# FOREIGN DEPENDENCY AND ECONOMIC GROWTH NEXUS IN KENYA

**BY**

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# DECLARATION

**Declaration by the Candidate**

This thesis is my original work and has not been submitted for the award of any degree in any University.

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## DEDICATION

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

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## ABSTRACT

Foreign dependency is an economic phenomenon, which is characterized by asymmetrical benefits, favouring specific countries at the expense of others, and impeding the growth potential of dependent economies. The main objective of the study was to determine the relationship between foreign dependency and economic growth in Kenya. To achieve this overarching aim, specific objectives have been delineated to include an evaluation of the effect of Foreign Direct Investment inflows, import volumes, external debt levels and manufacturing output on economic growth in Kenya. The theoretical underpinnings of this study draw from several key economic theories and models, each offering unique insights into the dynamics of foreign dependency. These encompass the Dependency Theory, Absolute Cost Advantage Theory, the Harrod-Domar Growth Model, and the Solow-Swan Growth Model. The study factored in the effect of manufacturing output and import to the existing knowledge of foreign dependency. The study adopted explanatory design and leverages a forty-two year time series dataset spanning the years 1980 to 2021, which were sourced from the World Bank. Data stationarity was tested using Augmented Dickey-Fuller which they all attained stationarity property after first difference with their p-values less than 5%. The Johansen co-integration technique was applied which established the existence of co-integration. Using Breusch-Godfrey LM test the results revealed that the chi-square p-value was 0.6365, suggesting that no serial correlation was detected. To facilitate a comprehensive analysis, the Autoregressive Distributed Lag (ARDL) model was applied. The empirical analysis revealed noteworthy relationships between determinants of economic growth in the Kenyan context. Specifically, Foreign Direct Investment (FDI) inflows ($\beta = -3.58$, $p = 0.00$), imports of goods and services ($\beta = 0.27, p = 0.026$), external debt ($\beta = 1.44,\ p = 0.00$), are all identified as having statistically significant impacts on the trajectory of economic growth in Kenya while manufacturing output ($\beta = 0.21, p = 0.969$)was concluded to be statistically insignificant to the economic growth in Kenya . In conclusion, these findings suggest that while FDI may have a negative impact on economic growth in Kenya, other factors like imports, external debt, and a strong manufacturing sector contributes positively to economic growth. The study recommends that policymakers should explore strategies to attract productive FDI and stimulate positive investment spillover effects within the economy. Responsible external debt management is underscored as pivotal to fostering sustained and robust economic growth. Additionally, trade policies designed to facilitate import-led growth are posited as potentially beneficial for the Kenyan economy.

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## OPERATIONAL DEFINITION OF KEY TERMS

**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 (Hunt, 2007). 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.

**External Debt:** Refers to the proportion of a country's debt borrowed from foreign lenders and represents the country's outstanding amount of liabilities that require a certain payment of principal plus interest in future (Adesola, 2009).

**Foreign Dependency:** It refers to the degree or rate at which a nation rely on external bodies or foreign nations for support.

**Foreign Direct Investment:** This refers to an investment from abroad which involves an investor from one economy, developing a long-term stake in and substantial degree of control over a firm from another economy.

**Gross Domestic Product:** This refers to the total value of all goods and services produced over a given period usually a year. It is made up of both market-driven products and services as well as certain nonmarket output, like government supplied goods and services for military and education.

**Manufacturing output:** This refers to the total production of goods in a country over a given period.

**Nexus:** A relationship or connection between things or events especially that is or is part of a chain of causation.

## ACRONYMS AND ABBREVIATIONS

**ADF** Augmented Dickey-Fuller

**ARDL** Autoregressive Distributed Lag

**BOT** Balance of Trade

**CBK** Central Bank of Kenya

**DSSI** Debt Suspension Initiative

**ECM** Error Correction Mode

**FDI** Foreign Direct Investment

**FIPA** Foreign Investment Protection Act

**GDP** Gross Domestic Product

**GNP** Gross Net Product

**IMF** International Monetary Fund

**ISI** Import Substitution Industries

**LDC** Less Developing Countries

**PP** Phillips Perron

**UNCLA** United Nations Commission for Latin America

**UNCTAD** United Nations Conference on Trade and Development

**VAR** Vector Autoregressive

**VIF** Variance inflation factor

# CHAPTER ONE

# INTRODUCTION

## 1.1 Overview

This section provides the background of the study, the statement of the problem, the research objectives and their respective hypotheses, the justification of the study and scope of the study.

## 1.2 Background of the Study

The idea of dependency calls our attention to the international system's stagnation and deplorable state of Africa, Asia, and Latin America. Dependency theory suggests a situation in which one country or region depends on another for support and growth. It claims that the Third World countries' integration into the capitalist system, which is controlled by the West and North America, is exactly what has led to the state of underdevelopment of these countries (Randall and Theobald 1998).

The third world is a term used to describe the economically impoverished nations of Asia, Africa, Oceania, and Latin America. These nations are grouped together because they share traits like poverty, high birthrates, and economically dependent on developed countries for financial support the term therefore implies that the third world is exploited, and that its destiny is a revolutionary one.

Common attributes includes limited economic growth systems, rapid population expansion, and widespread inequality, characterize the underdevelopment of the third world (Woldu, 2020). These economies are also distorted and highly dependent on the developed world for the production of their finished goods.

According to Okoli and Onah (2002), economic growth entails progress, movement, and advancement in the direction of something greater. This means that the

enhancement of both the physical and intangible components of life. The development of human resources and favorable shifts in behavior are also recognized, in addition to economic and social indices. For us, this entails expanding individuals' access to: food, water, and shelter; information and communication tools; healthcare delivery; a good road system; quality instruction; and the legal system. When these are attained, the person's dignity, happiness, patriotic ideals, and quality of life will all grow.

The developed countries and other international organizations view the countries of Africa as "developing states," thus they lend money to the majority of them in order for them to meet the world standard of development, leaving Africa indebted to the European nations. The growth of African states is another reason that most international organizations were founded.

Brien (1975) articulated the view that Because of their dependent frameworks, dependent countries are the ones that lack the ability to experience autonomous growth. This viewpoint appears to be in line with that of Bill Warren (1980), who argues that "dependency" refers to the complicated socio-economic connection between the advanced capitalist countries of the "center" (the United States of America, Japan, and Western Europe) and the Latin American countries of the "periphery," whereby the growth and structures of the "periphery," countries are decisively determine on those of the advanced capitalist countries in a way that is somehow detrimental to the economic development of the "periphery," countries.

An economy is dependent to the extent that its position and relationships to other economies in the international system and the articulation of its internal structure make it incapable of independent growth (Ake 2002). Fundamentally, it refers to a nation's inability to direct its own productive processes, which causes the nation's economy dependent on foreign economies for direction and control through

regulations and foreign institutions that either directly or indirectly control its growth or expansion.

According to Frank (1981), who examined these processes, development and underdevelopment are two different sides of a universal historical process. According to the researcher, the developing nations experienced underdevelopment, or what Frank called the development of underdevelopment, as a result of the same system of capitalist expansion that enabled their growth and development in North America and Europe.

Along with other emerging nations, Kenya has also faced significant challenges from the persistent exploitative nature of the industrialized economies' to which the developing economies depended on. Dependency refers to a scenario in which the economies of certain nations are influenced by the development and growth of others to whom the former are subjected to. (Santos 2013).

One of the basic notions of capital globalization is that developing countries would enjoy the same growth and development as the now-"developed" nations if they participate in global commerce and finance (Santos 2013). It is presumed that capital infusion through direct foreign investment and trade aids in the growth of economies that generate income, hastens the transfer of new technologies, boosts the effectiveness of production facilities, and raises the standard of living (Firebaugh, 1992; Bauer and Yamey, 1957; Rostow, 1960).Unfortunately, developing nations' growth and development have never completely realized.

The many different branches of dependence theory start to split apart at this point though. According to proponents of Andre Gunder Frank's view stated in the development of underdevelopment (1981) theory, growth in core nations invariably results in poverty and underdevelopment in the periphery. The proponents of

"dependent development," who include Peter Evans, Cardoso and Faletto, and others, contend, however, that with the appropriate policies, a system might undergo some degree of growth and developmental progress. Global systems theorists and structuralists are included in dependency theory as well. Others really view dependency theory more as an approach than a theory.

The globe is split into two parts: the center-industrialized nations and the undeveloped countries, according to the opinion of dependency theorists, notwithstanding their philosophical disagreements on several fundamental issues (Namkoong 1999). They contend that unequal interchange in economic activity between the center and the periphery has led to the underdevelopment of the periphery. They both believed that there is a connection between the growth of the global capitalism system and the underdevelopment of third-world nations.

The dependency theorists belief that external pressures are of utmost significance to the economic activity within the dependent nations which brings us to our second point. Multinational firms, global commodities markets, international aid, communications, are some of the tools that advanced industrialized nations may use to promote their economic interests overseas and exact their influences on the developing nations.

Third, the explanation of dependence suggest that the relationships between dominant and dependent states are dynamic since these relationships frequently serve both to validate and amplify the patterns of inequality.

The arguments centered on dependence highlight the ways in which the global capitalist system manipulates the economy of underdeveloped nations (Gilpin 2013). The system is dominated by advanced economies in the center, which use trade and investment to move economic excess from poorer nations in the periphery. Emmanuel

(2016) invented the phrase "unequal exchange through trade," which maintains underdevelopment by slanting the terms of trade against less developed countries. The poor status of developing nations is also maintained by their reliance on foreign money from multinational companies (MNCs) (Bornschier and Chase-Dunn 2016). Dependency theorists contend that foreign direct investment (FDI) inflows to the periphery undermine local entrepreneurship, hinder technical innovation, drive out local businesses, raise unemployment, and bolster the authoritarian regimes of the receiving countries. (Lindblom 1977; Wallerstein 1974; Held 1991; Moran 1996; Feenstra and Rodrik 1997; Hanson 1997) According to empirical research, a few dependency indicators have been linked to weaker economic development and a worse standard of living.

When two or more economies interact in a global trade, it results to dependence because some nations, like the USA and UK, can expand and become self-reliant while others, like Kenya, Rwanda, and Nigeria, can only do the same as an extension of growth in the developed countries, which may or may not have an effect on their present development. According to studies, Kenya still exhibits a substantial amount of sluggish economic growth notwithstanding its growing reliance on international aid and support.

This study attempts to explore the dimensions of foreign dependency and economic growth and access the impact on Africa using Kenya as a reference point. As shown by its underdeveloped industrial base, food insecurity, and reliance on foreign capital, it is believed that Kenya's economy was designed as an imposed export-oriented production and import-oriented consumption economy, which has some effects and results on the country's overall socioeconomic development.

In studying this phenomenon some factors or indicators was used to determine the effect of foreign interference in the Kenyan economy; these factors are FDI, import external debt and manufacturing out. These may not be all the factors that can determine the level of foreign dependency of Kenyan economy but it was used specifically for this study

### 1.2.1 Kenya perspective

East Africa's largest economy is Kenya. Following independence, by making governmental long term investments, assisting small-scale business and agricultural production, and providing incentives for private industrial investment, Kenya promoted fast economic growth. Sugar cane, pyrethrum, coffee, tea, horticulture, sugar cane, and animal goods are among Kenya's major agricultural products. The Kenyan economy is broad-based and diversified, which has led to consistent growth in GDP over the past several years, backed by public infrastructure projects, significant public and private sector investment, and suitable economic and fiscal policies. (Kenya National Treasury. 2021).

Kenyan economy has grown significantly in the last three decades. It has recorded a substantial increase in foreign direct investment over the decade. A more proactive plan has been devised to attract more FDI, which is considered as a key driver of Kenya's continuous economic development record (United Nations 2005).

The Kenyan government reached the decision to center more on issues including the production of consumer goods, promoting agricultural businesses, diversifying economic activities in export processing zones, and positioning Kenya as a regional service center (UNCTAD 2013). As a result, FDI is split into three primary groups: FDI on import led growth, FDI on export activities and FDI that is on government

investment. Import-oriented foreign direct investment aims to establish a basis in the host country to displace economic imports.

Finding the less expensive sources of production that host nations may have is the foundation of export-oriented FDI. Surge in FDI, which sparked growth in several economic sectors, is an indication that multinational firms and their overseas subsidiaries have continued to produce more goods and services in the country (UNCTAD, 2018).

Kenya's economy saw widespread expansion of 4.8% annually, which substantially reduced poverty. The COVID-19 pandemic shock severely affected the economy in 2020, impairing activities in international commerce, transportation, tourism, and urban services (World Bank 2022). In the first and second quarters of 2020, the GDP fell to -4.1% from 6% in the corresponding quarters of 2019. In 2020's third and fourth quarters, it picked up speed to 2.3%. A decline in agriculture GDP growth accounts for the growth slowdown. (Kenya Economic Report, 2021).

Fortunately, the agriculture industry, which forms the backbone of the economy, remained robust and strong preventing a worse decline in GDP. The economy recovered strongly in 2021, expanding by 7.5%, while some sectors, like as tourism, remained under strain. Due to Kenya's sensitivity to the effects of global pricing changes, the economic outlook is generally good but is nonetheless burdened with high unpredictability (World Bank, 2022).

In Kenya, public debt is used to industrialize and also to develop infrastructure (Were, 2010). The assumption is that, if these elements are changed, the economy will expand. and be able to finance such debts. World Bank (2010) report indicates that difficulties in management and servicing of debts exist among the Highly Indebted

Poor Countries (HIPCs) even though they have been servicing. In the Kenyan context, Public debt (External and Domestic) have been rising steadily for the past decade. Kenya's public debt stock has been on an upward trajectory, rising from 57 percent in 2018 to 68.1 per cent as a June in 2021.

Total external debt and domestic debt as a percentage of total debt was 52 percent and 48 percent as at June 2021 (Kenya Debt Management 2021). The gross public debt stock increased from a stand of Kshs 5.8 trillion in 2018 to Kshs 8.4 trillion in 2021 (Kenya Debt Management 2021). The growth in governmental investment and infrastructure spending, along with insufficient domestic resource mobilization, are the key causes of the rising debt stock (A.D.B, 2022).

Kenya's long-term debt has grown as a result of its reliance on foreign loans and help. The gross national debt rose from 48.6% of GDP at the end of 2015 to an anticipated 68% of GDP by the end of 2021, indicating significant deficits caused in part by prior investments in major infrastructure projects and the COVID-19 global shock in 2020. External creditors account for over half of Kenya's governmental debt (IMF 2021).The rise in bilateral and commercial loans, as well as the depreciation of the Kenyan shilling in relation to the major currencies, are the main causes of the increase in external loans. From 44.5 percent in 2013 to 51.4 percent in 2021, the percentage of foreign debt as a percentage of overall debt increased. (Gathii Nona, 2021).

Kenya's efforts for debt sustainability and economic growth are seriously impacted by the country's comparatively high level of foreign debt and growing debt load. According to some empirical findings, the buildup of foreign debt has a detrimental effect on private investment and economic growth. This is due to the many dangers that come with having a large debt load, including rising taxes, local currency

depreciation, higher borrowing costs, high debt payment costs, and private sector crowding out (Wandeda 2021). This indicates that Kenya could eventually have an issue with debt overhang. Results, however, indicate that private investment is stimulated by current loan inflows. While debt servicing has some impacts of crowding out private investment, it does not appear to have a negative impact on growth (Were 2001).

Kenya's foreign debt has been little more than half of its entire debt stock, despite the country's significant risk of overall financial crisis. 51.4% of Kenya's 7.1 trillion Kenya Shillings in total debt was held by the country's external public sector. The external debt is less than the suggested level of 55% set by the World Bank and IMF, below which there is a greater chance of debt hardship. But the fact that Kenya's public debt is expected to approach a branch of the 70% criterion by 2023 which is at 69.9% of GDP is worrisome (Nona, Gathii 2021).

According to Williamson (1996), a nation may be able to export enough to pay off its large debt while still producing the foreign money required to purchase the rising imports linked to its rapid development. Alternatively, by taking on more debt, it could be able to produce the required foreign currency. However, the idea of solvency suggests that this is a process that has an end in sight. If the growing debt is not controlled, Kenya can experience issues with both solvency and liquidity. Despite this, the government's long-term plan is to borrow less from abroad overall and focus more on borrowing domestically.

In addition, in terms of its contribution to national output, exports, and job generation, manufacturing sector is one of Kenya's important economic sectors. Key objectives and clear goals have been established to direct both industrial and general economic

growth. A few of these are the creation of Special Economic Zones, industrial parks and clusters, and specialized goods. (A.D.B 2021).

