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**THE ROLE OF FOREIGN DIRECT INVESTMENT (FDI) ON ECONOMIC GROWTH
IN SUB-SAHARAN AFRICA: DOES GOVERNANCE MATTER?**

by

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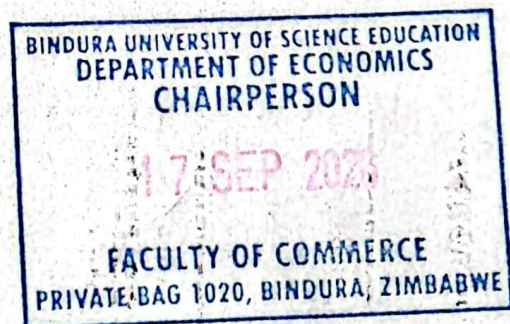
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ABSTRACT

This study investigates the relationship between Foreign Direct Investment (FDI), governance, and economic growth in Sub-Saharan Africa, employing an econometric model based on panel data from 38 Sub-Saharan countries spanning the period 2000-2023. The study incorporated key Gross Fixed Capital Formation (GFCF), population growth, exports, imports, and government effectiveness to answer the research questions. Diagnostic results, including unit root tests for stationarity, Johansen cointegration tests for long-run relationships, confirmed the robustness of the data and the selected methodology. The study finds that the interaction of governance and FDI demonstrates a statistically significant negative impact on GDP growth, attributed to governance challenges and institutional inefficiencies. In contrast, population growth and exports positively influence economic performance, while imports show a detrimental effect. The study recommends that policymakers in the region strengthen governance frameworks and diversify FDI to maximize developmental outcomes.

LIST OF ABBREVIATIONS

AER: Autoregressive Error Correction

AFDB: African Development Bank

ARDL: Autoregressive Distributed Lag

BPG: Breusch-Pagan-Godfrey (Test for heteroscedasticity)

FDI: Foreign Direct Investment

GDP: Gross Domestic Product

GFCF: Gross Fixed Capital Formation

IMF: International Monetary Fund

LLC: Levin-Lin-Chu (Test for stationarity)

MOLS: Modified Ordinary Least Squares

OLS: Ordinary Least Squares

PARDL: Panel Autoregressive Distributed Lag

PCA: Principal Component Analysis

PPP: Purchasing Power Parity

R&D: Research and Development

UNCTAD: United Nations Conference on Trade and Development

VECM: Vector Error Correction Model

DEDICATION

This work is dedicated to my beloved family, whose unwavering support has been the cornerstone of my journey. To my parents, whose enduring love and guidance have instilled in me the values of perseverance, integrity, and hard work. Your sacrifices have paved the way for my success, and I am eternally grateful for the foundation you have provided.

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To my two sons, Royalty and Jewel, you are the heart of my life and my inspiration. Every step I take in my career is for you both; to create a brighter future and to lead by example. I want you to know that dreams are attainable with dedication and hard work. May you grow up to be wise, compassionate, and determined, making your own mark on the world.

This dedication embodies my profound appreciation for each of you, as you have sacrificed your time and energy to allow me the space to pursue my ambitions. The encouragement I've received from my family has been invaluable, motivating me to push through challenges and strive for excellence.

As I reflect on this work, I recognize that it is not just an academic achievement but a testament to the love, support, and foundation provided by my family. I hope to honour each of you through my efforts and contribute to a better future for us all. Thank you for being my greatest supporters and inspiration.

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CHAPTER ONE: INTRODUCTION

1.0 Introduction

This study aims to delve into the complex relationship between Foreign Direct Investment (FDI) and economic growth in Sub-Saharan Africa. As countries in this region work to improve their economic prospects, grasping the factors that drive growth becomes essential. The research will analyze how FDI impacts GDP growth, shedding light on the role of investment inflows in fostering economic development. It will also consider the contributions of exports, imports, population growth, and Gross Fixed Capital Formation, offering a well-rounded view of their effects on GDP. Additionally, the study will explore how the interplay between FDI and government effectiveness influences economic growth, underscoring the vital role governance plays in maximizing the benefits of foreign investments. By pursuing these objectives, the research hopes to provide valuable insights for policymakers and stakeholders looking to promote sustainable economic development in Sub-Saharan Africa. Ultimately, the findings aim to enhance understanding of how FDI can be effectively harnessed to drive progress in the region.

