (Creswell, 2014). The correlation between the explanatory factors will never be zero, but it will often be positive, according to Brooks (2008). This is due to the fact that although there will nearly always be some connection between the explanatory factors, it won't have a big effect.

#### **4.4 Model Estimation and Interpretation of the Results**

The study used VAR model to achieve its objectives. VAR stands for Vector Autoregressive model. It is a method used for estimating the parameters of a linear regression model. In linear regression, the goal is to find the best-fitting linear relationship between the independent variable(s) and the dependent variable. VAR accomplishes this by minimizing the sum of the

squared differences between the observed and predicted values. VAR has desirable properties when the assumptions of the classical linear regression model are met. These assumptions include data should follow a normal distribution, no serial correlation; residuals are homoscedastic and no collinear relationship between the independent variables. In this study, all of them were met.

**Table 4. 6 Model Estimation**

Source	SS	df	MS	Number of obs = 33		
Model	3.8926e+22	3	1.2975e+22	F( 3, 29) = 136.96		
Residual	2.7474e+21	29	9.4739e+19	Prob > F = 0.0000		
Total	4.1674e+22	32	1.3023e+21	R-squared = 0.9341		
				Adj R-squared = 0.9273		
				Root MSE = 9.7e+09		

gdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Fdi(inflows)	-17.34457	5.697323	-3.04	0.005	-28.9969	-5.692233
imports	2.258658	1.078964	2.09	0.045	.0519289	4.465387
manufacturing	8.421382	2.367712	3.56	0.001	3.578868	13.2639
_cons	-1.22e+10	3.72e+09	-3.29	0.003	-1.98e+10	-4.63e+09

**Source: Research, 2023**

The table 4.6 presents regression coefficients of the trade liberalization variables on economic growth in Kenya. FDI inflows have a negative and significant contribution on economic growth ( $\beta=-17.345$ ,  $p=0.005<0.05$ ). The total imports of goods and services and manufacturing output have a positive and significant effects on economic growth with respective coefficients  $\beta=2.259$  ( $p=0.045<0.05$ ) and  $\beta=8.421$  ( $p=0.001<0.05$ ). From the findings, the coefficient ( $\beta$ ) for FDI inflows is -17.345. Since this coefficient is negative, it suggests that there is a negative relationship between FDI inflows and economic growth. In other words, an increase in foreign direct investment (FDI) is associated with a decrease in economic growth. The negative sign indicates an inverse correlation. This negative relationship is statistically significant because the p-value

(0.005) is less than the commonly used significance level of 0.05. Therefore, the negative impact of FDI inflows on economic growth is considered statistically significant in this analysis.

The coefficient for total imports of goods and services is 2.259. This positive coefficient indicates that there is a positive relationship between the total imports of goods and services and economic growth. In simpler terms, when a country imports more goods and services, it is associated with an increase in economic growth. This relationship is statistically significant because the p-value (0.045) is less than 0.05, indicating that the effect of imports on economic growth is considered statistically significant.

The coefficient for manufacturing output is 8.421. Similar to imports, this positive coefficient suggests a positive relationship between manufacturing output and economic growth. When manufacturing output increases, it is associated with a rise in economic growth. This effect is statistically significant because the p-value (0.001) is less than 0.05, indicating a significant impact of manufacturing output on economic growth.

Trade liberalization, which involves reducing or eliminating trade barriers such as tariffs and quotas, can have several effects on economic growth in a country like Kenya. However, the impact of trade liberalization on economic growth is complex and multifaceted, and it can vary based on the specific circumstances of the country. In Kenya, trade liberalization might affect economic growth in following ways; Trade liberalization can lead to an increase in exports as Kenyan goods and services become more competitive in the global market. This can boost economic growth by increasing revenue for domestic industries and creating jobs. While liberalization promotes exports, it also exposes domestic industries to greater competition from foreign goods and services. This can lead to increased efficiency as domestic industries strive to improve their products and

processes to remain competitive. However, it can also lead to job losses in sectors unable to compete.

On Foreign Direct Investment (FDI), trade liberalization can make Kenya a more attractive destination for foreign direct investment. Foreign companies may be more willing to invest in Kenya if they can easily export their products from the country or if they see a growing market due to increased exports. Increased international trade can facilitate the transfer of technology and knowledge between countries. This technology transfer can lead to productivity gains in domestic industries, potentially driving economic growth.