Kenya's manufacturing industry would gain from shifting toward an export-oriented approach for two main reasons: first, it would have access to a wider market and second, it would be exposed to latest technical advancements. Kenya's trade strategy is centered around agreements with the United States, the East African Community (EAC), and other members of the European Union. In the past ten years, there have been a lot of noteworthy advancements in these connections. With the implementation of the Common External Tariff (CET) by the EAC in 2015, the average imposed tariff rate decreased from 16.8% to 13.2%. This is a good thing.

By maintaining the pattern of tariff de-escalation and implying a drop in tariff dispersion, the CET will support the expansion of the industry by lowering tariffs as processing stages increase. In the interim, as talks for a comprehensive Economic Partnership Agreement (EPA) continue, Kenya and the other members of the EAC have reached an agreement with the EU on trade in commodities. With the temporary exception of rice and sugar, all commodities in the EAC, which includes Kenya, have tariff- and quota-free access to the EU market as of January 2018.

Collier (2017) makes the case that an agreement with more flexible terms will help African businesses export. Although the goal is to safeguard producers at the conclusion of the process, this move toward vertical integration is barely justified. Kenya should instead aim to join international manufacturing chains since this is the kind of commerce that is expanding the fastest. It's no longer a practical strategy to subsidize manufacturing to protect manufacturers of finished goods. Kenya looks for ways to use its comparative advantages across the whole production chain in the new

production structures. To assist particular industries, the tariff policy is still applied selectively.

Manufacturing's subsectors in 2018 had inconsistent results in the first half of the year. High production costs, high taxes, and inexpensive rising importation restrained the expansion of the manufacturing sector in 2021. The industry's expansion was due to both increasing bank lending to the private sector and the government's significant expenditure in road infrastructure projects being carried out across the nation. The government's commitment to improving the industry will provide the sector a chance to develop in the upcoming fiscal year. (African Economic Outlook 2021).

One major problem impeding the industrial sector is the application of tax policies. Too much time passes before Kenyan revenue Authority (KRA) refunds of VAT are processed, which reduces cash flows and manufacturing activity. This is a problem for a capital-intensive industry. The government still owes back VAT from before 2013. Because the money may be utilized for industry activities, this has become a major concern for industry participants. Concerns exist with the implementation of government tariffs as well. According to some writers, customs employees sometimes lack the necessary training to apply the correct rate to goods. Because of this, producers have more difficulties than necessary with the customs procedure.

Kenya has also maintained a liberalized system of foreign trade since 1993 and gradually reduced its trade tariffs to its highest rate of 22% now. The COMESA free trade area, which was established in October 2000, serves as the foundation for the existing trading regime. Kenya's record Sh1.24 trillion trade imbalance as of November 2021 was worsened by an increase in the cost of importing petroleum and industrial products. (A.D.B 2022).

Total imports increased by 29 percent, or Sh430 billion, to reach Sh1.91 trillion, according to the Kenya National Bureau of Statistics, surpassing exports, which increased by a more moderate Sh89 billion, or 15 percent, to reach Sh672.6 billion. The country's foreign exchange context is threatened by an increasing trade imbalance (Maina 2022). Over three-quarters of the major export commodities saw a decrease in quantity and/or price, which was largely to blame for the weak performance of export profits.

In conclusion, macroeconomic stability has been sustained over the past several years as seen by the persistence of generally steady inflation, interest rates, and currency rates (Kenya National Treasury, 2021). Nevertheless, throughout the past ten years, the nation has implemented substantial economic changes that have aided in long-term economic growth. However, some of its ongoing development challenges include poverty, inequality, youth unemployment, low private sector investment and the economy's vulnerability to nationwide as well as global shocks.

Given Kenya's economic situation, it is clear that the goal is to successfully develop a dynamic economy that can compete on a regional and global scale, minimize reliance on outside influence and raise real GDP growth by more than the rate of population growth, reduce poverty and unemployment, and ultimately reduce the external debt overhang. This is why present economic policies, which include export promotion, private sector growth, domestic production promotion, privatization, and infrastructure, are devoted to the idea of economic reform.

### 1.3 Statement of the Problem

Williams Zartman (2005), one of the early dependency theorist stated ways by which dependency can be identified in an economy. Which are dependency through foreign

ownership and control of the key sector of the economy (ie FDI), dependency through imported consumption and production pattern and dependency through foreign loans.

However, one of the key principle of capital globalization is that emerging nations that participate in international trade and finance will proceed through the same stages of growth and development as the presently industrialized countries. It is often acknowledged that the addition of capital into various economic sectors may significantly contribute to the expansion and advancement of the economy.

It is anticipated that with the appropriate structural adjustments, capital inclusion will enable the economy to produce enough income, speed up the transfer of new technologies, increase the efficiency of production facilities, generate jobs, and improve living standards (Baugh, 2014). Regretfully, the potential for growth and development in less developed countries (LDCs) has never fully materialized.

Kenya has been involved in international finance and trade since the time of its independence in order to promote economic growth and development. Although it can be argued that these economic activities have significantly boosted some thriving economic sectors and promoted economic diversification (World Bank, 2014).

But there are still substantial evidence which proves that the economy still faces challenges like, high level of youth unemployment rate, low standard of living, high level of poverty, persistent insufficient private sector investment and the economy's sensitivity to both internal and foreign shocks (IMF 2017).

Despite the fact that the impact of foreign dependency variables, such as FDI, external debt, imports, and manufacturing output on the host country's GDP has been extensively studied, there are still questions about the real effects of these variables as well as the necessary conditions and networks over which these variables lead to the economic growth of the host country..

Therefore the aim of the study was to examine these foreign dependency variables, which brings light to understand the effect of foreign dependences on economic growth of Kenya.

### 1.4 Objectives of the Study

The general and specific objectives of this study were as enumerated below:

#### 1.4.1 General Objective

The main objective of this research was to empirically examine foreign dependency and economic growth nexus in Kenya.

#### 1.4.2 Specific Objectives

The study was guided by the following specific objectives:

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

### 1.5 Research Hypotheses

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

**$H_{O1}$:** Foreign direct investment has no significant effect on Kenya economy.

**$H_{O2}$:** Import has no significant effect on Kenya economy.

**$H_{O3}$:** External debt has no significant effect on Kenya economy.

**$H_{O4}$:** Manufacturing output has no significant effect on Kenya economy.

### 1.6 Scope of the Study

The study aimed at empirically examines the effect of foreign dependency on economic growth of Kenya for the period of forty-two years from 1980 and 2021. The

independent variables considered in the study were: foreign direct investment, external debt, manufacturing output and import while gross domestic product (GDP) was the dependent variable. The study used annual time series data from 1980 to 2021. The period of the study was based on different changes in economic growth of Kenya and other related economic activities ranging from rising debt, trade growth and increasing FDI.

### 1.7 Justification of the Study

The impacts of reliance on the economy are still a matter of debate among scholars. Since there is evidence of Kenya's slow economic growth, which is characterized by high rates of unemployment, poor infrastructure, low rates of output, and low living standards. It prompted the necessity for the study.

However, the results of this study will help policy makers in different economic sectors by providing information and some suggestions on how to mitigate the negative effects of foreign dependency.

The study aimed to add to the body of knowledge while also broadening research gaps on how foreign dependency affects economic growth, which other academics may need to fill in the future.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Overview

This section covers the major theories underpinning the study, a review of empirical literature on the study variables, a summary of the literature review, the conceptual framework and operationalization of the study variables.

## 2.2 Theoretical Framework

### 2.2.1 Dependency theory

The dependency theory was advanced by Hans Singer and Raul Prebisch in separate papers that were both published in 1949. According to this theory, the world's nations are divided into a centralized group of wealthy nations that dominate the less developed nations, whose primary role in the system is to supply the core with cheap labor and raw materials. It further maintained that the advantages of this connection structure largely favour affluent countries, which expand and grow richer over time, while impoverished countries, whose surpluses are continuously sucked away, stagnate rather than advance. The classical and neo-classical theories, which were based on the logic of "comparative costs" and "comparative advantages," held that foreign trade was unquestionably advantageous to both importers and exporters.

Raul Prebish and the other dependency theorists agreed with these theories to some extent. However, there were a number of issues that divided them, chief among them being that the developed West would keep purchasing raw materials from the Third World and paying for them with the sale of produced goods. The dependence school did not believe that this system of production and trade should be applied universally.

Prebisch's argument for the phenomenon was rather simple: developing nations exported raw materials to rich countries, which then produced items from those

elements and sold them back to the poorer countries. A Value Added product is always more expensive than the cost of the raw resources used to create it. Because of this, less developed countries could never earn enough from exports to pay for imports.

Prebisch's answer was as simple: poorer nations could launch import substitution initiatives to evade having to purchase manufactured items from advanced nations. The developing countries would keep selling their major products on the international market. This theory supports the manufacturing out variable of this study.

### 2.2.2 The absolute cost advantage

The theory of absolute advantage, originally created by Adam Smith in his renowned book The Wealth of Nations published in 1776, forms the foundation of the trade theory, which was the first to highlight the necessity of specialization in production and the division of labor. Adam Smith promoted a laissez-faire economic approach and contended that if the government kept an eye on mercantilist limits on international commerce, the economy would flourish quickly.

The concept of absolute advantage was initially introduced by Adam Smith in the context of international commerce, with labor as the only input. Adam Smith asserted that all nations would benefit more from dealing with one another if free trade is conducted honestly. According to the concept of absolute advantage, a nation can create more products and services than its rivals while using the same amount of resources.

Adam Smith Absolute advocated for the specialization of labor in his book, "The Wealth of Nations." The productivity per unit of labor increases dramatically with specialization or division of labor, which reduces the cost of manufacturing. Smith additionally employed the concept of "Economies of Scale" to show how production

costs may be decreased since labor diversity would result in increased output at the lowest possible cost. In return for items that are expensive to produce domestically, some of these items may be exported (Bloomfield 1994).This factor in the import variable of this study since the excess produce will be used for the importation of those goods with no absolute advantage.

### 2.2.3 Harrod-Domar growth model

The models highlighted many aspects of the developed nations'. They represent an alternate strategy for growing the economy. This approach focuses on capital as the key driver of economic expansion. It focuses on the potential for stable growth via adjustment of capital supply and demand. The importance of investment and savings as key drivers of growth is the base of Harrod-Domar economic growth model. The model places a strong emphasis on the dual nature of investment: It initially produces income, which is referred to as the "demand effect." Then, it increases the economy's production potential by expanding its capital stock, which is known as the "supply effect" of investment.

As a result, real income and output will rise while net investment continues. To maintain a full employment equilibrium income level from year to year, real income and output must both rise at the same rate as the capital stock's productive potential does.

If the two diverge, there will be an excess of idle capital, which will force business owners to reduce their investment spending. It is bound to have a negative effect on the economy by decreasing incomes and employment in the following periods and deviating the economy from its equilibrium path of continuous expansion.

Therefore, constant growth in net investment is required if long-term full employment is to be achieved. Additionally, this necessitates steady real income growth at a rate fast enough to ensure the effective use of rising capital stocks.

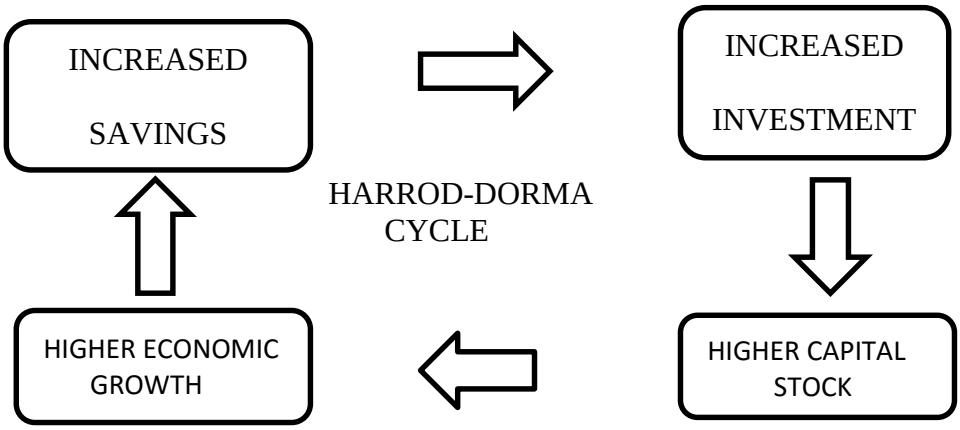


**Figure 2. 1: Harrod-Domar Cycle**

**Source: Copied from www.economics help.org**

The figure above shows that larger growth is made possible by moving money from savings to investments, which in turn encourages larger savings. As a result, growth becomes more self-sustaining. Therefore, the rate of production growth is determined by dividing the rate of savings by the capital productivity.. This support the ideal of FDI in this study.

### 2.2.4 The Solow-Swan growth model

The Solow growth model illustrates how a country's level of production output and long-term growth are affected by saving, population increase, and technological improvements. The model also identifies a few elements that are responsible for some of the significant differences in living standards and income levels between countries. This approach highlights a crucial limitation to the growth's breakdown into capital accumulation and technical advancement. Such analyses are frequently conducted, with researchers coming to the conclusion that capital deepening accounted for a specific percentage of the increase in production per worker during a specific time.

Investment and saving are crucial for economic growth. At full employment, a rise in saving and investment boosts the capital stock, which raises national income and output. The national product as well as the rate at which it is growing are both rising. Economists use the model to explain the causal link between capital accumulation and economic development. Additionally, it offers the fundamental framework for contemporary macroeconomic modeling techniques as dynamic stochastic general equilibrium (DSGE) modeling, overlapping generations models, real business cycle theory, and optimum growth theory. According to some commentators, the Solow model should only be used in contemporary industrial economies. The central point of this theory is the increasing capital stock in the country which points out the need for external debt.

### 2.3 Empirical Literature

Questions about the wealth gap and the fact that economic progress in the highly industrialized nations did not correspond into growth in the less developed countries led to the development of dependency theory. (Ferraro 2008).

#### 2.3.1 Foreign Direct Investment

Evidence that capital assets owned by foreigners were less productive than domestic investments because of issues like profit repatriation, declining reinvestment, and weakened public revenues is generally supported by research findings on the detrimental effects of dependence on a growing domestic economy. One of the principle of capital investment is that the source of the capital is important (Dixon and Boswell 1996). But Carkovic and Levine (2005) offer a thorough examination of FDI's consequences. By using cross-country data from 1960 to 1995 and applying a generalized method technique for estimations. The researchers came to the conclusion that FDI has no significant causal impact on economic expansion. However, their first

findings point to an advantageous relationship between FDI and economic integration. Thus The Carkovic-Levine findings might be interpreted to mean that increasing trade and FDI flows have the potential to significantly advance economic integration and growth.

Ahmad and Hamdani (2018) studied the impact of labor, private domestic investment, and foreign direct investment on economic growth in 32 targeted developing nations using DOLS and FMOLS estimators from 1990 to 2010. The study came to the conclusion that FDI as a growth engine for an economy is doubtful if the negative impact of balance of payments resulting from profit repatriation are taken into account since private domestic investment is more dependable and consistent than FDI.

Njeru (2013) conducted research on how foreign direct investment affects Kenya's economic expansion. The objective of this study was to determine a relationship between foreign direct investment and economic development in Kenya. In the investigation, the study came to the conclusion that between 1982 and 2012, Kenya's economy grew positively as FDI increased steadily and favorably.

Hansen and Rand (2006) agreed that there is a positive correlation between FDI and GDP in emerging economies. However, the degree to which FDI inflow benefits a country depends on the host country's trade policies, the labor force's skills, and most importantly, its capacity for absorption.

Ramirez (2015) did a research to look at how foreign direct investment affected Cote D' Ivoire's economic growth from 1975 to 2011 using use an error correction model. The analysis came to the conclusion that the country's high rate of profit and dividend repatriation may have contributed to FDI's unexpectedly negative impact on economic growth. Kenya has a comparable issue.

FDI's contribution to South Korea's economic expansion is examined by Kim and Hwang (2018). According to them, South Korea still worries that growing FDI would result in foreign takeover of the domestic economy, despite the fact that a steady stream of FDI might aid in the nation's recovery from the catastrophic financial crisis of the 1990s. The study arrive to the conclusion that FDI and the presence of MNCs may aid a nation experiencing a crisis in overcoming its obstacles, and their empirical findings indicate that FDI influx reduces the likelihood of a currency crash.