1.1 Background to the study

In today's interconnected world, Foreign Direct Investment (FDI) plays a crucial role in driving economic growth and development, especially in emerging markets. In 2021, global FDI flows reached approximately \$1.58 trillion, with developing countries, including those in Sub-Saharan Africa, capturing a growing share of this investment (UNCTAD, 2022). FDI brings not just capital, but also valuable technology and expertise that can significantly boost productivity and competitiveness. According to the International Monetary Fund (2020), countries that effectively harness FDI often see rapid GDP growth; for instance, between 2000 and 2019, countries like Ethiopia and Ghana experienced average annual GDP growth rates of over 6% largely due to increased FDI inflows (IMF, 2020a). However, the benefits of FDI are not evenly distributed; they depend heavily on the governance structures within each nation (Dupasquier and Osakwe, 2006). Quality institutions, regulatory environments, and political stability are vital in determining how well countries can attract and benefit from foreign investments (Nketiah and Sarpong, 2020). Therefore, understanding the global context is essential for analyzing how FDI influences

economic growth. Recent research highlights those nations with strong governance mechanisms tend to maximize the positive impacts of foreign investments on their economies (Ofori, Gbolonyo and Ojong, 2023).

Zooming in on Sub-Saharan Africa, there is a notable rise in FDI inflows over the past few decades, driven largely by globalization and the search for new markets (Appiah-Otoo, Chen and Ampah, 2023). In 2021, FDI inflows to Sub-Saharan Africa reached approximately \$40 billion, a significant increase from \$30 billion in 2020 (AfDB, 2020). However, the region's experience with FDI is mixed; some countries have successfully leveraged these investments to boost their economies, while others face governance challenges that limit their potential (Ayenew, 2022). The World Bank (2019) points out that Sub-Saharan Africa is characterized by a blend of strong and weak institutions, leading to varied outcomes in FDI effectiveness. For example, in 2020, Mauritius attracted \$2.5 billion in FDI, while the Democratic Republic of Congo received only \$1.2 billion (World Bank, 2022). This variability highlights the importance of context when examining the relationship between FDI and economic growth. Governance structures can either encourage or hinder foreign investment, thus shaping the economic landscape. The disparities in FDI performance across the region call for dedicated research into governance mechanisms.

In Sub-Saharan Africa, the relationship between FDI and Gross Domestic Product (GDP) can vary widely from country to country. Nations with supportive regulatory frameworks and stable political environments tend to attract more FDI, which in turn aligns with higher GDP growth rates (Adeola *et al.*, 2020). For example, between 2015 and 2019, Rwanda experienced GDP growth rates averaging 7.5% due to increased FDI in infrastructure and services (Asiedu, 2002). On the flip side, countries that suffer from political instability, corruption, and inefficient bureaucracies, like Zimbabwe, often deter foreign investment, limiting their economic growth potential. This prompts important questions about the role of governance in mediating the relationship between FDI and GDP growth in the region. According to a 2021 study, countries with better governance indicators saw FDI contribute to up to 2% higher GDP growth compared to those with weaker governance (Sabola, 2024).

The dynamics of exports and imports within Sub-Saharan Africa further complicate the relationship between FDI and economic growth (World Bank, 2022). While FDI can boost export

capacities by introducing new technologies and expanding production capabilities, an overreliance on imports can undermine the net benefits of foreign investment (IMF, 2020b). In 2020, the average import-to-GDP ratio for Sub-Saharan African countries was approximately 25%, with countries like Nigeria and Angola showing significantly higher ratios (UNCTAD, 2020). To ensure that FDI leads to sustainable economic growth, African countries need to find a balance between promoting exports and managing imports (Oduola, Bello and Popoola, 2022). For instance, Kenya has successfully improved its export performance, with exports growing by 8% annually since 2015, partly due to FDI in the agricultural sector (Fedderke and Romm, 2006). This balance is crucial for countries that wish to use foreign investments as a tool for development

Population growth in Sub-Saharan Africa presents both opportunities and challenges regarding FDI and economic growth. The region boasts the youngest population globally, with about 60% of its population under the age of 25, which, if effectively integrated into the workforce, could significantly boost economic productivity (The World Bank, 2022). However, without adequate investments in education, infrastructure, and social services, rapid population growth may lead to higher unemployment and social unrest, ultimately deterring FDI (AfDB, 2016). For example, in Nigeria, youth unemployment reached 33% in 2021, raising concerns among investors about the stability of the labor market. This demographic challenge calls for a comprehensive approach where governance frameworks are strengthened to attract investments for human capital development. Moreover, governments should prioritize investment in human capital to harness the potential of their growing populations. The interplay between population growth, FDI, and economic growth is a vital area for further exploration, as evidenced by countries like Ethiopia, which has successfully integrated its youth into the economy, resulting in a 9% GDP growth rate in 2021 (AfDB, 2018).