Access to international markets can encourage diversification of the Kenyan economy. Instead of relying heavily on a few sectors, a diversified economy is often more resilient and can sustain economic growth in the long term. Trade liberalization can lead to a greater variety of goods and services available to consumers, often at lower prices due to increased competition. This can improve the overall standard of living for the population. Increased trade, especially exports, can lead to higher government revenue through taxes and tariffs. This revenue can be reinvested in public infrastructure, education, and healthcare, fostering economic development. However, it's important to note that the benefits of trade liberalization are not automatic and can be influenced by various factors, such as the quality of institutions, infrastructure, the skill level of the workforce, and global economic conditions. Additionally, there are potential challenges, such as trade imbalances, that need to be managed to ensure sustainable economic growth.

#### **4.5 Discussions**

The study found that FDI negatively influence economic growth. According to the study, the short-term negative effects on GDP caused by FDI may be the result of sectorial imbalance, as FDI may weaken local industries. For instance, if a sizable part of FDI is focused on industries that directly

compete with already-existing local enterprises, it could result in a brief decline in GDP as domestic industries adapt to the new competition. Nouredine & Hamid (2016) investigated the connection between trade balance and FDI.

The usefulness of foreign investment in Morocco's many industries was highlighted. The study's conclusions made it clear that FDI and trade balance have nothing to do with one another. The explanation for this is that as foreign direct investment (FDI) increases, exports also rise as a result of investments made in industries that are trade-able, like manufacturing. Furthermore, an increase in imports draws more foreign direct investment (FDI) because the nation mostly depends on imported inputs to produce its exports. Additionally, the trade balance is deteriorating as a result of foreign investment in non-tradable industries. As a result, foreign direct investment (FDI) increases imports without having the same effect on exports.

If FDI entails extensive resource extraction without significant value addition, it can result in a situation where raw materials are exported, which would have a limited positive impact on domestic economic growth. If the profits from resource extraction are not being invested back into the local economy, this could result in a decline in GDP.

Furthermore, Marinela (2015) looked into how FDI affected Romanian businesses' efforts to liberalize trade. The aforementioned companies operated from 2008 to 2013. The analysis's primary focus was on the imports and exports of the companies that used foreign money. The study's findings showed that companies receiving FDI had a negative trade balance. In actuality, the costs of imports were not sufficiently covered by the exports from the companies with the biggest proportion of FDI. In an effort to close the trade imbalance, Romania therefore made it essential for businesses who import more than they export to improve their export share.

It is clear from the conversations that follow that there is no clear correlation between FDI and trade balance. Nonetheless, FDI inflows were mostly responsible for the trade balance's decline. Therefore, FDI can only be profitable for a country if it drives growth in both imports and exports. However, it remains unclear how foreign direct investment (FDI) in certain economic sectors, like agriculture, has affected global commerce.

A positive and significant effect of imports on economic growth implies that imports are associated with positive economic outcomes and it happens when a rise in imports per unit leads to an improvement in GDP. Imports can contribute favorably to economic growth under a strategy called import-led growth. Increased imports may give customers access to a greater range of products and services, improving their general well-being. In addition, imports can boost domestic output, enabling the economy to diversify and focus on industries where it has a comparative edge. The diversification of the economy can promote greater economic stability and expansion. The economy may become more inventive, which will result in higher productivity and economic growth, by importing products that introduce the workforce to cutting-edge concepts and technologies.

The results support those of Abdullahi et al. (2016), who discovered that imports have a favorable effect on GDP growth in West African nations. Imports and economic growth have been shown to be correlated over the long run by Lawal and Ezeuchenne (2017). The assumption of import-led growth in India during the post-reform period was examined by Maitra (2020). In the short and long terms of his analysis, he discovered strong evidence that the ILG hypothesis is correct, showing that imports have a major impact on India's economic growth. Taniguchi (2018) investigated how a rise in Chinese imports affected Japan's regional labor markets. He discovered

proof that China's import increase had a favorable impact on Japan's prefecture-level manufacturing job growth.

In 2013, China invested 90% of its total investment in Kenya in the industrial and services sectors, according to Onjala (2016). The author also mentions that as of 2014, there were sixty Chinese companies operating in Kenya, and eight more were founded in 2016 to work in the same industries. However, as a result of the 2007 post-election violence, FDI inflows decreased to US\$ 95 million in 2008 from US\$ 729 million the year before. Additionally, other African states became more competitive in 2016 as appealing locations for foreign direct investment.