Chan (2021) investigates the connection between FDI and Taiwan's economic expansion. Chan main concern is whether changes in FDI can be utilized to forecast changes in economic growth. Chan investigates the possibility that FDI Granger spurs economic expansion. In other words, Chan is attempting to determine if FDI itself causes growth or whether growth in the economy causes FDI to arrive. The study concludes that while GDP growth attracts foreign direct investment (FDI), FDI also contributes to growth through technical improvement rather than increasing capital accumulation.

### 2.3.2 External Debt

Debt reliance and its effects on economic growth have drawn more and more attention from researchers. The main determinant of a country's position in the global trade hierarchy is its level of debt reliance. Debt dependency, in the opinion of world system and dependency theorists, has detrimental effects on countries in the periphery that are just as severe as those brought on by trade dependency.

According to Akram (2010), Pakistan's foreign public debt has a negative impact on economic development due to the debt overhang. In particular, the researcher discovered that foreign debt had both a short- and long-term negative and statistically significant association with per capita GDP and investment. The ARDL technique to

cointegration test was used to evaluate data from the years 1972 to 2009, which formed the basis for these findings. The findings of this study were based solely on information from one nation. Due to variations in macroeconomic environments and economic development levels, the may not be appropriate in other nations like Kenya.

Boboye and Ojo (2016) investigated how Nigeria's foreign debt affected economic development using OLS regressions from for the period 1981-2014. The study discovered that Nigeria's per capita and national income were negatively impacted by foreign debt. This study clarifies the relationship between external debt and economic growth in a developing African nation. However, it doesn't take into account how domestic debt affects economic expansion.

According to Mukui (2013), Kenya's economic development was negatively impacted by foreign public debt and debt payments. The study also found that domestic savings and inflation had an adverse effect on economic expansion. Contrarily, economic development was boosted by capital formation and foreign direct investment. These conclusions were drawn from an analysis of Kenyan data using a linear model for the years 1980 to 2011. The research failed not evaluate the impact of domestic debt on economic growth despite using data from Kenya.

Egungwu (2018) investigated the connection between human development in Nigeria and external debt. Time series data for the years 1986 to 2015 were subjected to OLS regression analysis. According to the study, both the total amount of external debt and its repayment had a negative impact on economic expansion. The author came to an agreement that governments ought to accept foreign loans if they use them for important initiatives that may raise citizen wellbeing.

### 2.3.3 Manufacturing Output

Mehmet (2013) conducted an empirical analysis of Turkey's regional economic development between 1990 and 2000 in the context of Kaldor's laws. The study used regional and conventional econometric approaches to validate Kaldor's laws and came to the conclusion that manufacturing is the main driver of economic development in Turkey.

Su and Yao (2017) demonstrated that the expansion of the manufacturing sector fuels economic growth utilizing cross-sectional regression, panel regression, and long-run Granger causality tests. To examine data between 1950 and 2013 of 87 middle-income countries. The authors draw the conclusion that manufacturing is, in fact, the key driver of economic growth and that, as a result, early deindustrialization has detrimental consequences on economic growth.

In India, where the service sector has a big impact on economic growth, Kathuria and Natarajan (2017) examined the idea that the engine of progress is economic growth is the manufacturing sector. They tested the hypothesis for all 15 states of India in the period 1994-1995 to 2005-2006, using OLS method. According to the research, growth has been fueled by manufacturing, services, and construction. Despite its declining GDP share, they came to the view that manufacturing had a significant impact on economic growth in India.

Haraguchi (2016) wrote a paper on the role of manufacturing in economic development for the United Nations Industrial Development Organization (UNIDO). The paper seeks to challenge the low level of manufacturing in emerging nations. The authors make the case that the manufacturing sector's potential was underutilized or underappreciated in a number of emerging nations.

Idris (2017) carried out a research on the Malaysian economy from 1971 to 2014 and confirmed earlier results, concluding that technological efficiency's negative contribution to the low TFP growth was the cause of it. The study indicated that the presence of foreign enterprises in Malaysia was thought to be a substantial contribution to the TFP growth, based on the economy's ability to move its own frontier via innovation, utilizing panel data. The results of Rahmah (1999) supported the notion that efficiency had a very little role in several industrial subsectors, particularly in labor-intensive industries.

Menon (2012) performed a research to compare the productivity performance of domestic and international companies in the manufacturing industry. The research included a 1988–1992 period investigation of both domestic and international companies operating in 53 manufacturing subsectors. The study uses industry-level data from discrete time periods and a growth accounting approach to estimate the TFP increase. The results aligned with the research conducted by Tham and Choong (1995), which established that the increase in inputs—specifically, intermediate inputs—was the primary factor driving the growth in real manufacturing output for both local and foreign enterprises.

The economic value of human capital to manufacturing production per capita was validated by Isaksson (2010), who also evaluated the relationship between infrastructure, physical capital, and industrial expansion. The ordinary least square (ols) approach was also used by Adejumo (2013) to investigate the relationship between ICT, education, and manufacturing value-added in Nigeria between 1970 and 2009; the results showed a strong correlation between the rise of manufacturing value-added and human capital.

Keho (2018) used panel ARDL and causality tests to examine the relationship between manufacturing and the economic growth of eleven (11) ECOWAS countries between 1970 and 2014. The study discovered that the industrial sector benefits from economic progress. Therefore, the data points to structural restructuring as being proposed to support ECOWAS industrial activity and production.

### 2.3.4 Import

According to Abdullahi et al. (2016), imports have a small but favorable influence on the GDP development of West African nations. The growth of the GDP is negatively impacted by foreign exchange. The study came to the conclusion that exports contribute to West Africa's economic growth and suggested that the region's nations support domestic businesses for export promotion and import replacement.

International trade and economic growth have a long-term link, according to study by Lawal and Ezeuchenne (2017), they examined the impact of international trade on economic growth in Nigeria, using data from 1985 to 2015. The balance of trade and Export are important in both the short and long terms, but import and trade openness are both unimportant in the short term but significant over the long run. From the Granger causality test, economic growth is unidirectional with trade openness but unrelated to imports, exports, and the trade balance.

Reddy (2020) looked into the link between India's exports, imports, and economic development from 1980 to 2019. The results shows that exports and economic growth, imports and economic growth, and imports and exports all have a short-term unidirectional causal link. A long-term causal relationship between exports and economic growth was demonstrated by the author.as well as between exports and imports. As a result, it can be said that imports and exports both contribute to India's economic growth. Similar to this, Maitra (2020) investigated the notion that imports

will drive growth in India following reform. In the short and long terms of his study, he discovered strong evidence that the ILG hypothesis is correct, showing that imports have a major impact on India's economic growth.

Taniguchiy (2018) investigated how a rise in Chinese imports affected Japan's regional labor markets. He discovered data suggesting that the rise in Chinese imports had a favorable impact on the expansion of manufacturing jobs in Japan's prefectures.

Within a neoclassical production function paradigm, Aluko and Obalade (2020) looked at the relationship between imports and economic development for a sample of 26 African nations between 1990 and 2015. The study empirical findings show that there is no causal relationship between imports and economic growth in more than half of the sample nations when using the Toda-Yamamoto Granger non-causality test, demonstrating that there is no relationship between imports and economic growth.

Aluko and Adeyeye (2020) also investigated the relationship between imports and economic development in 41 African nations from 1990 to 2018. According to their findings, the neutrality hypothesis is true in the short- and long-term for the majority of nations, with the exception of a few countries where there is a unidirectional causal relationship between imports and economic development and vice versa.

**2.4 Summary and Gap of Literature**

According to Dixon and Boswell (1996), the source of capital investments important, which is at the core of capital reliance. In conjunction with them, Ahmad and Hamdani (2018) came to the conclusion that the viability of FDI as a growth engine is in doubt when the negative effects of profit repatriation on the balance of payments

are taken into account. The link between FDI and GDP in emerging nations is, however, that FDI increases economic growth, according to Hansen and Rand (2006).

In their respective studies, Mukui (2013) and Akram (2010) discovered that there was a statistically significant negative link between foreign debt and per capita GDP and investment. Studies have revealed that the nation's relatively high level of foreign debt and growing debt load have a significant impact on attempts for debt sustainability and economic growth. This is due to the dangers that come along with having a large debt load, including increasing taxes, local currency depreciation, higher borrowing costs, higher debt servicing costs, and the crowding out of the private sector (Wandeda 2021).

Results, however, indicate that recent debt inflows encourage private investment. Although debt servicing doesn't seem to have a negative impact on GDP, it can crowd out private investment (Were 2001).

According to study by Lawal & Ezeuchenne (2017), import and trade liberalization are both insignificant in the short run but substantial in the long run. Taniguchiy (2018) discovered evidence that the expansion of Chinese imports has a favorable impact on the expansion of manufacturing jobs at the regional level in Japan.

Kenya was expecting to harness the benefits of these determinant with the aim of achieving economic growth and development. Unfortunately, growth and development in Kenya are yet to fully materialized. However, the literature underpinning of the direct linkage between foreign dependency and economic growth in the opinion of some of the studies are vague. Some scholars have believed that foreign dependency may have varying effects on various levels economies.

From the literature, the researcher tends to agree with the view that these economic variables may have varying effects on various types of economies. Therefore, the

study aimed to examine these economic variables as factors of foreign dependency to understand its impact on economic growth of Kenya.

The literature review indicated that previous researchers concentrated more on variables like FDI, external debt as factor of foreign dependency. However, the study included import and manufacturing output variables. This consideration was based on the recommendations made by different economic growth theorists

From the empirical review different approaches and methodologies have been used which mostly focuses on either the long run effect or the short run effect. For the aim of having a robust statistical evidence this study made use of ARDL model.

**2.5 Conceptual Framework**

In order to illustrate the links between the dependent variable and independent variables, a conceptual framework includes a brief explanation of the phenomenon being studied and a visual representation of the key research variables. (2013) Serem et al. The study operationalizes the variable structure, which was influenced by the research's objectives as well as theoretical and empirical literature. The primary factors of economic dependency in general, according to a review of theoretical and empirical literature conducted for this study, are FDI, import, foreign debt, and manufacturing output. This was largely based on the theoretical literature. Therefore, the study proposed the conceptual framework in figure below to bring out the relationship between the independent variables which are foreign direct investment, import, manufacturing out and external debt and GDP as the dependent variable.

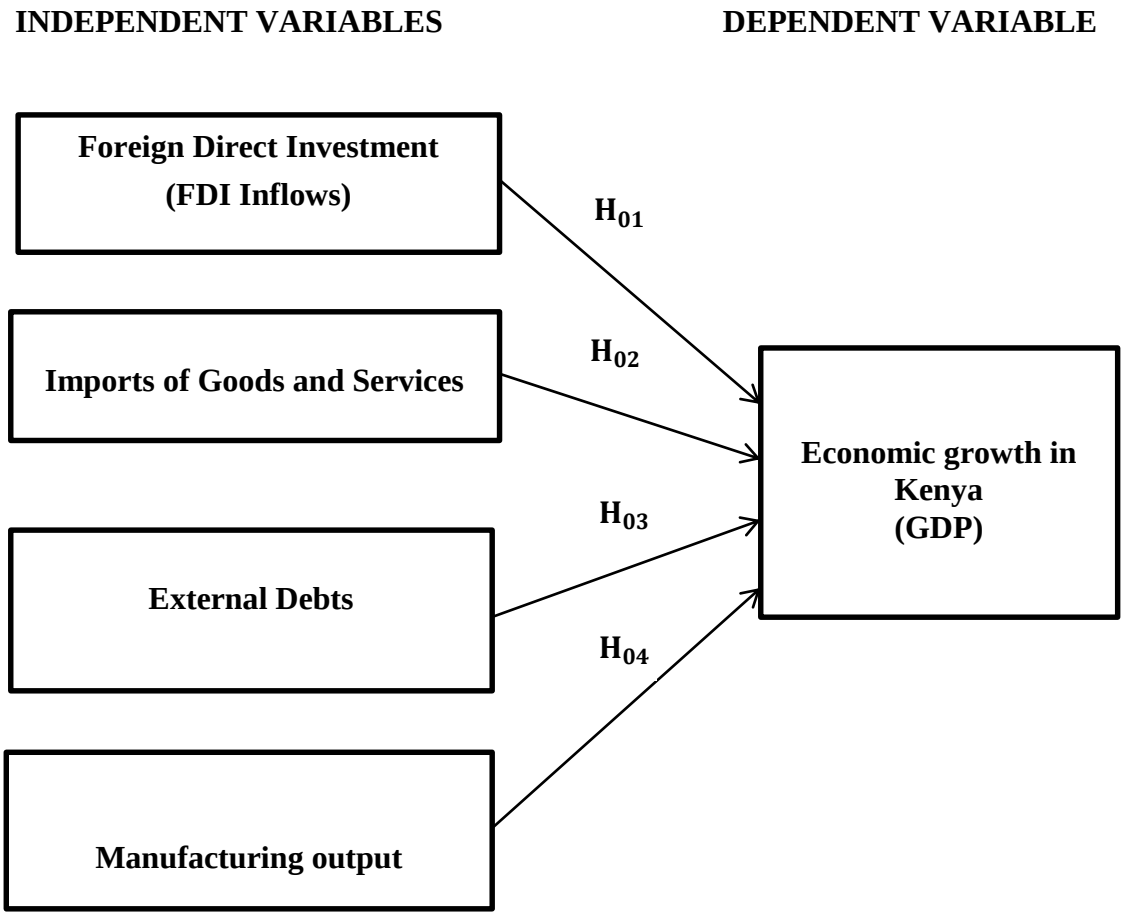


**Figure 2. 2: Conceptual Framework**

**Source: Author, 2023**

A conceptual framework, as described by Borg and Gall (2007), is a diagrammatic representation of the relationships between the variables in a research. It allows the researcher to swiftly and simply determine the proposed association between variables. According to Cooper and Schindler (2008), the proposition evaluates behavior and provides predictions and justifications for the majority of the empirical annotations. Figure 2.2 shows the conceptual framework that was created using the variables and connections. The variables were based on the emphasis placed by various proponents of economic growth theory, which range from favorable trade balances to diverse methods of capital generation or accumulation. The following variables were chosen by the researcher based on these considerations.

The economic growth is the dependent variable. The gross domestic product (GDP) served as the study's determinant of economic growth. The GDP, or gross domestic product, is the total value of goods and services produced in a given period of time. It is made up of several components, including net exports, government spending, corporate investment, and consumer consumption. These establish the pace of economic growth within a given time frame. Conversely, imports, manufacturing output, external debt, and foreign direct investment (FDI) inflow are the independent variables.

Foreign direct investments (FDI) in a nation consist of intra-company loans, equity capital, and profit reinvestment. External debts are sums of money borrowed from overseas sources by governments, institutions, and organizations. It includes debt that is both publicly guaranteed and public, deposits held by central banks, loans from the World Bank, Paris Club, and other international financial institutions, as well as foreign debt that is not guaranteed by the private sector. The products that comprised Kenya's total manufactured output included agro-processed goods, the fabrication of automobile components, clothes and textile materials, plastics, paper, footwear, glass, and glass products, among others. Lastly, a number of factors, including import charges, product costs, international freight and logistics expenses, currency conversion costs, port fees, import levies and taxes, and customs clearing fees, affect the import variable. Petroleum goods, industrial and transportation equipment, plastics, steel and iron, and automobiles are among Kenya's top imports.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Overview

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

## 3.2 Study Area

The study was on the relationship between economic foreign dependency and Kenya's GDP. Consequently, Kenya was the unit of analysis. According to Trochim & Donnelly, (2001) a unit of analysis is the major entity being analysed in a study. Kenya is one of the Sub-Saharan African countries that rely on foreign aid for the growth and development of their economic projects and activities. Over the decades there have been a significant increase in economic foreign dependency in Kenya with little or no corresponding growth in the economy this, justifies why Kenya was the geographical area of the study.

## 3.3 Research Design

A research design's objective is to provide a proper framework for a study. Since the research strategy determines how the necessary data for a study was acquired, which is essential to the research design process (Kassu 2019). It is the primary strategy for connecting the relevant empirical research to problems in conceptual research. In other words, the study design establishes the methods for data collection, analysis, and application to the research issue (Grey, 2014). Research methodologies

include experimental, longitudinal, cross-sectional, case study, correlational, and explanatory designs (John, 2018). The study employed explanatory research design, which determines the cause effect relationship between independent variables and the dependent variable (Walliman, 2011). The explanatory research design was adopted because it analyses the cause effect relationship between two or more variables. This involved collection and analysis of secondary data that helped ascertain the relationship between the independent and dependent variables.