Gross Fixed Capital Formation (GFCF) serves as a critical indicator of domestic investment trends and is closely tied to FDI inflows in Sub-Saharan Africa. In 2021, the average GFCF in the region was approximately 20% of GDP, with countries like Botswana and South Africa showing higher rates due to substantial foreign investments (Ayadi and Williams, 2023). High levels of GFCF often indicate a favorable investment climate, frequently supported by foreign investments that enhance domestic productive capacities. However, significant variations in GFCF among countries in the region highlight the differing effectiveness of FDI. For instance, Ghana's GFCF rose to 25%

of GDP in response to increased FDI in the mining sector, while countries with less favorable investment climates, like Sudan, struggled to achieve similar levels (Meyer and Sanusi, 2019). Countries that successfully improve their governance frameworks tend to show higher GFCF, which subsequently supports economic growth. This relationship between GFCF, FDI, and governance warrants further investigation to unlock the full potential of foreign investments. Additionally, the role of governance in facilitating GFCF should be central to policy discussions. Effective governance can create an environment conducive to both domestic and foreign investments (Kong *et al.*, 2020).

Effective governance is essential for making Sub-Saharan Africa an attractive destination for FDI. Governance involves many factors, including regulatory quality, political stability, and the rule of law, all of which significantly affect investor confidence (Kaufmann *et al.*, 2017). A study by Agyeman *et al.*, (2022) notes that countries with strong governance structures are more likely to attract FDI, leading to improved GDP growth. For instance, countries like Mauritius and Rwanda, which rank high on governance indicators, attracted FDI inflows of \$2.5 billion and \$1.2 billion, respectively, in 2020 (Shittu *et al.*, 2020). Conversely, weak governance can result in capital flight and reduced foreign interest, highlighting the urgent need for governance reforms to optimize FDI benefits. This underscores the critical role of governance in shaping economic outcomes in the region. Strengthening governance frameworks can enhance investor confidence and lead to increased FDI inflows (Kariuki and Kabaru, 2022). Furthermore, effective governance can improve resource allocation and strategic planning (Dossou *et al.*, 2023)..

Recent studies have emphasized the importance of regional variations within Sub-Saharan Africa in shaping the relationship between FDI and economic growth (Arezki *et al.*, 2020). For instance, East African countries have shown more favorable outcomes, with average FDI inflows of \$10 billion translating into greater GDP growth rates of around 6.5% compared to West African nations, which averaged \$5 billion in FDI and 3.5% GDP growth (Kwame Appiah-Kubi *et al.*, 2020). This disparity highlights the need for tailored policy approaches that take into account the specific governance challenges and opportunities within different countries. Understanding these regional dynamics is crucial for generating actionable insights that can enhance the effectiveness of FDI in driving economic growth. Moreover, fostering regional collaboration and knowledge sharing can help establish best practices in governance and investment strategies (Ijirshar and Andohol, 2022).

Policymakers must appreciate the unique contexts of their countries when formulating FDI policies. As nations seek to attract foreign investment, the quality of governance will play a crucial role in determining how well FDI translates into sustainable economic growth. Understanding the complexities of this relationship, including the roles of GDP, exports, imports, population growth, GFCF, and government effectiveness, is essential for informed policymaking. It is against this background that the study seeks to investigate the role of FDI on economic growth in Africa, with a particular emphasis on the mediating effects of governance.

1.2 Statement of the problem

Despite the growing influx of Foreign Direct Investment (FDI) into Sub-Saharan Africa, the region still grapples with significant hurdles in transforming these investments into lasting economic growth. Countries like Ethiopia and Ghana have made remarkable strides, using FDI to fuel impressive GDP growth rates. However, many others find themselves hampered by weak governance structures that limit their ability to effectively utilize foreign investments (World Bank, 2022). This disparity in how well FDI performs across different nations exposes a critical gap in our understanding of how governance shapes the relationship between FDI and economic success. Additionally, the inconsistent effects of FDI on trade illustrated by the mixed results in exports and imports—highlight the necessity for a more balanced approach to both investment and trade (AfDB, 2020). Rapid population growth further complicates the scenario, requiring countries to invest heavily in human capital to tap into the potential of their burgeoning youth population (World Bank, 2022). This situation prompts urgent questions about how governance can mediate these factors and maximize the benefits of FDI. As a result, there is an urgent need for research that delves into the connections between FDI, governance, and economic growth in Sub-Saharan Africa. Addressing this knowledge gap is crucial for developing effective policies that can improve the region's developmental outcomes.