The study also sought to determine the economic impact of manufacturing in Kenya on the expansion of the products industry. Manufacturing output had a considerable and significant positive impact on GDP. From an economic perspective, manufacturing has the potential to generate a significant multiplier effect on the economy. When manufacturing output increases, it creates demand for various inputs such as raw materials, labor, machinery, and services. This increased demand for inputs stimulates economic activity in multiple sectors, leading to further production, job creation, and income generation. The additional income earned by individuals and businesses is then spent on consumption, creating a cascading effect that magnifies the initial increase in manufacturing.

Positive trade balances and higher foreign exchange revenues result from the export of higher-value goods, which is a result of the expansion in manufacturing. Innovation and technical improvement are frequently driven by manufacturing. Manufacturers invest in research and development as they work to increase production, quality, and efficiency. This results in the development of new technologies, procedures, and goods. Other industries benefit from this innovation's spillover effects, which raise overall productivity and competitiveness.

Manufacturing requires a lot of labor and can produce positions for people with a range of skills, from assembly line workers to engineers and designers. Higher economic growth is facilitated by more work possibilities, which also lower unemployment and increase consumer spending. The extraction of raw materials, transportation, logistics, and services are all strongly related to manufacturing. A rise in manufacturing develops favorable supply chain connections that help a variety of businesses. Efficiency, productivity, and economic diversity all grow with the transition from largely agrarian to industrial economies. Overall, the capacity of manufacturing to produce broad-based economic gains through a variety of channels supports the link between manufacturing production and economic growth. However, it's crucial to remember that depending on the unique economic backdrop, policy, and other factors, the exact degree of this link might change. This study is supported by Chakravarty and Mitra (2009) who came at the conclusion that India's manufacturing sector drives economic growth. The manufacturing industry, according to the authors, also fosters growth in other industries over the long run. Singariya and Sinha (2015) discovered using the Johansen test that there is a long-term association between the variables in India and the causal direction from manufacturing to GDP. The authors come to the conclusion that agriculture is more important in boosting GDP. In South Africa, Tsoku et al. (2017) also support Kaldor's theory, demonstrating that there is a unidirectional causal relationship between manufacturing and economic growth. According to Ududechinyere et al. (2018), manufacturing output is essential for Nigeria's economy to expand. Szirmai and Verspagen (2010) found that manufacturing is an engine for growth, particularly in poorer countries.

Su and Yao (2016) and Marconi, Reis, and Araùjo (2016), who derive the conclusion that boosting industrial production is essential for economic growth and productivity, particularly in middle-income countries, provide additional support for the findings. In 28 African countries,

manufacturing is the main source of growth, according to Olamide and Oni (2016), who also argues that de-industrialization, may be harmful to the continent's economic development. Cantore et al. (2017) analyze the structural change and employment effects of the manufacturing sector on economic growth in 80 countries and find that manufacturing increases GDP through structural change involving an increase in productivity. Keho (2018) asserts that increased industrial output in the U.S. contributes to economic growth.



## CHAPTER FIVE

### SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.0 Overview

The section provides main summary of some the findings, conclusions and provides the recommendations based on the objectives, and then suggest some areas for further research.

#### 5.1 Summary of Findings

The mean value of Kenya's GDP across observations is approximately 41.30 billion USD. Kenya's GDP has ranged between a minimum of 5.75 billion USD and a maximum of 130.0 billion USD, according to the data. The economy of Kenya has undergone severe changes, and the economy's very high standard deviation suggests that GDP estimates might range widely. The minimum and highest values draw attention to the variation and economic variety of the nation during the observed time. The records show that FDI has varied in Kenya, with a mean value of roughly 0.357 billion USD. From 0.05 at the lowest end to 1.45 billion at the highest, FDI quantities are available. Foreign direct investment into Kenya has fluctuated somewhat. Comparatively narrow difference between minimum and maximum. Imports are value of products and services imported into a nation. According to the figures, the average value of imports is about 11.10 billion dollars. For the whole study period (1990-2022), import amounts range from a minimum of 2.17 billion to a maximum of 22.90 billion dollars. The average manufacturing production is roughly 4.12 billion USD. Minimum and maximum manufacturing output values are 0.49 and 9.03 billion dollars, respectively. Kenya's manufacturing sector shows moderate variability. The standard deviation suggests some fluctuations around the mean value. The range between the minimum and maximum values indicates the diversity in manufacturing activities within the country. In summary, these statistics provide insights into the economic performance and trade activities of Kenya. The

interpretation underscores the variability and diversity within the country's economy and highlights potential areas of interest for further analysis or policy considerations.