### 3.4 Target Population

The parts or units the study is looking at are referred to as the population of the study, according to Ogula (2010). In order to answer various issues that the researcher has presented, relevant data is sought from the reliable institutions. The term "target population" refers to the particular demographic that the researcher is interested in learning more about. The researcher can get in touch with or reach the study population (Mugenda & Mugenda, 2008).The study aimed to determine the effect of foreign dependence in economic growth of Kenya. As such, it targeted Kenya's GDP as the dependent variable and FDI, import, manufacturing output and external debt as the independent variables. The data were forty-two annual observations of each of these variables ranging from 1980 to 2021.

### 3.5 Data Collection Procedure

Data collection procedure is the process of gathering information using a data collection instrument on the study variables, in an established systematic fashion that allows the researcher to conduct analysis, test hypotheses and evaluate outcomes.

Ary (2010) asserts that in order to gather data, the researcher must have access to the information required. Research instruments are merely tools used by researchers to

gather relevant information or data for their studies in order to accomplish their stated goals. The study employed secondary data as the analysis tool which was used to analyze the impact of FDI, import, foreign debt, and manufacturing output on economic development in Kenya. For each of the factors of interest across the forty-two (42) year period from 1980 to 2021, the study employed yearly secondary data. Because of the study's macroeconomic focus and because it was both readily available and well-organized, secondary data were utilized. Secondary data was also practical and economical for this investigation. Data for the study's variables were gathered from World Bank database.

### 3.6 Measurement of Variables

This section describes how the data of the variables were measured. According to Cohen et al. (2000), the type of measurement a researcher employs is crucial in deciding the kind of analysis to be performed. The information were measured in USD and derived from yearly measurements of each variable.

### 3.7 Data Analysis and Presentation Techniques

To comprehend the consistency of the acquired data, explantory and inferential statistical processes are applied in data analysis (Zikmund, Babin, Carr, & Griffin, 2013). Inferential statistics were used in the investigation. Inferential statistics includes evaluating the study's hypotheses, whereas descriptive statistics involves presenting the variables under investigation as tables, charts, and trends. The data were analyzed using the stata statistical analysis program and was based on the Autoregressive Distributed Lag (ARDL) method created by Pesaran, Shin, and Smith in 2001.

**3.8 Model specification**

The Kenya gross domestic product was modeled as a function of manufacturing output, external debt, import and foreign direct investment and then transform into ARDL model

The following multiple regression model was adopted for the study:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$ ……...Equation 3.1

Where; Y represents the dependent variable on a periodic observation.

$\beta_0$ represents the y-intercept

$\beta_1$, $\beta_2$, $\beta_3$, and $\beta_4$ represent coefficients of independent variables.

$X_1$, $X_2$, $X_3$ and $X_4$, represents the independent variables.

$\varepsilon_i$ represent error term

The ARDL technique has the benefit of providing reliable and consistent estimates for both the long-run and short-run relationships between variables. Adopting ARDL has the additional benefit of producing consistent estimates of the long-run coefficients because it is asymptotically normal regardless of I(1) or I(0). Furthermore, this method avoids the need for variable pretesting (Waliullah et al., 2010). According to Pesaran and Shin (1999), the ARDL model performs well regardless of whether variables are stationary I(0), non-stationary I(1), or even mutually cointegrated. It also tends to be more effective to capture the long-term relationship data in small samples. In formulating the empirical model, this research applied ARDL model in equation (3.2) below.

$$\Delta GDP_t = \alpha_0 + \sum_{i=1}^{\rho} \alpha_1 \Delta FDI_{t-1} + \sum_{i=1}^{\rho} \alpha_2 \Delta EXDT_{t-1} + \sum_{i=1}^{\rho} \alpha_3 \Delta MANU_{t-1} + \sum_{i=1}^{\rho} \alpha_4 \Delta IMP_{t-1}$$

$$+ \delta_1 FDI_{t-1} + \delta_2 EXDT_{t-1} + \delta_3 MANU_{t-1} + \delta_4 IMP_{t-1} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots (3.2)$$

Where;

GDP = economic growth

FDI = foreign direct investment

EXDT = external debt

MANO = manufacturing output

IMP = import

$\boldsymbol{\varepsilon}_i$ = Error term (causes of economic growth not explained by variables in the model) $\Delta$ represents the first difference of a variable, $\alpha_0$ is a constant, $\alpha_1$…….$\alpha_5$ represent the short-run coefficients (error correction dynamic), $\delta_1$ .....$\delta_5$ corresponds to the long-run relationship and $\rho$ is a maximum lag order.

In economics, the impacts of a independent variable X prevent a dependent variable, let's say Y, from responding immediately. It requires Y some time to finish changing as a result of the forces produced by the X variable. A lag is the amount of time that passes before the impact is fully realized. One must first establish the lag order in order to evaluate the co-integration rank of the long-run equilibrium connection between the variables and then fit the VECM model to provide estimates for inferential purposes. cointegrated in both directions (Pesaran and Shin, 1999).

**3.9 Diagnostic Tests**

The regression assumptions need to be maintained to ensure reliability and validity in the estimation of coefficients and inferences statistics (Hoffmann, 2011). These

assumptions include data normality, autocorrelation and heteroscedasticity, stationarity.

### 3.9.1 Normality Test

One of the fundamental conditions of OLS, which presupposes that error terms have an asymmetric distribution, is normality. The implications of divergence from normality on traditional approaches are not simply or fully understood, according to Gnanadesikan (1977). However, the study that is now available indicates that these deviations can have unfavorable outcomes in a number of circumstances. Huber (1973) examined the implications of estimation divergence from normality in regression. He made the observation that it is challenging to identify sufficient and necessary criteria under non-Normality such that every parameter estimate is asymptotically normal. According to Judge et al. (2013), the t and F tests are not usually valid in finite samples when the observations are not normally distributed since the corresponding chi-square and normal tests are erroneous. According to Pearson (1975), the t and F test sizes seem to be rather resilient to deviations from normality. The power of t and F tests is very sensitive to the assumed distribution, as noted by Koenker (1982), and it may quickly decline as the distribution gets long-tailed. Moreover, Bera and Jarque (1982) have shown that accurate knowledge of observations may be crucial for both prediction and confidence limits. The normalcy assumption is the basis of the majority of the standard. Failure to comply with this criteria might result in inaccurate hypothesis testing owing to inflated test statistics. When the data distribution is not bell-shaped, non-normality takes place. Jarque-Bera's normalcy test was first proposed by Bowman and Shenton in 1975. The Jarque-Bera (JB) test was used in this investigation to determine if the data variables had a normal distribution (Jarque and Bera 1980). This test was used to compare the null

hypothesis of a normal distribution against the alternative of non-normal distributions. Gujarati (2004)

### 3.9.2 Serial Autocorrelation

As is frequently the case in variations of regression analysis and analysis of variance, data used for statistical modeling in many scenarios in statistics must adhere to the premise of independence Koenker (1982),. This frequently occurs in time series, which are defined as data that are gathered on a regular basis throughout time. One may represent one of these as Yt for t = 1,....., T, where T is the total number of observations in the time series. It is important to note that the first assumption's validity may theoretically be used to determine how well a given model fits a time series Yt. The data will be subject to all serial autocorrelation if the model fits the time series enough. This includes autocorrelation between the data and its own historical values as well as between any current and historical values of the stochastic factor e.

According to Gujarati (2004), Time series data are impacted by serial correlation (autocorrelation), which happens when the covariance between error terms is zero (cov (i, j) = 0, for i j) or exhibits an auto correlated pattern. The association between a time series' past and future values is known as autocorrelation. The study employed a studentized residual Durbin-Watson test to look for autocorrelation. According to the general rule, a Durbin-Watson (d) statistic that falls between zero and four is acceptable. While d values less than 2 and values larger than 2 reflect a positive serial correlation and a negative serial correlation, respectively, the d values around two (2) indicate no serial correlation in the error terms. Therefore, d should be bigger than 1.5 and lower than 2.5. The Breusch-Godfrey (1978) Lagrange Multiplier (LM) analysis

was used in addition to the Durbin-Watson test, with the null hypothesis (H0): no serial correlation. The null hypothesis was rejected if the p-value was less than 5% level of significance, but accepted if the p-value was greater than 5% level of significance. 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 errors, auto-regression with auto-correlated errors, simultaneity, and variable omission all lead to endogeneity.

### 3.9.3 Heteroscedasticity Test

The assumption of linear regression is that V j (ε ) = σ2 for every j. That is, homoskedasticity, or the constant variance of the error term. Heteroskedasticity is the state in which the error terms do not have constant variance. When an independent variable's (IV) value rises, errors might also rise. Error terms linked to extremely large observations may exhibit greater variations than error terms linked to smaller observations. When assessing mistakes, heteroskedasticity may result. It's possible that some variables are more accurately than the others. This issue emerges when the assumption that variables are measured error-free has been violated either because of subpopulation differences or other interaction effects, each of which has repercussions of its own.

The significance of the tests may be excessively high or low, depending on the type of heteroskedasticity. According to Allison (2013), when heteroskedasticity is present, linear regression is not the most appropriate approach since it assigns the same weight to every observation, even when data with higher disturbance variance actually contain less information than observations with lower disturbance variance. Additionally, in the presence of heteroskedasticity, the standard errors are skewed.

Confidence intervals and test statistics become biased as a result. Fortunately, significance tests are mostly unaffected until heteroskedasticity is found, thus model estimate may be performed without risk of significant distortion. However, extreme heteroskedasticity can occasionally cause issues (Williams 2020).

Since the variance of the regression model must be constant for a linear regression model to hold. When the error components do not have a variance that remains constant, heteroscedasticity is achieved (Gujarati, 2004). Any linear kind of heteroskedasticity may be found using the Breusch-Pagan test. The Cook-Weisberg/Breusch-Pagan test compares the alternative—that the error variances are a multiplicative function of one or more variables—with the null hypothesis, which states that the error variances are all equal (Hendry 2012). In order to determine if heteroscedasticity existed, this study adapted Breusch and Pagan's (1979) technique. In most cases, the null hypothesis is H0, which contrasts the alternative hypothesis H1, which states that the variance of the error term is heteroscedastic and not constant.

### 3.9.4 Multicollinearity Test

When independent variables interact and are readily foreseeable from one another, a multicollinearity problem arises. According to many studies, the primary issue with multicollinearity is that it can lead to biased and unstable standard errors, which can cause extremely unstable p-values when determining the statistical significance of variables. This can lead to interpretations that are unfeasible and impractical. The standard errors of each model coefficient rise in the presence of multicollinearity, altering the analysis's conclusion. Some of the relevant variables under investigation become statistically insignificant due to multicollinearity. It makes the regression

coefficients more unstable by increasing their variance, which makes it more difficult to understand the coefficients. The common interpretation of a regression coefficient of one independent variable, which measures the change in the projected value of the dependent variable resulting from one unit increase in that independent variable when holding the other variables constant, may not be practically possible when the independent variables are highly correlated. As a result, inferences about the relative contributions of each collinear independent variable to the regression model may be erroneous. While doing a multicollinearity diagnostic does not cure the problem or provide a particular remedy, being aware of its possible influence on regression analysis results enables more cautious data interpretation.

Variance inflation factors (VIFs) are used to find multicollinearity among independent variables (Belsley, et al. 1980). Excessive variance-in-frequency (VIF) values indicate that the estimated regression coefficient variances are higher when the variables are collinear.

In the context of a multiple regression model with p variable, the diagonal elements ($r^{ii}$) of the inverse of the correlation matrix $R_{pxp}$ of the p variable are represented by $X_i$, i=1,...,p, VIFs (Chatterjee and Price 1977). The expression

$$VIF_i = r^{ii}\frac{1}{1-R_i^2}, i = 1, \ldots\ldots, p$$

may be used to represent the VIF for the $i^{th}$ variable. Where $R_i^2$ represents the multiple correlation coefficient of the regression between $X_i$ and the remaining p-1 variable. Belsley et al. (1980) noted that a precise cutoff point for differentiating between high and low VIFs is not present. Craney and Surles (2002) have proposed that the

corresponding $R_i^2$ of 0.80 or 0.90, respectively, serves as the basis for the "typical" cutoff values, or rules of thumb, for large VIFs of 5 or 10.

When making decisions to reduce collinearity O'Brien (2007) suggested researchers to exercise caution when applying well-known VIF rules of thumb. Additionally, he suggested that researchers take into account other factors such as sample size which affect the variability of regression coefficients.

According to Woolridge (2002), this might indicate a greater error term for each coefficient, making the regression equation sensitive to small changes in the data. If the explanatory variables are linked, the variance of an estimated regression coefficient might rise by a certain amount, which is measured by the variance inflation factor (VIF), which is the reciprocal of tolerance (1/1-R 2). According to Hair, Anderson, Tatham, and Black (1995), a VIF value of fewer than 10 is appropriate. According to Gujarati (2004), a variable is considered to be very collinear if its VIF is more than 10, which will occur if R 2 exceeds 0.90.

### 3.9.5 Data Stationarity

Unit root tests in econometrics use an autoregressive (AR) model to determine if a time series variable is stationary or non-stationary. This is because the stationarity hypothesis is the foundation of most time series analyses in economics, the topic is relevant. Finding a time series' order of integration that is, the amount of variations required to convert it into a stationary series is crucial (Dickey and Fuller (1981). The majority of time-series analyses in econometrics are predicated on the stationarity hypothesis, which makes the topic relevant. The residuals of a linear regression model containing non-stationary variables will most likely not be stationary unless the variables are cointegrated. Since of this, any conclusions drawn from that model such

as t- or F-tests will be invalid since the estimators' limiting distributions are not standard under non-stationarity (Gujarati, 2004). The difficulty of figuring out a time series' integration order can be approached in a few different ways. Like, there are tests that are used as the option of having no unit roots against the null hypothesis of the presence of unit roots in the series (difference stationarity).

Non-stationary data is typically unexpected, making it impossible to model; as a result, the conclusions drawn from non-stationary time series may be false (Gujarati, 2004). It is common practice to determine if the data are stationary or non-stationary by looking at the time series features of the data before starting the study. As a result, the non-stationarity data must be transformed in order to achieve consistent and trustworthy findings (Gujarati, 2004). These are the most often used tests; Dickey-Fuller and Phillips-Perron tests. As will be detailed below, this study employed Augmented Dickey-Fuller (ADF) to check if the time series data were stationary.

#### 3.9.5.1 Augmented-Dickey Fuller Test

This study employed the Augmented- Dickey Fuller (ADF) test to look for unit roots. There are three possible ADF specifications, according to Mustafa and Rifaqat (2012): one that includes both the trend and the intercept, one that eliminates the trend but includes the intercept, and the third that contains both. The most recent specification—which takes into account both intercept and trend—was used in this investigation. Against the alternative hypothesis of stationarity, the null hypothesis is that the unit root exists. The unit root hypothesis is rejected and the time series is considered stationary if the calculated tau statistic's absolute value is larger than the ADF critical values (Gujarati, 2004). According to the decision criteria, if the t*>ADF critical value is met, the unit root is assumed to exist, and if the t*ADF critical value

is met, the unit root is assumed to not exist and the data is assumed to be stationary (Nkoro & Uko, 2016).

### 3.9.6 Co integration Test

If unit roots or stochastic trends may be eliminated by differentiating a series d times but stochastic trends persist after merely differencing d-1 times, the time series variable is said to be integrated of order d, I(d) (Lutkepohl, 2007). In light of this, a variable is said to be integrated of order zero, I(0), if it lacks a stochastic trend or unit root. If there is a linear combination of the variables that is I (0), then the set of variables with the same integration order d are said to be co-integrated. If there is a long-run, or equilibrium link between (or among), two or more econometric variables are said to be co integrated.

The Johansen test (1990) was employed in this work to check for cointegration. If the residuals from the regression of the variables display stationarity, that is, if the residuals are integrated of the order zero I(0), then this is expected based on the idea that two or more economic variables are cointegrated. Consequently, the Johansen test was used to determine if the noise term t is I(0). Using the (tau) statistic for Y, the regression coefficients were checked for significance. The variables are not cointegrated, which means that the residuals from the regression are not I(0), according to the null hypothesis. If the calculated statistic is smaller than the critical statistic by using absolute values, the null hypothesis that the residuals t are not I(0) is rejected.

### 3.10 Ethical Considerations

In order to further the goals of research, the researcher complied with the guidelines for an ethical research in order to advance the objectives of the study such as

knowledge and truth. Sullivan (2001) asserts that scholars should consider ethical considerations when doing their research.