1.3 Objectives of the study

The study objectives are as follows:

- i. To analyze the impact of FDI on GDP growth in Sub-Saharan Africa.
- ii. To determine the impact of Exports, Imports, Population growth, and Gross Fixed Capital Formation on GDP growth in Sub-Saharan Africa.

- iii. To ascertain the impact of the interactions of FDI and government effectiveness on GDP growth in Sub-Saharan Africa.

1.4 Research questions

- i. How are higher levels of Foreign Direct Investment (FDI) associated with GDP growth in Sub-Saharan Africa?
- ii. To what extent do the combined effects of exports, imports, population growth, and Gross Fixed Capital Formation (GFCF) influence GDP growth in Sub-Saharan Africa?
- iii. How does the interaction between Foreign Direct Investment (FDI) and government effectiveness affect GDP growth in Sub-Saharan Africa?

1.5 Hypothesis

H₀₁: Higher levels of Foreign Direct Investment (FDI) are positively associated with increased GDP growth in Sub-Saharan Africa.

H₀₂: The combined effects of exports, imports, population growth, and Gross Fixed Capital Formation (GFCF) significantly influence GDP growth in Sub-Saharan Africa.

H₀₃: The interaction between Foreign Direct Investment (FDI) and government effectiveness positively influences GDP growth in Sub-Saharan Africa.

1.6 Significance of the study

The significance of this study is rooted in its ability to address important gaps in the current literature on Foreign Direct Investment (FDI) and economic growth, especially within Sub-Saharan Africa. Many existing studies have zeroed in on specific countries or regions outside Africa, often missing the unique challenges and opportunities that the continent presents (Arezki et al., 2020). Moreover, a considerable number of these studies are over a decade old, which means they may not capture the swift changes in the economic landscape and governance reforms occurring today (Anon, 2023). This research will examine the relationship between FDI and governance, as well as other economic factors, to provide new insights that can enrich academic discussions and inform theoretical frameworks. Findings from this study could serve as a valuable

resource for governments in crafting policies that enhance the effectiveness of FDI, drive sustainable economic growth, and strengthen governance structures. Additionally, industry stakeholders will gain a clearer understanding of the dynamics surrounding FDI, helping them make informed investment decisions that align with regional development objectives. Ultimately, the research aims to provide a comprehensive analysis that supports the ongoing dialogue on economic development in Sub-Saharan Africa.

1.7 Delimitations

This study focuses on the relationship between Foreign Direct Investment (FDI) and economic growth specifically in Sub-Saharan Africa, selecting countries based on the availability of relevant data. It will examine several important factors, including Gross Domestic Product (GDP), FDI, exports, imports, population growth, Gross Fixed Capital Formation (GFCF), and government effectiveness. To analyze these relationships, the research will use panel regression techniques with time series data covering the years 2000 to 2023. This period offers a valuable opportunity to explore trends and patterns in the region's economic development.

1.8 Study Limitations

This study encounters several limitations, mainly due to its reliance on secondary data. One major challenge is the occurrence of missing observations for certain variables, which can affect the overall completeness and accuracy of the analysis. Additionally, some countries do not have comprehensive data available, which may restrict the scope of the findings. To tackle these issues, the study will use interpolation techniques to estimate missing values, helping to create a more robust dataset. However, countries lacking sufficient data will be excluded from the analysis. Despite these challenges, the study maintains a representative sample of 38 sub-Saharan African countries, providing a solid basis for exploring the relationships between foreign aid, institutional quality, and GDP growth in the region. Still, it is important to recognize that the reliance on secondary data and the potential for missing values could influence the overall conclusions drawn from the research.

1.9 Definition of terms

1.9.1 Foreign Direct Investment (FDI)

Foreign direct investment is defined by the World Bank (2023) as an investment made by a company or individual in one country in business interests in another country, typically in the form of establishing business operations or acquiring assets. FDI is measured by the net inflows of foreign direct investment as a percentage of GDP.

1.9.2 Gross Fixed Capital Formation (GFCF)

Gross fixed capital formation is defined as the net increase in fixed assets within an economy, which serves as a measure of investment in physical assets like infrastructure, machinery, and buildings (World Bank, 2021). It is computed as the total value of gross fixed capital acquired by the economy less disposals of fixed assets

1.9.3 Population Growth (POP)

Population growth, as defined by the World Bank, (2023), refers to the rate at which the number of individuals in a population increases, typically expressed as a percentage of the total population. It is measured by the annual percentage change in population size.