From the regression analysis, the regression coefficients of the trade liberalization variables on economic growth in Kenya indicate that FDI inflows have a negative and significant contribution on economic growth ( $\beta=-17.345$ ,  $p=0.005<0.05$ ). Imports of goods and services and manufacturing output have a positive and significant effects on economic growth with respective coefficients  $\beta=2.259$  ( $p=0.045<0.05$ ) and  $\beta=8.421$  ( $p=0.001<0.05$ ). The results show that the FDI inflows coefficient ( $\beta$ ) is -17.345. Because of the negative sign of this coefficient, it is possible that there is a negative correlation between FDI inflows and economic growth. In other words, a decline in economic growth is correlated with a rise in foreign direct investment (FDI). An inverse correlation is shown by the negative sign.

Total imports of goods and services have a coefficient of 2.259. The fact that this coefficient is positive suggests that there is a link between overall imports of commodities and services and economic expansion. In simple terms, increased imports of goods and services are correlated with higher economic growth in a nation. The p-value (0.045) is less than 0.05, which denotes that the association between imports and economic growth is thought to be statistically significant. The manufacturing output coefficient is 8.421. This positive coefficient shows that manufacturing production and economic growth have a similar positive association to imports. A rise in economic growth is correlated with an increase in manufacturing production. Because the p-value (0.001) is lower, this effect is statistically significant.

## **5.2 Conclusion**

The study can infer a number of economic implications about the connections between these trade liberalization factors and Kenya's economic development based on its findings. The fact that FDI

has a statistically significant negative impact on Kenya's economic growth is indicated by the negative beta coefficient and a significant p-value. This may suggest that an increase in FDI could potentially impede the nation's economic progress. This might be the result of several things, such as unhealthy competition between FDI and local businesses or high rate of profit repatriation to foreign countries.

Imports had a favorable impact on GDP. Imports of products and services have a statistically significant positive impact on Kenya's economic growth. This might be on the fact that the main Kenya import are machineries, petroleum products and equipment, which is used in creating jobs and value both for export and local consumption. Manufacturing, the highly positive beta coefficient and a significant p-value indicate that the manufacturing sector has a very strong and statistically significant positive effect on economic growth in Kenya. This highlights the importance of a robust manufacturing sector in driving economic growth. A thriving manufacturing sector can create jobs, increase exports, and stimulate overall economic activity.

These results imply that, while FDI may have a detrimental effect on Kenya's economic growth, other factors, such as imports, and a robust manufacturing sector, contribute favorably to that growth. Kenyan policymakers may simultaneously emphasize the promotion of the manufacturing industry and responsible debt management to support long-term economic growth. Trade policies that encourage imports may also be advantageous for the economy.

### **5.3 Policy Recommendations**

Here are some policy recommendations for Kenya to boost its economic growth based on the trade liberalization factors. These policy suggestions ought to be put into practice with an emphasis on long-term economic sustainability and inclusive growth, taking into account the particular difficulties and chances present in Kenya's economic environment. Additionally, effective policy

implementation and adaptation depend on engagement with relevant stakeholders, such as the private sector and civil society. Trade liberalization, when implemented effectively, can have positive effects on economic growth by promoting efficiency, fostering innovation, and enhancing overall competitiveness. The following are policy suggestions.

- i. Implement institutional reforms to improve the ease of doing business, enhance contract enforcement, and reduce corruption. Transparent and efficient institutions create a favorable environment for trade and investment.
- ii. Support export-oriented industries and help diversify export markets. Diversification reduces dependency on a specific market and enhances resilience against economic fluctuations
- iii. Simplify customs procedures, reduce red tape, and streamline trade-related regulations. Trade facilitation measures can significantly reduce the time and cost of moving goods across borders
- iv. Government and other stakeholders should prioritize Improving infrastructure, including transportation, energy, and communication networks. Efficient infrastructure reduces trade costs and makes it easier for businesses to engage in international trade.
- v. Support for Small and Medium-sized Enterprises (SMEs). Provide support and incentives for SMEs to participate in international trade. SMEs often face challenges in accessing global markets, and targeted policies can help them compete effectively.
- vi. Trade success has been positively correlated with foreign exchange, which implies that variations in the value of the Kenyan Shilling relative to the US dollar improved trade performance in Kenya. Because a rise in foreign exchange leads to an improvement in

performance or profitability, managers should thus direct their strategies toward trading in foreign exchange as this will boost trade performance.