Universities go to considerable measures to ensure the safety and dignity of research participants because of the significance of ethics and the difficulties associated with doing research (Silverman, 2009). With the permission from Moi University's School of Business and Economics, the researcher was able to acquire the NACOSTI credential to further the study.

Last but not least, all quotations and theories utilized by the researchers throughout the study report were properly and authentically referenced with the researcher and source. This prevents plagiarism by acknowledging the effort of the researcher and other contributors.

# CHAPTER FOUR

# DATA ANALYSIS, PRESENTATION AND INTERPRETATION

## 4.1 Overview

The main purpose of this research was to empirically examine foreign dependency and economic growth nexus in Kenya. Data was collected, cleaned, coded and analyzed. The section presents results in form of descriptive and inferential statistics. Descriptors include mean, standard deviations, minimum and maximum values. Correlation patterns between the variables are also presented. The results of the unit root test and assumptions of multivariate regression are presented, along with the graphical representation of the univariate properties of each variable. Inferential statistics include correlation analysis, ARDL model estimation and hypothesis testing. The results were presented using graphs and tables.

## 4.2 Univariate Descriptive Statistics

The univariate analysis of the research variables' results was presented using the descriptive analysis. Every variable used in the research is included in the variables of the study. The observed data utilized to measure each variable served as the basis for the analysis. Taking into account the measurement scales employed for every observed variable, the researcher employed the mean as a central tendency measure and the standard deviation as a measure of dispersion for all variables. Cohen and Swerdlik (2005) state that the mode can be used as the measure of central tendency for nominal categorical variables, the mean, the mode, or the median can be used for ordinal categorical variables, and the mean, the mode, or the median can be used for interval and ratio scale analyses.

Table 4.1 contains descriptive information for a variety of factors, including GDP, foreign direct investment inflows, total imports of goods and service to Kenya,

external debts and manufacturing output in Kenya. It provides information about the central trends (mean), spread (standard deviation), and range (minimum and maximum values) of the values for each variable. Understanding the properties and variability of the dataset across these several categories is made easier by these statistics.

The GDP represents the total monetary value of all goods and services produced within a country's borders within a given time period. The statistics here suggest that Kenya's GDP values vary significantly across the observations, with a mean value of approximately 31 billion USD. The data also indicates that Kenya's GDP has ranged from a minimum of 5.752 billion to a maximum of 109.7 billion USD.

**Table 4. 1: Descriptive Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| GDP | 42 | 3.102e+10 | 3.168e+10 | 5.752e+09 | 1.097e+11 |
| FDI Inflows | 42 | 2.768e+08 | 4.135e+08 | 394430.63 | 1.450e+09 |
| Imports | 42 | 8.659e+09 | 6.788e+09 | 1.539e+09 | 2.185e+10 |
| External debt | 42 | 1.086e+10 | 9.772e+09 | 3.228e+09 | 4.120e+10 |
| Manufacturing output | 42 | 3.194e+09 | 2.860e+09 | 4.895e+08 | 8.877e+09 |

**Source: Research, 2023**

FDI represents the investment made by foreign entities directly into the economy of the country. The statistics suggest that FDI in Kenya has varied, with a mean value of approximately 276.8 million USD. The FDI values range from a minimum of 394430.63 to a maximum of 1.45 billion Dollars. Imports refer to the value of goods and services brought into a country from abroad. The statistics indicate that the mean value of imports is approximately 8.659 billion. Import values range from a minimum of 1.539 billion to a maximum of 21.85 billion Dollars for the entire period under the study.

External debt represents the amount of money that a country owes to foreign creditors. The statistics show that the mean external debt is approximately 10.86 billion Dollars. External debt values vary from a minimum of 3.228 billion to a maximum of 41.20 billion USD. Finally, manufacturing output refers to the value of goods produced by the manufacturing sector in Kenya. The statistics reveal that the mean manufacturing output is approximately 3.194 billion USD. Manufacturing output values range from a minimum of 489.5 million to a maximum of 8.877 billion Dollars. These statistics collectively provide an overview of Kenya's economic indicators, highlighting the variations and trends within these specific variables as shown by Figure 4.1.

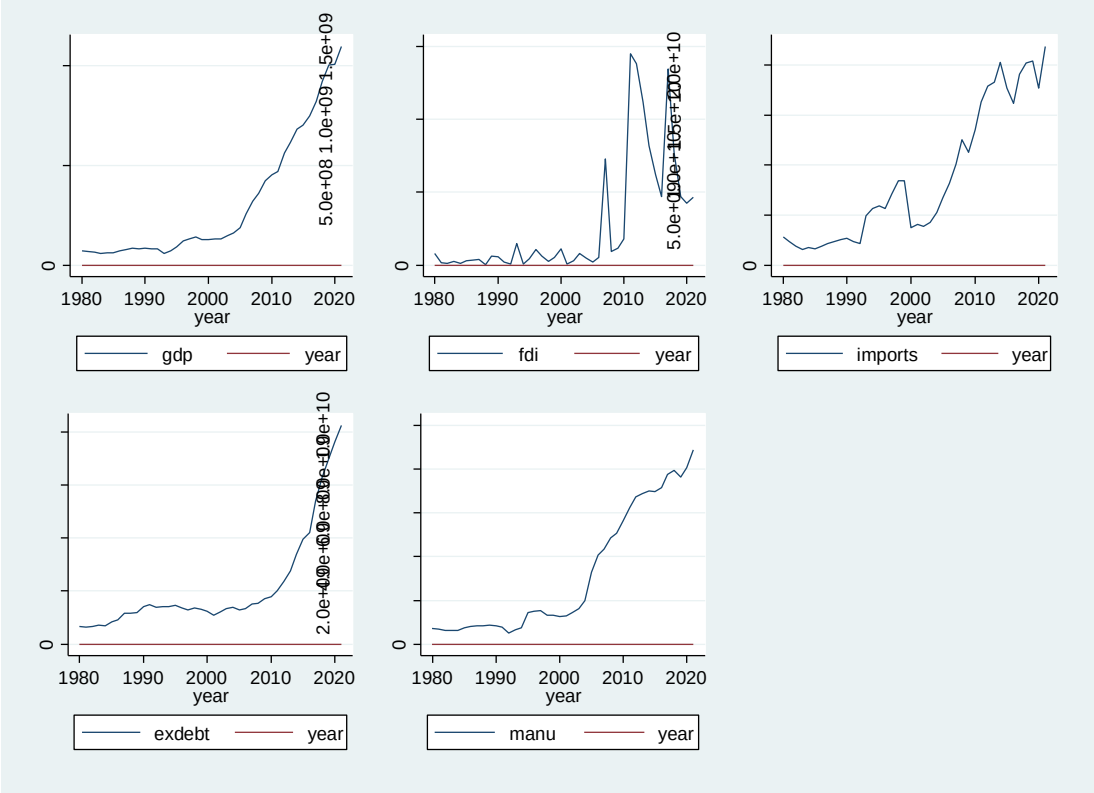


**Figure 4. 1: Graphs Showing Trends at Levels**
**Source: Research, 2023**

The Figure indicate GDP in Kenya has been steadily increasing while the FDI inflows has been unpredictable (have trends and drifts). Further, imports, external debts and

manufacturing out have positive inclinations. The trend of GDP values could indicate the overall economic growth of the country's economy over the observed period. If the mean GDP is increasing, it suggests a positive trend in economic output. The trend in imports could reflect changes in consumer demand and economic activity. Increasing imports might indicate growing consumption and economic expansion. A positive drift in external debt might show the country's increasing reliance on external borrowing. 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.

### 4.3 Stationary Property of the Series

Time series data differs from other types of data in a number of distinctive ways. According to Wooldridge (2014), stationarity is the state in which the mean, variance, and auto covariance of the data are all constant. Stationarity testing was done prior to doing the model specification test. The purpose of stationarity tests is to determine each variable's integration order that is utilized in the model definition. Therefore, the researcher performed a stationarity test to evaluate the impact of various variables. By checking for stationarity, one can prevent biased findings (Gan et al., 2006). The augmented Dickey-Fuller test was employed for this investigation. A stationarity test was performed on each variable. The alternative and null hypotheses served as the foundation for the test.

According to this study, it was wise to comprehend the pattern and seasonality of time series used Augmented Dickey Fuller test to examine this important property of stationarity before making any inference relating the findings.

### 4.3.1 Augmented Dickey Fuller (ADF) Test Results

Due to the likelihood of the error term being white noise. To circumvent the issue of autocorrelation, they expanded their test by adding additional lags in terms of the dependent variables. This test is based on rejecting a null hypothesis that states that a unit root exists. Finding out if the time series data has stationarity or not is the goal of the unit root test. Additionally, as the sequence of integration can be easily ascertained, unit root tests are crucial, particularly for nonstationary series. Differenciating is necessary to bring a nonstationary series to a stationary state. The regression model that results from modeling a nonstationarity series is referred to as spurious.

The Table 4.2 presents ADF test results for variables at levels and after first difference. All the variables were non-stationary at levels, on the other hand, they all attained stationarity on the first difference. This is because their p-values were less than 5% suggests that the unit root null hypothesis was rejected. Variables are differentiable to any order if they have unit roots (Green 2012). Further, the decision can be made using Mackinnon Z (t) that is the z-values should be less than critical values of 5 percent for it to be significant to reject the null hypothesis for ADF test.

**Table 4. 2:ADF Stationarity Results**

| | | **At levels** | | | | |
|---|---|---|---|---|---|---|
| | | | **Critical values** | | | **Remarks** |
| **Variable** | **z** | **p-value** | **1%** | **5%** | **10%** | |
| GDP | 5.928 | 1.0000 | -3.641 | -2.955 | -2.611 | Non-stationary |
| FDI Inflows | -2.551 | 0.1035 | -3.641 | -2.955 | -2.611 | Non-stationary |
| Imports | 0.282 | 0.9765 | -3.641 | -2.955 | -2.611 | Non-stationary |
| External debt | 7.811 | 1.0000 | -3.641 | -2.955 | -2.611 | Non-stationary |
| Manufacturing output | 2.078 | 0.9988 | -3.641 | -2.955 | -2.611 | Non-stationary |
| | | **First difference** | | | | |
| GDP | -2.967 | 0.0381 | -3.648 | -2.958 | -2.612 | *I(1)* |
| FDI Inflows | -7.446 | 0.0000 | -3.648 | -2.958 | -2.612 | *I(1)* |
| Imports | -5.859 | 0.0000 | -3.648 | -2.958 | -2.612 | *I(1)* |
| External debt | -7.087 | 0.0000 | -3.648 | -2.958 | -2.612 | *I(1)* |
| Manufacturing output | -3.408 | 0.0107 | -3.648 | -2.958 | -2.612 | *I(1)* |

Note: I (0) indicate the variables are stationary at level and I (1) variables are stationary after first difference.
**Source: Research, 2023**

Plots of these characteristics help to determine if the data are stationary or non-stationary. For example Figure 4.1(previous section 4.2) indicates trends of variables at levels while figure 4.2 below indicates trends of variables at after first difference. The figures exhibit trends and seasonality. A trend in the data is a long-term movement or direction. It can move in one of three directions: up (growing), down (decreasing), or flat (stable). Forecasting requires both trend identification and trend modeling. The term seasonality describes predictable, recurring oscillations in data that take place at regular intervals, such as daily, weekly, or yearly trends. Time varying variables might cause seasonal impacts.

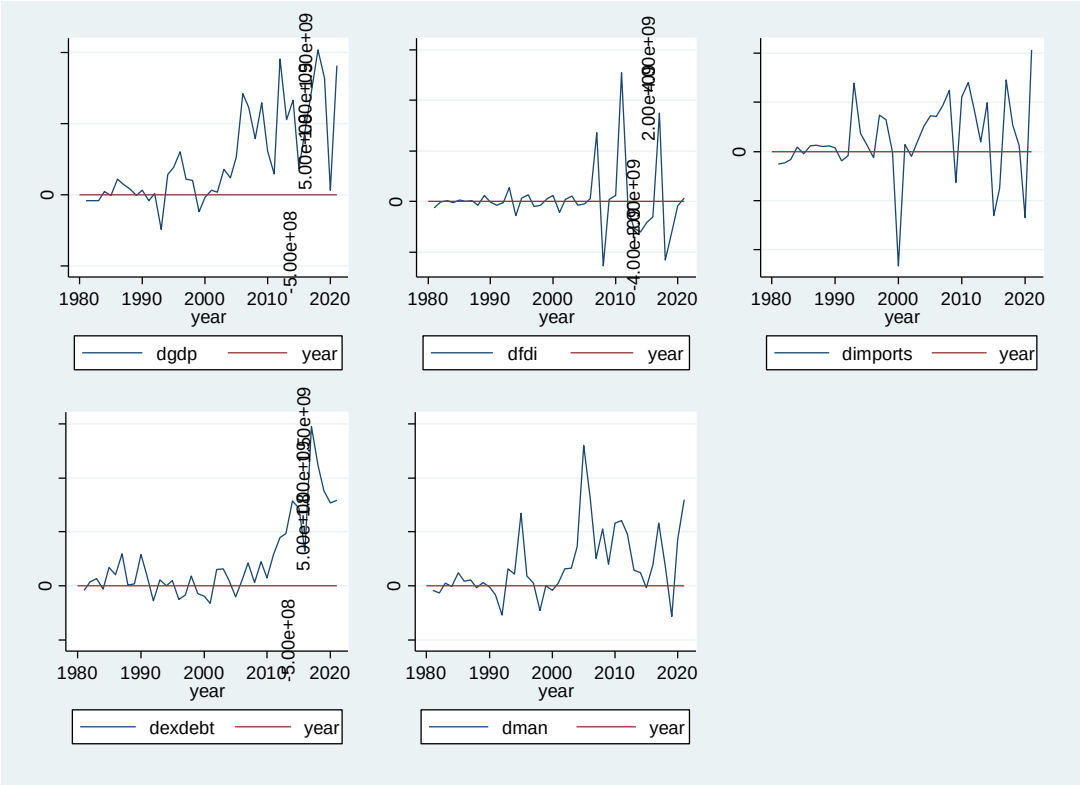


**Figure 4. 2: Graph Showing Variables after First Difference**

**Source: Research, 2023**

### 4.4 Optimum Number of Lags to be selected

The process of doing an analysis begins with choosing an appropriate lag duration. By doing this, the error term is guaranteed to be described accurately (Soytas & Sari, 2003). The Sequential Modified Likelihood Ratio (LR) Criterion, the Final Prediction Error (FPE) Criterion, the Akaike Information Criterion (AIC), the Schwarz Bayesian Information Criterion (SBIC), and the Hannan-Quinn Information Criterion (HQIC) are among the possible selection criteria. The model with the lowest information criteria value is the one that should be selected, nonetheless. The appropriate lags must be found because previous values affect present values. Lags are the periods of time during which the impact of the independent variables on the dependent may not always be apparent (Gujarati (2003). This suggests that care must be taken into account while choosing the best lags for analysis. For the optimal number of lags to

be taken into consideration, the various selection criteria are displayed in Table 4.3. The results show that, according to the Schwartz-Bayesian Information Criterion (SBIC), 2 lags at most are ideal. But the log ratio (LR), final prediction error (FPE), Akaike information criterion (AIC) and Hannan and Quin information criterion (HQIC) recommended a 4-lag as the ideal amount of time. According to Greene (2012), there is no ideal number of lags to employ but few lags saves degrees of freedom. However, Akaike information criterion (AIC) was selected. Thus the study adopted 4 lags maximum.

**Table 4. 3: Selection-order criteria**

| Sample: 1984 - 2021 | | | | | Number of obs = | | | 38 |
|---|---|---|---|---|---|---|---|---|
| lag | LL | LR | df | p | FPE | AIC | HQIC | SBIC |
| 0 | -4311.07 | | | | 3.1e+92 | 227.162 | 227.238 | 227.377 |
| 1 | -4095.2 | 431.75 | 25 | 0.000 | 1.4e+88 | 217.116 | 217.576 | 218.408* |
| 2 | -4070.84 | 48.708 | 25 | 0.003 | 1.5e+88 | 217.15 | 217.993 | 219.52 |
| 3 | -4035.15 | 71.376 | 25 | 0.000 | 1.1e+88 | 216.587 | 217.814 | 220.035 |
| 4 | -3996.68 | 76.953* | 25 | 0.000 | 7.8e+87* | 215.878* | 217.488* | 220.403 |

**Source: Research, 2023**

#### 4.5 Correlation Analysis

Table 4.4 provides a correlation matrix showing the correlations between different economic variables: GDP, FDI Inflows, Imports, External Debt, and Manufacturing Output. The values in the matrix represent correlation coefficients, which indicate the strength and direction of the linear relationship between pairs of variables.

**Table 4. 4: Pearson Correlation Coefficient**

| Variables | GDP | FDI Inflows | Imports | External debt | Manufacturing output) |
|---|---|---|---|---|---|
| GDP | 1.000 | | | | |
| FDI Inflows | 0.677* | 1.000 | | | |
| Imports | 0.945* | 0.777* | 1.000 | | |
| External debt | 0.941* | 0.508* | 0.819* | 1.000 | |
| Manufacturing output | 0.965* | 0.758* | 0.972* | 0.832* | 1.000 |

**** p<0.01, ** p<0.05, * p<0.1*

**Source: Research, 2023**

The significance levels *** (p<0.01), ** (p<0.05), and * (p<0.1) 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. The correlation coefficient of 0.677 between GDP and FDI Inflows suggests a moderately positive relationship. This means that when GDP increases, there tends to be an increase in FDI Inflows. The relationship is statistically significant at the 0.1 level.

GDP and Imports have strong positive relationship to one another. The correlation coefficient of 0.945 suggests that higher GDP is associated with higher levels of Imports. The relationship is significant. Further the correlation coefficient of 0.941 indicates a very strong positive relationship between GDP and External Debt. This suggests that higher GDP is associated with higher levels of External Debt.

GDP and Manufacturing Output a correlation coefficient of 0.965 shows a very strong positive relationship between GDP and Manufacturing Output. This implies that higher GDP is correlated with higher levels of Manufacturing Output. The relationship is highly significant. FDI Inflows and Imports had moderately positive correlation (correlation coefficient of 0.777) and it suggests that when FDI Inflows increase, there is a tendency for Imports to increase as well. The relationship is statistically significant.

In summary, the results indicate that these economic variables are generally positively correlated with each other. Higher GDP tends to be associated with higher FDI Inflows, Imports, External Debt, and Manufacturing Output. Additionally, there are strong correlations between Imports and Manufacturing Output, as well as between External Debt and Manufacturing Output. These relationships can provide insights into the interconnectedness of these economic indicators within the context of the analyzed data.

### 4.6 Cointegration Results

Table 4.5 presents Johansens cointegration and results indicate that there are 3 cointegrating relationships among the time series. The trace statistic (14.0914) is less than the critical value (15.41), so the test null hypothesis was rejected (the null hypothesis that there is no cointegration among the veriables). This suggests that three cointegrating relationships are adequate. The Johansen cointegration test is a procedure used to determine the number of cointegrating relationships among a set of time series variables. These relationships indicate a long-term equilibrium relationship despite being non-stationary individually. This test provides a method to estimate the number of cointegrating vectors. It is based on the maximum likelihood estimation. From the Johansen cointegration test results, its determined that there are three cointegrating relationships among the variables in the dataset. This indicates that despite individual variables being non-stationary, there exist three long-term equilibrium relationships among them.

**Table 4. 5: Johansens Cointegration Results**

| Trend: constant | | Johansen tests for cointegration<br>Number of obs = 38<br>Sample: 1984-2021<br>Lags = 4 | | | |
|---|---|---|---|---|---|
| maximum rank | parms | LL | eigenvalue | trace statistic | 5%critical value |
| 0 | 30 | -4332.2932 | . | 101.3001 | 68.52 |
| 1 | 39 | -4314.0852 | 0.59764 | 64.8841 | 47.21 |
| 2 | 46 | -4300.2671 | 0.49888 | 37.2479 | 29.68 |
| **3** | **51** | **-4288.6889** | **0.43949** | **14.0914*** | **15.41** |
| 4 | 54 | -4282.0913 | 0.28099 | 0.8962 | 3.76 |
| 5 | 55 | -4281.6432 | 0.02216 | | |

**Source: Research, 2023**

### 4.7 Diagnostic Results

#### 4.7.1 Normality Assumption Using Jarque-Bera Test

Since it considers the standard for statistical methods, normality is regarded as the most fundamental assumption in data analysis. It refers to the form of the data distribution for a specific metric variable. Both graphical and statistical tests are used to assess it. Examining the histogram visually and comparing the observed data values with a distribution that approximates the distribution is the easiest way to test for normality Zahediasl and Ghasemi (2012). The normal distribution is symmetrical around the mean and has a middle peak. Reliability of the tests does not need precisely regularly distributed data. Nonetheless, the breach of the normality assumption shouldn't pose a significant issue for sufficiently high sample sizes (> 30 or 40) (Pallant, 2017). This suggests that we may employ parametric techniques even in cases when the data are not normally distributed, according to Elliot and Woodward (2007). It is advised by Ghasemi et al. (2012) to evaluate normality visually as well as through normality tests.

The results of the Jarque-Bera Test, which was used to test if the data were normally distributed, show that the null hypothesis (that the data follow a normal distribution) cannot be rejected because a normal distribution of the residuals was discovered. The Jarque-Bera test statistic was 1.434 and its p-value was 0.488 in Figure 4.3, which is higher than 0.05 and indicates that the null hypothesis cannot be ruled out. The evidence of normal distribution has thus not been in any way compromised.

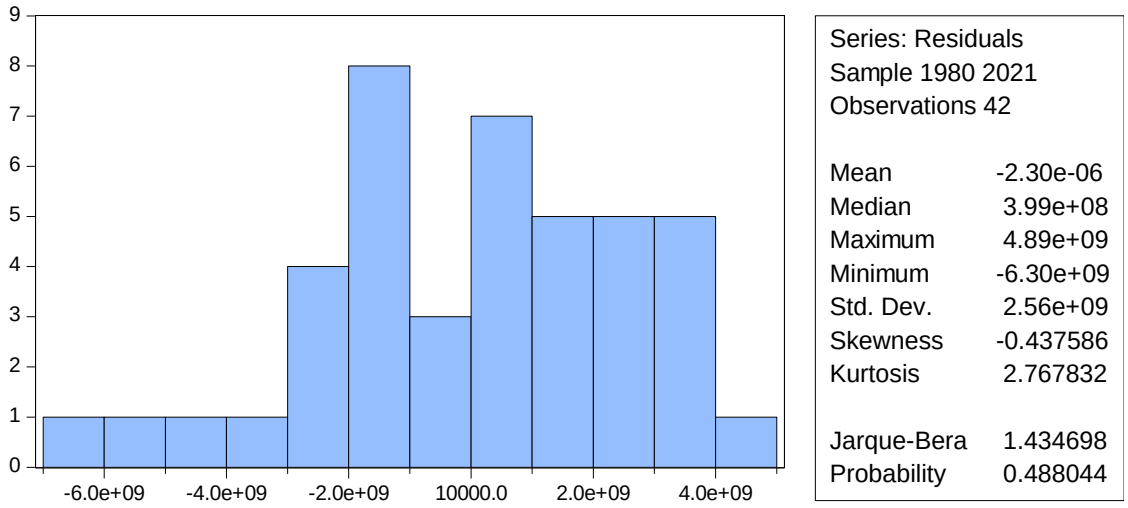


**Figure 4. 3: Jarque-Bera test for Normal Distribution of Residuals**

**Source: Research, 2023**

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

The results of the VIF test yielded values between 1.04 and 1.33. According to (Newbert, 2008), variables with high VIF of 10 signify high multicollinearity. From the perspective of the VIF, this study cannot possibly have any issues. As a result, multicollinearity does not seem to be an issue based on the outcomes of the diagnostic tests.

**Table 4. 6: VIF Measure for Multicollinearity**

| Variables | Variance inflation Factors (VIF) | Tolerance (1/VIF) |
|---|---|---|
| Imports | 1.33 | 0.7534 |
| Manufacturing output | 1.30 | 0.7687 |
| FDI inflows | 1.09 | 0.9171 |
| External debt | 1.04 | 0.9604 |
| **Mean VIF** | **1.19** | |

**Source: Research, 2023**

Multicollinearity is a phenomenon that occurs when many explanatory variables used in a regression model show a strong correlation with one another. A high link between numerous independent elements occurs in this case. In a multiple regression model, unstable estimations of the regression coefficients result from high correlation between the predictor variables. Unexpected outcomes frequently occur from the extent to which variations in the outcome variable are explained by independent causes (Creswell, 2014). According to Brooks (2008), the correlation between the explanatory variables will always be non-zero but will typically be favorable. This is because there will almost always be some degree of correlation between the explanatory variables, but it won't have a significant impact.

### 4.7.3 Serial Correlation

The Breusch-Godfrey LM test was utilized to check for serial correlation on the residuals. The test null hypothesis is no serial correlation and the alternative hypothesis that there is serial correlation. Breusch and Godfrey (1978) stated that if the chi-square p-values are less than 5% threshold of significance, the null hypothesis of no serial connection should be rejected. On the other hand, if the chi-square p-value exceeds the 5% level of significance, the null hypothesis should be accepted. The results of this investigation revealed that the chi-square p-value was 0.6365. Therefore, the study concluded by accepting the null hypothesis that no serial correlation was detected. Further the findings can be supported by Durbin Watson

(1951) that postulated that the d-statistic which lie between 1.5 and 2.5 indicate no serial correlation. The table show Durbin Watson statistic was 1.698 confirming no serial correlation.

**Table 4. 7: Breusch-Pagan-Godfrey For Serial Correlation**

| | | | | |
|---|---|---|---|---|
| F-statistic | 0.596833 | Prob. F(4,37) | | 0.6672 |
| Obs*R-squared | 2.545690 | Prob. Chi-Square(4) | | 0.6365 |
| Scaled explained SS | 1.746310 | Prob. Chi-Square(4) | | 0.7823 |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| Constant | 5.68E+18 | 2.43E+18 | 2.339253 | 0.0248 |
| FDI Inflows | -7.59E+09 | 5.67E+09 | -1.338665 | 0.1888 |
| Imports | -1.40E+08 | 9.13E+08 | -0.152981 | 0.8792 |
| External Debt | -1.84E+08 | 2.73E+08 | -0.673543 | 0.5048 |
| Manufacturing Output | 1.88E+09 | 2.15E+09 | 0.877261 | 0.3860 |
| Log likelihood | -1888.886 | Hannan-Quinn criterion. | | 90.26089 |
| F-statistic | 0.596833 | Durbin-Watson stat | | 1.697849 |
| Prob(F-statistic) | 0.667177 | | | |

**Source: Research, 2023**

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

When the error terms do not exhibit constant variance, there is an issue. There are several reasons why heteroscedasticity may occur, such as the lack of an explanatory variable or non-normal distribution of the variables. Cross-sectional data of varying sizes or skewness in the distribution of the model's regressors might be to blame (Gujarati & Porter, 2009). According to White (1980), heteroscedasticity affects the covariance matrix's and projected parameter's efficacy, skewing the results of hypothesis testing. Long and Laurie (1998) contend that the undervaluation of variance and standard errors in time series data and trends due to the heteroscedasticity problem renders the results of both F- and t-statistics unreliable. Using the Breusch-Pagan/Cook-Weisberg method, heteroscedasticity may be

identified. Without requiring the limited model to be estimated, this is an easy method of testing limitations. The underlying premise of the concept is that, given a limitation, the unrestricted model ought to roughly meet the restriction.

The Breusch-Pagan/Cook-Weisberg model has null hypothesis of a homoscedasticity (constant variance) and heteroscedasticity alternative hypothesis. Breusch and Pagan (1979) assert that the null hypothesis is accepted if the chi-square test statistics' related p values are higher than 5% threshold of significance. On the other hand, the homoscedasticity null hypothesis is rejected if the p-values corresponding to the chi-square test statistics are less than the 5% level of significance. The results of this test, which are shown in Table 4.7, indicate that the model's residuals have a homoscedastic distribution. The p-values for the chi-square test statistics of 0.5531, which are higher than the significance threshold of 5% (0.05), support the null hypothesis.

**Table 4. 8: Homoscedasticity Test for Residuals**

| **Source** | **$chi^2$** | **Df** | **Prob>$chi^2$** |
|---|---|---|---|
| Breusch-Pagan LM statistic: | 0.35 | 1 | 0.5531 |
| $H_o$: Constant Variance | | | |

**Source: Research, 2023**

#### 4.8 Model Estimation Results and Interpretation

The findings of the ARDL regression show distinct connections between the economic variables and their past values. There are several time frames in which previous values influence current values, as shown by the fact that some lags are statistically significant while others are not. The findings shed light on the dynamics of the Kenyan economy as well as the connections between these particular variables during the observational period. For each variable group (GDP, FDI Inflows, Imports, External debt and Manufacturing output), the coefficients for different lags (L1, L2,

L3, L4) and the constant term (_cons) are provided. Each coefficient represents the estimated change in the dependent variable associated with a one-unit change in the corresponding independent variable at the specified lag. ARDL is a method used to analyze relationships among variables when there might be lagging effect dynamics at play.

**Table 4. 9: ARDL Regression Results**

ARDL(3,4,2,3,3)regression
Sample: 1984 - 2021 Number of obs = 38
F( 19, 18) = 4819.79
Prob > F = 0.0000
R-squared = 0.9998
Adj R-squared = 0.9996
Log likelihood = -810.74624 Root MSE = 6.485e+08

| gdp | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| gdp | | | | | | |
| L1. | .0272433 | .130565 | 0.21 | 0.837 | -.2470636 | .3015501 |
| L2. | .5448242 | .1344061 | 4.05 | 0.001 | .2624476 | .8272009 |
| L3. | .1927851 | .1063266 | 1.81 | 0.087 | -.0305989 | .4161691 |
| fdi | | | | | | |
| L0. | -3.576221 | .6554242 | -5.46 | 0.000 | -4.953216 | -2.199226 |
| L1 | -.3997354 | .7533409 | -0.53 | 0.602 | -1.982446 | 1.182975 |
| L2. | .0079708 | .7285113 | 0.01 | 0.991 | -1.522575 | 1.538516 |
| L3. | -1.857846 | .641033 | -2.90 | 0.010 | -3.204607 | -.5110861 |
| L4. | -2.34075 | .5893756 | -3.97 | 0.001 | -3.578982 | -1.102517 |
| imports | | | | | | |
| L0. | .2685934 | .1110703 | 2.42 | 0.026 | .0352434 | .5019433 |
| L1. | -.1984278 | .1210819 | -1.64 | 0.119 | -.4528114 | .0559558 |
| L2. | .3665215 | .1371805 | 2.67 | 0.016 | .078316 | .654727 |
| exdebt | | | | | | |
| L0. | 1.44276 | .2140177 | 6.74 | 0.000 | .9931257 | 1.892395 |
| L1. | -.518757 | .319262 | -1.62 | 0.122 | -1.189502 | .1519875 |
| L2. | -.3329147 | .3361613 | -0.99 | 0.335 | -1.039163 | .373334 |
| L3. | -.4648294 | .2337672 | -1.99 | 0.062 | -.9559562 | .0262973 |
| manu | | | | | | |
| L0 | .0205123 | .5281441 | 0.04 | 0.969 | -1.089077 | 1.130102 |
| L1. | 5.879166 | .85778 | 6.85 | 0.000 | 4.077037 | 7.681295 |
| L2. | -.1011675 | 1.176145 | -0.09 | 0.932 | -2.572157 | 2.369822 |
| L3. | -3.425589 | .9916514 | -3.45 | 0.003 | -5.508971 | -1.342207 |
| _cons | -2.18e+09 | 6.29e+08 | -3.47 | 0.003 | -3.50e+09 | -8.59e+08 |

**Source: Research, 2023**

The result presented contains output for 4 lags. However this study explains and discusses findings based on the zero lag (L0), lag one (L1) or two lags (L2). From the findings, the GDP coefficient for L1 is 0.272 which is statistically insignificant with p-value of 0.837 while the coefficient for L2 is β=0.5448, which is statistically significant (p-value=0.001). It indicates a positive relationship between GDP at lag 2

and current GDP. The coefficients for L1 to L4 represent the effects of FDI at different lags on current GDP. L3, and L4 are statistically significant with negative coefficients, implying while L1 and L2 are considered statistically insignificant on economic growth in Kenya.

For the imports, the coefficient for L2 is β=0.3665, which is statistically significant with corresponding p-value of 0.016, indicating a positive impact of imports at lag 2 on economic growth in Kenya. While L1 was shown to have a negative insignificant effect on the GDP.

For the external debt, the results showed that L1, L2, L3 with the coefficient β = -0.5187, β = -0.3329 and β = -0.4648 respectively, have some negative but statistically insignificant effect on the gdp with the corresponding p values of p-value: 0.122, p-value: 0.335 and p-value: 0.062 respectively Further, the coefficient for L1 is β=5.879, indicating a strong positive impact of manufacturing output at lag 1 on GDP. The coefficient for L3 is β = -3.4256, which is statistically significant (p-value = 0.003), suggesting a negative impact of manufacturing output at lag 3 on GDP.