- vii. The government must exercise caution when establishing a trade policy that will not adversely impact profitability. Additionally, they must be aware of how their policies impact the functioning of financial institutions and the manufacturing sector in order to ensure that the ways and means at their disposal are wisely used to maximize profit. This would guarantee that the percentage of underperforming sectors is always kept to a minimal.
- viii. In order to mitigate the negative effects of trade liberalization, managements had to assess the effectiveness of the quarterly macroeconomic policies. It is not necessary for the government to wait for a trade imbalance to occur before starting an assessment. Instead, this ought to be included into the country's daily economic plans. The Kenyan government needs to constantly decide what its goals are in order to support the country's economy's ability to absorb foreign capital and grow without facing obstacles.
- ix. Given the effect of foreign direct investment on trade, the government ought to promote it. This demonstrates that during the research period, there was a capital flight. This may be achieved via establishing a stable political and economic climate as well as shortening the approval process for investments.
- x. To manage the trade balance, the government should control international commerce. To achieve this and enhance the performance of manufactured exports, tariffs and export promotion campaigns can be used to balance imports and exports.
- xi. Government and other stakeholders ought to encourage domestic investment.

This may be accomplished via giving credit to the private sector and encouraging investment and savings. Export-oriented industries should be supported in order to boost manufacturing.

#### **5.4 Recommendation for Future Research**

The following are suggested areas for future research. Future researchers need to conduct longitudinal studies that track the effects of trade liberalization on public budget over an extended period. Long-term analyses can reveal trends, patterns, and shifts in the relationship between trade policies and economic growth.

Investigate sectorial analysis. Investigate the effects of trade liberalization on specific sectors of the economy, such as agriculture, manufacturing, services, and technology. Understanding how different sectors respond to liberalization policies can provide valuable insights for targeted interventions and policy recommendations

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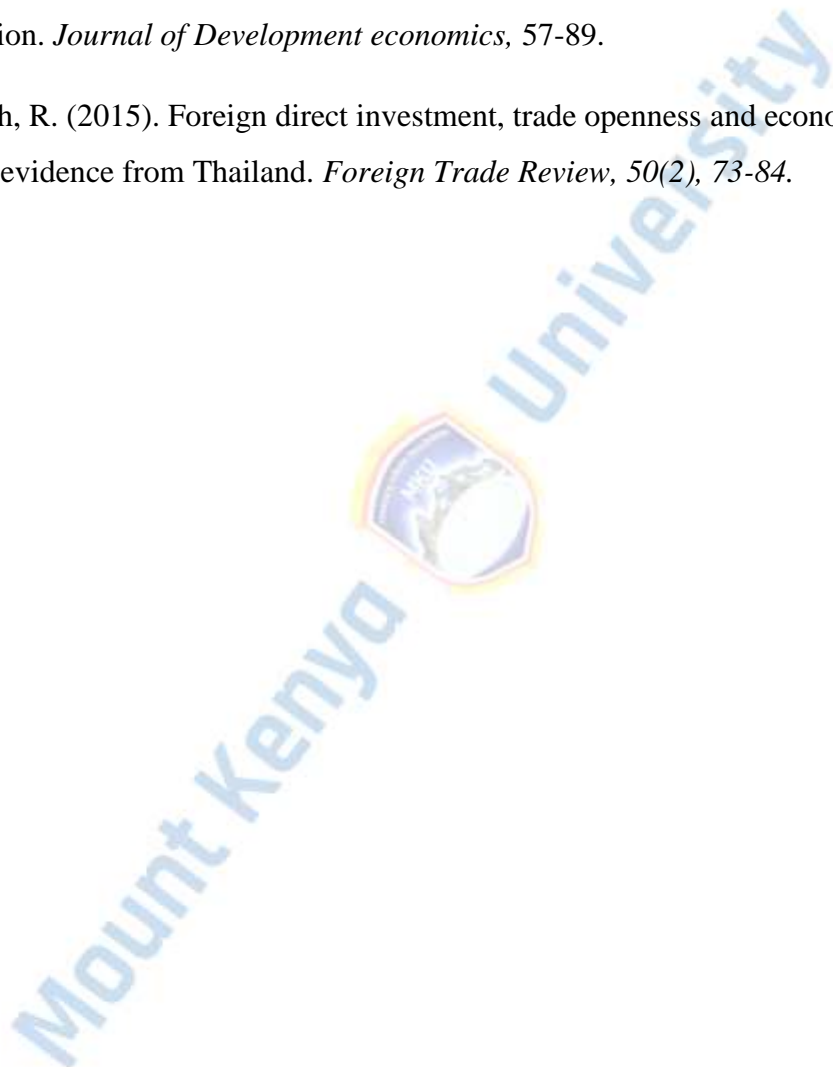
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## APPENDICES