It's significant to highlight that the foundation for these views is the statistical analysis offered and the economic environment of Kenya. The links identified here should be taken into account within a larger economic framework because other factors that were not examined in the analysis may also have an impact on economic growth. Furthermore, depending on the particular economic circumstances and policies in existence at the time of analysis, the directions and magnitudes of these effects may vary. Foreign direct investment inflows to Kenya (β=-3.576, p-value=0.000), imports of goods and services (β=0.269,p-value=0.026), external debt (β=1.443,p-value=0.000) and manufacturing of goods(β=5.879,p-value=0.000) had a significant effect on economic growth in Kenya.

Following the analysis, Foreign Direct Investment (FDI) Inflows (β = -3.576, p-value = 0.000) had a negative significant effect on economic growth in Kenya. FDI inflows can significantly impact economic growth by injecting capital, technology, and expertise into the economy. The negative coefficient suggests that a decrease in FDI inflows is associated with an increase in economic growth. This could be due to the fact that a decrease in FDI might prompt the government and local businesses to focus on domestic investments and innovation, leading to higher economic growth.

Imports are often seen as a measure of economic openness and integration with the global economy. The positive coefficient (β = 0.269, p-value = 0.026) implies that an increase in imports is associated with higher economic growth. This might be because imports can provide necessary raw materials, intermediate goods, and consumer products that fuel domestic production and consumption, thus positively influencing economic activity.

External debt on the other hand can be both beneficial and risky for economic growth. The positive coefficient (β = 1.443, p-value = 0.000) indicates that an increase in external debt is associated with higher economic growth. One reason for this could be that countries often borrow to finance large-scale infrastructure projects and development initiatives that can stimulate economic activity in the short and long term. However, it's important to manage debt levels to avoid potential negative consequences on financial stability and growth sustainability.

Manufacturing plays a crucial role in economic growth by contributing to job creation, value addition, and export potential. The strong positive coefficient (β = 5.879, p-value = 0.000)suggests that an increase in manufacturing output is strongly associated with higher economic growth. This could be because a thriving manufacturing sector can lead to increased exports, reduced dependency on imports,

and improved overall industrial activity, all of which can contribute to economic expansion.

### 4.9 Test of Hypothesis and Discussions

The study had four objectives and each of the objectives was hypothesized and tested using Autoregressive Distributed Lag (ARDL) model estimation. The choice of this ARDL model because it is an econometric approach that is particularly useful for analyzing dynamics between variables in a time series context. ARDL has gained popularity due to its ability to handle cases where variables might be integrated at different orders (I(0) or I(1)), making it a flexible tool for investigating relationships in both stationary and non-stationary time series

#### 4.9.1 Testing Hypothesis HO1: Foreign Direct Investment Has No Significant Effect On Kenya Economy

The first hypothesis stated that $H_{O1}$: Foreign direct investment has no significant effect on Kenya economy. Based on the ARDL regression and at lag zero, Foreign direct investment inflows to Kenya (β=-3.576, p-value=0.000) had a negative and significant effect on economic growth. This implies the null hypothesis $H_{O1}$was rejected and concluded that FDI inflows to Kenya have a negative impact on the overall GDP. This indicates a unit increase in FDI inflows to Kenya cause a decrease in GDP by 3.576 units.

The results find support from Reim (2017), who developed a model that examines the effects of FDI on economic development when investment returns may be repatriated, in contrast to all the positive findings for other factors. She claims that foreign companies would take the place of native companies in several industries following the opening up to FDI. The significant transfer of capital returns to foreign enterprises may result in a deterioration in the welfare of local industry. According to this model,

the relative rate of profit repatriation determines how FDI affects economic growth. She comes to the conclusion that FDI hinders growth while adding that if the global interest rate is lower than the domestic interest rate. Then FDI may influence growth positively.

The study argues that the negative impact of FDI might be as results of sectorial imbalance in Kenya, FDI concentrated in a particular sector might displace domestic industries, leading to short-term negative effects on GDP. For instance, if a significant portion of FDI is directed towards sectors that compete directly with existing local businesses, it could lead to a temporary reduction in GDP as domestic industries adjust to the new competition. If FDI involves large-scale extraction of resources without significant value addition, it could lead to a situation where raw materials are exported, resulting in limited domestic economic gains. This could cause a decrease in GDP if the gains from resource extraction are not being reinvested into the domestic economy.

### 4.9.2 Testing Hypothesis $H_{O2}$: Import Has No Significant Effect On Kenya Economy

The second hypothesis stated $H_{O2}$: Import has no significant effect on Kenyan economy. Results showed imports of goods and services had a positive significant effects on economic growth ($\beta$=0.269, p-value=0.026). Thus, the hypothesis $H_{O2}$ was rejected at 5 percent level of significance. The positive effect implies that a unit increase in imports causes positive change in GDP by 0.269 units. When an increase in imports per unit results in an improvement in GDP, this illustrates a situation where imports are linked to favorable economic outcomes. The significance of imports as a vital conduit for the transfer of foreign technology and knowledge into the home economy has been underscored by recent endogenous growth models (Grossman and

Helpman, 2015). Imported intermediate items, such as machinery and equipment, may include new technologies, and when workers gain the skills necessary to "unbundle" these new technologies, labor productivity may rise (Thangavelu and Rajaguru, 2014). Furthermore, it is commonly known that imports are essential to the economies of nations whose industrial bases are based on export-oriented sectors (Esfahani, 2012). Importing superior products and services can stimulate economic growth if foreign exchange accumulation is adequate. This, in turn, increases the opportunities for output (Baharumshah, 1999).

An approach known as "import-led growth" allows imports to contribute positively to economic growth. A rise in imports can provide consumers with a wider variety of goods and services, enhancing their overall well-being. Moreover, imports can supplement domestic production, allowing the economy to diversify and specialize in areas where it has a comparative advantage. This diversification can lead to greater economic stability and growth. By importing goods that expose the workforce to new technologies and ideas, the economy can become more innovative, leading to increased productivity and economic growth.

The findings concurs with Abdullahi *et al.* (2016) who found that import has a positive impact on GDP growth in West African countries. Lawal & Ezeuchenne (2017) showed that there is a long-run imports and economic growth. The assumption of import-led development in India during the post-reform period was examined by Maitra (2020). In the short and long terms of his study, he discovered strong evidence that the ILG hypothesis is correct, showing that imports have a major impact on India's economic growth. Taniguchiy (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.

### 4.9.3 Testing Hypothesis HO3: External Debt Has No Significant Effect On Kenya Economy.

Another objective of the research was to evaluate the contribution of external debt on economic growth in Kenya. The foreign borrowing by the government can affect economic growth both positively and negatively. According to Presbitero's (2012) research, developed nations are more adept at making constructive use of debt than emerging nations. According to Chenery and Strout (1966), a lack of investment and saving is the primary cause of developing and emerging nations' accumulation of foreign debt. In order to borrow money for consumption, countries with low savings will turn to the domestic or foreign debt markets, which will stabilize and smooth economic growth. Developing nations also turn to the debt market for other reasons, including low levels of investment, balanced budget deficits, and limited government revenue (Gohar et al. 2012). Warner (2012) found a positive correlation between foreign debt and economic growth, which is the opposite of other empirical findings. Using least square estimate, the investigation was conducted over a 20-year span on 13 developing nations.

There are internal variables that contribute to Kenya's foreign debt. These mostly relate to excessively expansionary fiscal policies and severely skewed trade policies, particularly those that imposed a strong export-bias. Deficits in the public sector have been a significant issue.

However, the findings showed that external debt had a strong positive effects on economic growth ($\beta$=1.443,p-value=0.000). Since the findings were significant, the null hypothesis was rejected. An increase in external debt by one unit causes an

increase in economic growth by 1.443 units. This is an implication that If the external debt is being used to finance productive investments in infrastructure, technology, and other sectors that have a positive impact on economic growth, it could lead to higher GDP. These investments might stimulate economic activity, create jobs, and increase overall productivity. The increase in external debt might attract private investment due to improved investor confidence. This combination of external financing and private investment could contribute to increased economic activity and growth.

The effective use of borrowed funds and well managed efficiently and used to implement projects that yield high returns, the resulting increase in economic activity could lead to higher GDP. External debt also might provide the necessary funds for development projects that otherwise could not be funded domestically. These projects, if well-designed and effectively implemented, could have positive ripple effects on the economy. There is also a multiplier effect on the economy, such as education, healthcare, and technology, it could lead to increased human capital and innovation, positively influencing GDP growth. It's important to approach such results with caution and skepticism. In reality, the relationship between external debt and economic growth is complex and multifaceted, and it's unlikely to be fully captured by a simple linear model.

Akram (2010) discovered that the debt overhang effect of foreign public debt on economic growth. Particularly, the study discovered that, both in the short and long runs, external debt had a negative and statistically significant association with per capita GDP and investment. The results of this study were contracdicted with the study done by Karoney (2018) that established that borrowings could negatively affect economic growth both directly and indirectly. Karoney (2018) therefore concluded that there is an urgent need for policymakers in governments, central

banks, and international policy organizations to understand the effects of public debt on economic growth extensively.

The findings of this study support the work by Maana et al. (2008). Their research reveals that domestic debt in Kenya does not dislodge domestic investors due to the country's strong financial development. The study also used the Barrow growth regression to look at how Kenya's domestic debt has affected economic growth. They learned through the analysis that domestic debt growth had a beneficial, albeit marginal, impact on Kenya's economic growth over the period under consideration, even though the country's public debt ratio had shifted in favor of domestic debt.

The study's conclusions concur with a study by Mageto and Nyachae (2015), which found that public debt, is still one of the most important factors in economic development, particularly in developing nations. Their research revealed a link between Kenya's external debt and economic growth that is favorable. They explain that the majority of developing nations will anticipate that public debt will have a favorable impact on economic growth. Therefore, they advise that funds from public debt be used to finance government spending that will promote the nation's economy.

### 4.9.4 Testing Hypothesis HO4: Manufacturing Output Has No Significant Effect On Kenya Economy.

Lastly, the study aimed at investigating the economic impact manufacturing out in Kenya on the economic growth of goods. The study hypothesized and results indicates that manufacturing out had a positive and insignificant effects on GDP ($\beta$=0.020,p-value=0.969). Since the p-values is more than 0.05, the hypothesis test of the variable, had insignificant relationship with the Kenya economic growth. Therefore the null hypothesis that manufacturing out has no significant effect on Kenya economy was not rejected. This result supports the argument by (Sharma,

2016) that whether manufacturing sector contributes to the economic growth or not depends on the nature of policy regime.

This study finding is contrary to the study by 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. This further contradict that of Su and Yao (2016) and Marconi, Reis, and Araùjo (2016), who draw the conclusion that increasing manufacturing production is crucial for economic growth and productivity, particularly in middle-income nations.

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.

Using a VAR model, Chakravarty and Mitra (2009) came to the conclusion that manufacturing is a key factor in India's economic expansion. The authors go on to say that, over the medium to long term, the manufacturing sector also grows other industries. Jeon (2006) used time series and panel data analysis to provide evidence in favor of Kaldor's theory of economic growth and development in China. He concluded that in any given economy, the manufacturing sector may be a more effective source of job generation than other sectors due to its labor-intensive character. Singariya and Sinha (2015) discovered, via the use of the Johansen test, that

a long-term link exists between the variables in India and the direction of causation from GDP to manufacturing.

Additionally, 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.

Olamade and Oni (2016) offered evidence in support of the claim that manufacturing is the primary driver of growth in 28 African nations and make the case that de-industrialization may be detrimental to economic progress. In 80 nations, Cantore et al. (2017) break down the impact of the manufacturing sector on economic growth into structural change and employment effects, and they come to the conclusion that manufacturing boosts GDP through structural change involving an increase in productivity. According to Keho (2018), economic growth is boosted by manufacturing output in the majority of ECOWAS nations.

# CHAPTER FIVE

# SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 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.

## 5.2 Summary of Findings

This study investigated foreign dependency and economic growth nexus in Kenya within ARDL model, using forty-two year time series data ranging from 1980-2021. The study reveals that, the GDP values have varied widely over the observations, with a mean value of roughly 31 billion USD. According to the data, Kenya's GDP has fluctuated between 5.752 billion and 109.7 billion USD, least and maximum. The figures indicate that FDI in Kenya has been inconsistent, with a mean amount of about 276.8 million USD. The FDI values range from a minimum of 394430.63 to a maximum of 1.45 billion Dollars. The statistics indicate that the mean value of imports is approximately 8.659 billion. Import values range from a minimum of 1.539 billion to a maximum of 21.85 billion Dollars for the entire period under the study.

According to data, the average external debt is roughly 10.86 billion dollars. A minimum of 3.228 billion USD and a maximum of 41.20 billion USD are the ranges for external debt values. 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 3.194 billion USD. Minimum and maximum manufacturing output values are 489.5 million and 8.877 billion dollars, respectively. 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 a favorable

trend in economic output. The trend in imports could reflect changes in consumer demand and economic activity. Increasing imports might indicate growing consumption and economic expansion. A rise in the nation's foreign borrowing may be indicated by a positive trend in its external debt. Using the Vector Integrating Factor (VIF), the variables were examined for multicollinearity, and it was determined that multicollinearity wont be a problem. Empirical results of stationarity analysis revealed that all the variables attained stationarity after first difference therefore the variables were of I(1). Considering that their p-values were less than five (5) percent.

The results of Breusch-Pagan-Godfrey test revealed that the chi-square p-value was 0.6365. Therefore, the study concluded by accepting the null hypothesis that no serial correlation was detected. Further the findings show Durbin Watson statistic was 1.698 confirming no serial correlation.

The variables were therefore kept in the model. Analysis of correlations revealed that there is a positive relationship between all variables.Imports and GDP are positively correlated. According to the correlation coefficient of 0.945, higher GDP and higher import levels are related. The connection is really important. Furthermore, the correlation value of 0.941 shows that GDP and external debt have a very high positive association. This implies that higher GDP and higher levels of external debt are related. A correlation coefficient of 0.965 between GDP and Manufacturing Output reveals a very high positive association between the two. This suggests that higher levels of Manufacturing Output are connected with higher GDP. The connection is really important. The favorable correlation between FDI Inflows and Imports (correlation coefficient of 0.777) implies that when FDI Inflows rise, there is a tendency for Imports to increase as well. The relationship is statistically significant.

In conclusion, the findings show that these economic variables are typically connected favorably. Higher FDI inflows, imports, external debt, and manufacturing output typically go hand in hand with higher GDP. Furthermore, imports and manufacturing output exhibit a substantial positive association, as both external debt and manufacturing output. These connections can shed light on how these economic indicators are interconnected in the context of the studied data.

Empirical results further showed that there were positive significant relationship between import and external debt to GDP. The study presented a negative significant relationship between FDI and GDP. While showing that manufacturing output had a positive insignificant effect on the GDP. The ARDL regression results demonstrate clear relationships between the economic variables and their previous values. The fact that some lags are statistically significant while others are not. This indicates that there are several time frames in which past values affect present ones. The results provide insight into the short- and long-term dynamics of the Kenyan economy as well as the relationships that existed between these specific variables during the observational period.

**5.3 Conclusion of the Study**

Based on the findings, the study can draw several economic conclusions about the relationship between these variables and economic growth in Kenya. The negative beta coefficient (β=-3.576) and a significant p-value (0.000) suggest that FDI has a statistically significant negative effect on economic growth in Kenya. This might indicate that an increase in FDI could potentially hinder economic growth in the country. This could be due to various factors, such as FDI leading to resource outflows or crowding out local industries.

There was a positive effect of imports on GDP. The beta coefficient (β=0.269) and a significant p-value (0.026) indicate that imports of goods and services have a statistically significant positive effect on economic growth in Kenya. This suggests that an increase in imports is associated with higher economic growth. This could be due to imports supplying necessary inputs for production or indicating increased economic activity. . Additionally, trade policies that facilitate imports could also be beneficial for the economy.

The positive association of the external debt on economic growth (β=1.443) and a significant p-value (0.000) suggest that external debt has a statistically significant positive effect on economic growth in Kenya. This implies that taking on external debt can potentially stimulate economic growth. This might be the case if the borrowed funds are used for productive investments that generate economic returns exceeding the cost of servicing the debt.