### Appendix 1: Data collection sheet

YEAR	GDP	FDI	IMPORT	MANUFACTURING OUTPUT
1990				
1991				
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**Appendix 2: Consent Form**

I am **TOCHI MARYBLOSSOM CHUKWU**, a master student at Mount Kenya University. I am conducting a study on

**“THE EFFECT OF TRADE LIBERALIZATION ON ECONOMIC GROWTH IN KENYA”**

I kindly wish to inform you that the study is partial fulfillment of my master degree program. I recruit you to conveniently and freely participate in this study and am seeking your consent. Confidentiality will be maintained by using code numbers rather than names and information gathered will not be revealed to anybody. Participation in the study is voluntary. The project poses no any risks to the participants.

Before I involve you in this study, I kindly request you to sign the declaration below.

I have read the purpose and I hereby agree/disagree to participate in this study.

Respondent (coded)

Sign.....

Date.....

Principal investigator

Name: **TOCHI MARYBLOSSOM CHUKWU**

Sign.....

In case of any complaints or further clarifications, kindly conduct the;

Chairman,

Mount Kenya University,

Ethics Review Committee,

P.O Box 342-0100

**Thika.**

Appendix 3: Letter of introduction



**DIRECTORATE OF GRADUATE STUDIES**

MBA/2022/46778

25<sup>th</sup> January, 2024

National Commission for Science Technology & Innovation (NACOSTI)  
Off Waiyaki Way, Upper Kabete,  
P.O Box 30623- 00100  
NAIROBI, KENYA

Dear Sir/Madam,


**RE: TOCHI MARYBLOSSOM CHUKWU - REGISTRATION NO. MBA/2022/46778**

The purpose of this letter is to introduce the above named student who is pursuing **Master of Business Administration** in the department of **Accounting and Finance** in the school of **Business and Economics**

The title of the research is "**The Effect of Trade Liberalization on Economic Growth in Kenya.**" It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **January, 2024 and March, 2024.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

  
**Dr. Samuel M. Karenga, Ph.D**  
**Director, Graduate Studies**  
Enc.

Mount Kenya University  
P. O. Box 342 - 01000 Thika  
Office of the Registrar  
Graduate Studies

Appendix 4: Ethical review form



REF: MKU/ISERC/3426

TO: TOCHI MARYBLOSSOM CHUKWU

Date: 20 January 2024

REG: MBA/2022/46778

Dear Sir/Madam,

**RE: THE EFFECT OF TRADE LIBERALIZATION ON ECONOMIC GROWTH IN KENYA**

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2470**. The approval period is **20/01/2024 - 19/01/2025**.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including informed consents, study instruments, MTA will be used
- ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
- vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely,

**Dr. Alfred Owino, PhD**  
Chairman, Mount Kenya University ISERC



Main Campus, General Kago Road, P.O. Box 342-01000 Thika.  
Cell: +254 709 153 000 / +254 709 153 200  
Email: [info@mku.ac.ke](mailto:info@mku.ac.ke) Web: [www.mku.ac.ke](http://www.mku.ac.ke)  
Chartered and ISO 9001 : 2015 Certified Institution.  
Unlocking Infinite Possibilities