In conclusion, these findings suggest that while FDI may have a negative impact on economic growth in Kenya, other factors like imports, external debt, and manufacturing sector contributes positively to economic growth. Policymakers in Kenya may want to consider strategies to attract productive. However, manufacturing output have shown to be insignificant on Kenya economic growth.

**5.4 Recommendations of the Study**

The results of this study have advanced our understanding of how manufacturing output, import, external debt, and foreign direct investment affect Kenya's economic development. It also has a number of effects on economists, policymakers, and practitioners of the theory of economic growth. The results of this study demonstrate that more work has to be done to enhance each economic sector. Based on the findings that have been provided, here are some policy suggestions for Kenya to

enhance its economic growth. These policy recommendations should be implemented with a focus on long-term economic sustainability and inclusive growth, taking into account the unique challenges and opportunities within Kenya's economic landscape. Additionally, engaging with relevant stakeholders, including the private sector and civil society, is crucial for successful policy implementation and adaptation.

i. FDI had a negative impact on economic growth in Kenya, it's essential to attract productive and strategic FDI. Implement policies that attract FDI in sectors that have a positive spillover effect on the economy, such as technology, infrastructure, or value-added industries. Ensure that FDI contributes to job creation and technology transfer.

ii. As external debt has a positive impact on economic growth, Kenya should continue to manage its debt prudently. Ensure that borrowed funds are invested in projects and initiatives that generate sufficient returns to service the debt effectively. Develop a comprehensive debt management strategy that considers both short-term and long-term implications.

iii. Given the positive impact of imports on economic growth, continue to pursue trade policies that facilitate imports of goods and services. This includes reducing trade barriers, simplifying customs procedures, and promoting trade agreements that expand access to global markets.

iv. To balance the trade equation and further boost economic growth, Kenya can also focus on policies that promote exports. This might involve supporting domestic industries that produce goods and services with export potential, providing export incentives, and participating in trade promotion activities.

v. Invest in critical infrastructure such as transportation networks, energy generation, and telecommunications. Adequate infrastructure is essential for

attracting FDI, facilitating imports and exports, and fostering economic development.

vi. Invest in education and skill development programs to ensure a well-trained and adaptable workforce. A skilled workforce can drive productivity, innovation, and competitiveness in the manufacturing sector, attracting more investment.

vii. Maintain fiscal discipline to ensure that government spending is sustainable. A well-managed fiscal policy can help create a stable economic environment that is attractive to investors and minimizes the risk associated with external debt.

viii. Establish a robust system for monitoring and evaluating the impact of policies related to FDI, imports, external debt, and manufacturing. Regular assessments will help policymakers adjust strategies as needed to maximize their positive effects on economic growth.

ix. It is crucial to manage the economy macroeconomically as it affects good capital development, the amount and service of foreign debt, and other factors. The availability of outside funding need to align with a system of policies that are genuinely upheld. Establishing political intent and legitimacy is crucial to boosting investor confidence for both domestic and international investments. Rebuilding credibility is one of the main drivers of Kenya's economic development.

**5.5 Recommendation for Future Research**

Future researcher need to focus on financial management this will examine the relationship between foreign dependency and financial management in developing nations. Researchers in this area study topics like capital market, investment, resource management, and banking. Others may look at development economics and examine

the economic, social, and political factors that influence the development of countries and regions. Researchers in this area study issues such as poverty, inequality, education, healthcare, and economic development strategies.

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# APPENDICES

## Appendix 1: Descriptive test

**Descriptive Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| gdp | 42 | 3.102e+10 | 3.168e+10 | 5.752e+09 | 1.097e+11 |
| fdi | 42 | 2.768e+08 | 4.135e+08 | 394430.63 | 1.450e+09 |
| imports | 42 | 8.659e+09 | 6.788e+09 | 1.539e+09 | 2.185e+10 |
| exdebt | 42 | 1.086e+10 | 9.772e+09 | 3.228e+09 | 4.120e+10 |
| manu | 42 | 3.194e+09 | 2.860e+09 | 4.895e+08 | 8.877e+09 |

```
asdoc varsoc  gdp fdi imports exdebt manu, append save(df)
```

## Appendix 2: Selection-order criteria

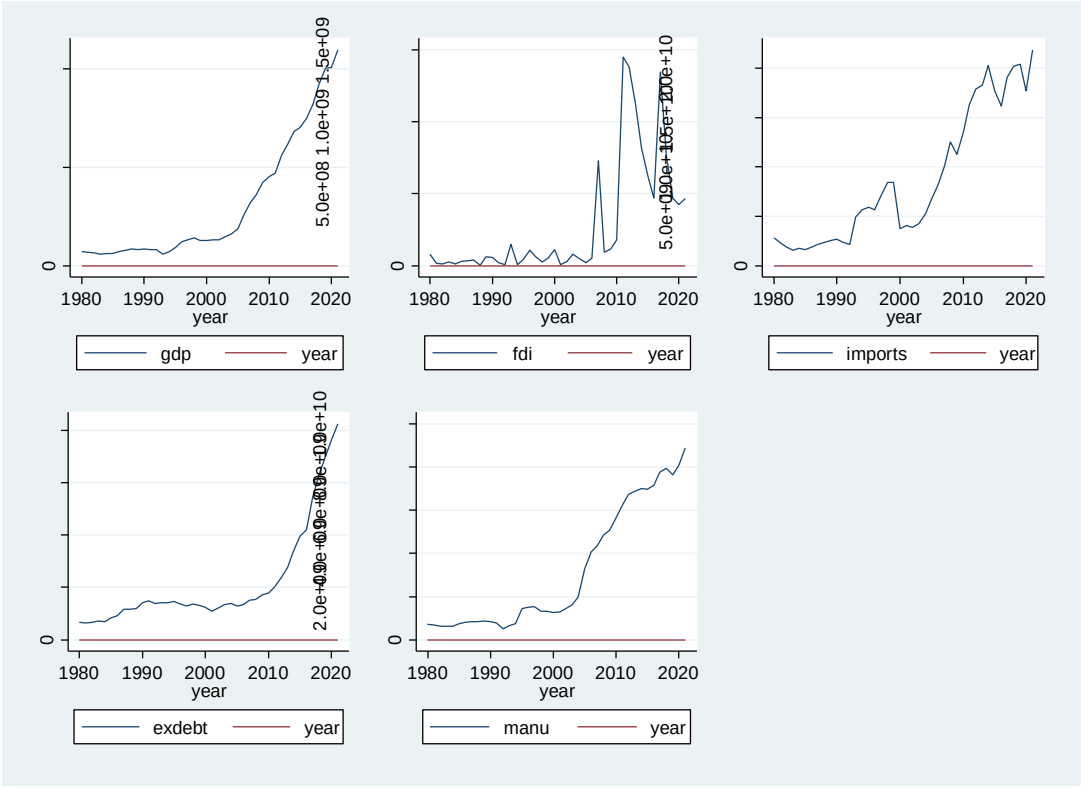
```
   Sample:  1984 - 2021                        Number of obs      =        38
  +---------------------------------------------------------------------------
+
  |lag |     LL       LR       df     p       FPE        AIC       HQIC       SBIC
|
  |----+----------------------------------------------------------------------
|
  |  0 | -4311.07                        3.1e+92   227.162   227.238   227.377
|
  |  1 |  -4095.2  431.75    25  0.000  1.4e+88   217.116   217.576   218.408*
|
  |  2 | -4070.84  48.708    25  0.003  1.5e+88    217.15   217.993    219.52
|
  |  3 | -4035.15  71.376    25  0.000  1.1e+88   216.587   217.814   220.035
|
  |  4 | -3996.68  76.953*   25  0.000  7.8e+87*  215.878*  217.488*  220.403
|
  +---------------------------------------------------------------------------
+
```

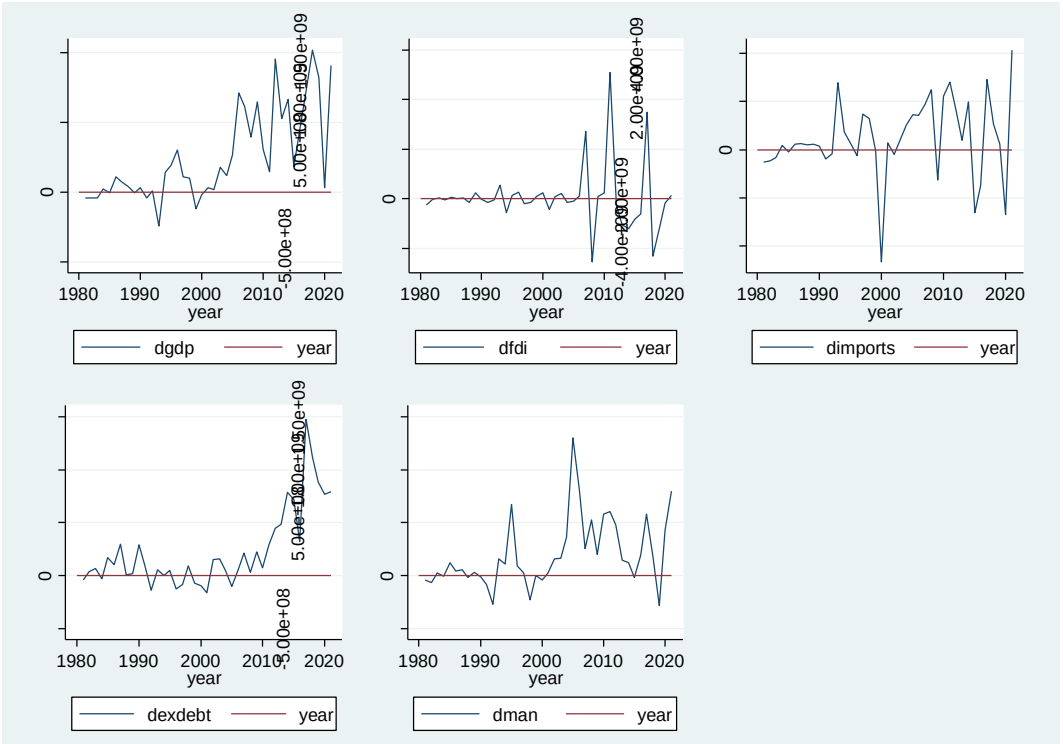
## Appendix 3: Dickey-Fuller test for unit root

```
dfuller  gdp

Dickey-Fuller test for unit root                   Number of obs   =        41

                                 ---------- Interpolated Dickey-Fuller ---------
                 Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              5.928           -3.641            -2.955            -2.611
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 1.0000
```

```
. dfuller  fdi

Dickey-Fuller test for unit root                   Number of obs   =        41

                                 ---------- Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.551           -3.641            -2.955            -2.611
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1035

. dfuller   imports

Dickey-Fuller test for unit root                   Number of obs   =        41

                                 ---------- Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              0.282           -3.641            -2.955            -2.611
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9765

. dfuller    exdebt

Dickey-Fuller test for unit root                   Number of obs   =        41

                                 ---------- Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              7.811           -3.641            -2.955            -2.611
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 1.0000

. dfuller     manu

Dickey-Fuller test for unit root                   Number of obs   =        41

                                 ---------- Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              2.078           -3.641            -2.955            -2.611
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9988

. dfuller     dgdp

Dickey-Fuller test for unit root                   Number of obs   =        40

                                 ---------- Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.967           -3.648            -2.958            -2.612
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0381

. dfuller      dfdi

Dickey-Fuller test for unit root                   Number of obs   =        40

                                 ---------- Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value             Value
```

```
------------------------------------------------------------------------------
 Z(t)             -7.446           -3.648           -2.958           -2.612
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

. dfuller       dimports

Dickey-Fuller test for unit root                  Number of obs   =        40

                                ---------- Interpolated Dickey-Fuller ---------
                   Test         1% Critical       5% Critical      10% Critical
                 Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -5.859           -3.648           -2.958           -2.612
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

. dfuller        dexdebt

Dickey-Fuller test for unit root                  Number of obs   =        40

                                ---------- Interpolated Dickey-Fuller ---------
                   Test         1% Critical       5% Critical      10% Critical
                 Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -7.087           -3.648           -2.958           -2.612
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

. dfuller         dman

Dickey-Fuller test for unit root                  Number of obs   =        40

                                ---------- Interpolated Dickey-Fuller ---------
                   Test         1% Critical       5% Critical      10% Critical
                 Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.408           -3.648           -2.958           -2.612
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0107
```


gdp
fdi
imports
exdebt
manu
year
1980
1990
2000
2010
2020


dgdp
dfdi
dimports
dexdebt
dman
year
1980
1990
2000
2010
2020

## Appendix 4: Correlation test

**Pairwise correlations**

| Variables | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| (1) gdp | 1.000 | | | | |
| (2) fdi | 0.677* | 1.000 | | | |
| (3) imports | 0.945* | 0.777* | 1.000 | | |
| (4) exdebt | 0.941* | 0.508* | 0.819* | 1.000 | |
| (5) manu | 0.965* | 0.758* | 0.972* | 0.832* | 1.000 |

**** p<0.01, ** p<0.05, * p<0.1*

```
predict resid
(option xb assumed; fitted values)
(1 missing value generated)

. jb  resid
Jarque-Bera normality test:  7.663 Chi(2)  .0217
Jarque-Bera test for Ho: normality:

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
    dimports |      1.33    0.753419
        dman |      1.30    0.768695
        dfdi |      1.09    0.917173
     dexdebt |      1.04    0.960442
-------------+----------------------
    Mean VIF |      1.19

. hettest


Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of dgdp

         chi2(1)      =     0.35
         Prob > chi2  =   0.5531

. estat dwatson

Durbin-Watson d-statistic(  5,    41) =  2.158781
```

## Appendix 5: Model estimation

```
ARDL(3,4,2,3,3) regression

Sample:     1984 -     2021                     Number of obs   =         38
                                                F(  19,     18) =    4819.79
                                                Prob > F        =     0.0000
                                                R-squared       =     0.9998
                                                Adj R-squared   =     0.9996
Log likelihood = -810.74624                     Root MSE        =  6.485e+08

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gdp |
         L1. |   .0272433    .130565     0.21   0.837    -.2470636    .3015501
         L2. |   .5448242   .1344061     4.05   0.001     .2624476    .8272009
         L3. |   .1927851   .1063266     1.81   0.087    -.0305989    .4161691
             |
         fdi |
         --. |  -3.576221   .6554242    -5.46   0.000    -4.953216   -2.199226
         L1. |  -.3997354   .7533409    -0.53   0.602    -1.982446    1.182975
         L2. |   .0079708   .7285113     0.01   0.991    -1.522575    1.538516
         L3. |  -1.857846    .641033    -2.90   0.010    -3.204607   -.5110861
         L4. |   -2.34075   .5893756    -3.97   0.001    -3.578982   -1.102517
             |
     imports |
         --. |   .2685934   .1110703     2.42   0.026     .0352434    .5019433
         L1. |  -.1984278   .1210819    -1.64   0.119    -.4528114    .0559558
         L2. |   .3665215   .1371805     2.67   0.016      .078316     .654727
             |
      exdebt |
         --. |    1.44276   .2140177     6.74   0.000     .9931257    1.892395
         L1. |   -.518757    .319262    -1.62   0.122    -1.189502    .1519875
         L2. |  -.3329147   .3361613    -0.99   0.335    -1.039163     .373334
         L3. |  -.4648294   .2337672    -1.99   0.062    -.9559562    .0262973
             |
        manu |
         --. |   .0205123   .5281441     0.04   0.969    -1.089077    1.130102
         L1. |   5.879166     .85778     6.85   0.000     4.077037    7.681295
         L2. |  -.1011675   1.176145    -0.09   0.932    -2.572157    2.369822
         L3. |  -3.425589   .9916514    -3.45   0.003    -5.508971   -1.342207
             |
       _cons |  -2.18e+09   6.29e+08    -3.47   0.003    -3.50e+09   -8.59e+08
------------------------------------------------------------------------------
```

**Appendix 6: NACOSTI Letter**

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Telex No. MOIVARSITY

**P.o Box** 3900
Eldoret
Kenya

**REF:** MS/ECON/5354/21 DATE: 19th July, 2023

**TO WHOM IT MAY CONCERN**

Dear Sir/Madam,

**RE: CHUKWU NNAEMEKA BENEDICT – MS/ECON/5809/21**

The above named is a bonafide student of Moi University, School of Business and Economics undertaking a Master of Arts in Economics.

He has completed course work, defended proposal and is proceeding to the field to collect data for his research entitled: ***Foreign Dependency and Economic Growth Nexus in Kenya."***

Any assistance accorded to him will be highly appreciated.

Yours faithfully,

SCHOOL OF BUSINESS & ECONOMICS
MOI UNIVERSITY
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