**Appendix 5: Research permit**



Ref No: **664054**

Date of Issue: **06/March/2024**

**RESEARCH LICENSE**



**This is to Certify that Miss.. Tochi Maryblossom Chukwu of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Uasin-Gishu on the topic: THE EFFECT OF TRADE LIBERALIZATION ON ECONOMIC GROWTH IN KENYA for the period ending : 06/March/2025.**

License No: **NACOSTI/P/24/33546**

Director General NATIONAL COMMISSION  
SCIENCE, TECHNOLOGY  
& INNOVATION  
Verification QR Code

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## Appendix 6: The similarity index

### THE EFFECT OF TRADE LIBERALIZATION ON ECONOMIC GROWTH IN KENYA

#### ORIGINALITY REPORT

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STUDENT PAPERS

#### PRIMARY SOURCES

**1**

Naser Elahinia, Shekoufeh Karami, Mohammad Karami. "The effect of manufacturing value added on economic growth: empirical evidence from Europe", Pressacademia, 2019

Publication

**1%**

**2**

Khder Aga, Ahmed Abdulrahman. "The Impact of Foreign Direct Investment on Economic Growth: A Case Study of Turkey 1980–2012", International Journal of Economics and Finance, 2014.

Publication

**1%**

**3**

"The Princeton Encyclopedia of the World Economy. (Two volume set)", Walter de Gruyter GmbH, 2009

Publication

**1%**

**4**

Vusi Gumede, Santos Bila, Mduduzi Biyase, Shonisani Chauke, Sodiq Arogundade. "South African Economy", Springer Science and Business Media LLC, 2024

Publication

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## Appendix 7: Data

YEAR	GDP	FDI INFLOWS	IMPORTS	MANUFACTURING
1990	8572359163	57081096.18	2705024271	848777576.4
1991	8151488882	18830976.84	2330017110	764029156.6
1992	8209120678	6363133.145	2172404695	489533573.9
1993	5751786610	145655517.1	4941634798	645046014.2
1994	7148148564	7432412.602	5674510745	756584213.4
1995	9046320197	42289248.46	5921620417	1428577265
1996	12045865466	108672931.6	5662701480	1517268954
1997	13115764433	62096809.78	7130510607	1540468503
1998	14093998844	26548245.97	8434835928	1308246119
1999	12896010520	51953455.95	8406805044	1310630654
2000	12705350153	110904550.4	3762643505	1270023713
2001	12986007426	5302622.939	4048455388	1291582332
2002	13147736954	27618447.06	3867317721	1447083380
2003	14904517650	81738242.64	4259195557	1609661277
2004	16095337094	46063931.45	5289802784	1974240727
2005	18737895401	21211685.4	6738798772	3277091034
2006	25825512278	50674725.18	8171032137	4087593735
2007	31958195182	729044146	10059051073	4341795410
2008	35895153328	95585680.23	12559189062	4866945910
2009	42347217913	116257609	11301655303	5067436942
2010	45405615233	178064606.8	13531331102	5646725056
2011	46869473166	1450474757	16327969124	6250638700
2012	56396704833	1380173662	17915544715	6727747695
2013	61671440481	1118825000	18296308718	6872988264
2014	68285796663	820937598.4	20278677216	6994640644
2015	70120446664	619724465	17669402825	6973886972
2016	74815143796	469533310.7	16171497969	7169286990
2017	82036511259	1346085345	19080378459	7752781804
2018	92202979941	767761506.7	20167353326	7934529835
2019	100378435824	469940266.8	20408411990	7649807721
2020	100657505601	426305189.4	17717187854	8077811042
2021	109703659313	463348935.7	21853030898	8876951584
2022	129703659313	473348935.7	22853030898	9076951584

Source	SS	df	MS	Number of obs =	33
Model	3.8926e+22	3	1.2975e+22	F( 3, 29) =	136.96
Residual	2.7474e+21	29	9.4739e+19	Prob > F =	0.0000
Total	4.1674e+22	32	1.3023e+21	R-squared =	0.9341
				Adj R-squared =	0.9273
				Root MSE =	9.7e+09

	gdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
fdiinflows		-17.34457	5.697323	-3.04	0.005	-28.9969 -5.692233
imports		2.258658	1.078964	2.09	0.045	.0519289 4.465387
manufacturing		8.421382	2.367712	3.56	0.001	3.578868 13.2639
_cons		-1.22e+10	3.72e+09	-3.29	0.003	-1.98e+10 -4.63e+09