1.9.4 Imports

Imports, as defined by the World Bank (2023), refer to the total value of goods and services brought into a country from abroad, usually expressed as a percentage of GDP.

1.9.5 Exports

Exports, as defined by the World Bank (2023), are the total value of goods and services produced within a country and sold to international markets, typically expressed as a percentage of GDP.

1.9.6 Government Effectiveness

Government effectiveness, as defined by the World Bank (2023), refers to the quality of public services, the capabilities of the civil service, and how independent it is from political pressures, along with the effectiveness of policy formulation and implementation.

1.10 Conclusion

In conclusion, this chapter provides a comprehensive overview of the study's background, highlighting the importance of examining the relationship between Foreign Direct Investment (FDI) and economic growth in Sub-Saharan Africa. Clear objectives have been established, along with corresponding hypotheses that will guide the research direction. The chapter also highlighted the study's significance, showcasing its potential to contribute valuable insights to academia, inform government policy, and support industry practices. Additionally, the delimitations have clarified the focus on specific countries based on data availability and outlined the key variables to be analyzed, such as GDP, exports, imports, population growth, Gross Fixed Capital Formation (GFCF), and government effectiveness. This solid foundation prepares the way for the upcoming chapters, which will dig deeper into empirical analyses and findings, ultimately aiming to enhance our understanding of the complex dynamics shaping the region's economic landscape.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter will explore the theoretical foundations and empirical evidence related to the relationship between Foreign Direct Investment (FDI) and economic growth, particularly emphasizing governance in Sub-Saharan Africa. The chapter will start by introducing key theoretical frameworks that shape this study, such as the Eclectic Paradigm, Endogenous Growth Theory, and Institutional Theory. These frameworks will help illustrate the complex nature of FDI and its economic impacts. Next, a conceptual framework will be presented to show how various factors like GDP, exports, imports, population growth, Gross Fixed Capital Formation, and government effectiveness interact with one another. A thorough review of existing empirical literature will follow, highlighting previous findings and methodologies that have tackled similar issues. Finally, the chapter will pinpoint research gaps, stressing the importance of investigating how governance influences the relationship between FDI and economic growth in the region. This overview aims to establish a strong foundation for the analysis and discussions that will follow in subsequent chapters.

2.1 Theoretical Literature

This section will explore the theoretical literature surrounding the relationship between Foreign Direct Investment (FDI) and economic growth, with a particular emphasis on the role of governance. The section will delve into key theoretical frameworks, including the Eclectic Paradigm, Endogenous Growth Theory, and Institutional Theory, to help clarify the complex dynamics involved.

2.1.1 Eclectic Paradigm (OLI Framework)

The Eclectic Paradigm, introduced by John Dunning in the late 20th century, offers a valuable framework for understanding what drives Foreign Direct Investment (FDI). At its core, the OLI framework posits that three essential factors Ownership, Location, and Internalization—must align for a firm to engage successfully in FDI. Ownership advantages encompass the unique assets and capabilities that a company possesses, such as advanced technology, strong brand recognition, or specialized managerial skills. Location advantages refer to the characteristics of a host country that

make it appealing for investment, including factors like market size, resource availability, and the regulatory landscape. Internalization advantages highlight the benefits of maintaining control over foreign operations instead of opting for licensing or outsourcing. Together, these elements explain why companies choose to invest in foreign markets rather than simply exporting their products or forming joint ventures (Dunning, 1980).

The assumptions of the Eclectic Paradigm suggest that firms are more likely to invest in foreign markets where they can effectively leverage their ownership advantages while also benefiting from favorable local conditions. This theory is particularly relevant to the current study, as it underscores the importance of governance as a crucial component of location advantage. In Sub-Saharan Africa, effective governance can play a significant role in attracting FDI by ensuring political stability, safeguarding property rights, and fostering a business-friendly environment. Investigating how governance interacts with FDI to influence economic growth aligns with the OLI framework and emphasizes the complex nature of investment decisions in emerging markets.

Numerous studies have tested the assumptions of the Eclectic Paradigm, producing varied results that highlight its relevance. For instance, Buckley et al. (2007) explored the determinants of FDI in emerging economies and found strong support for the OLI framework. Their research indicated that firms with substantial ownership advantages were more inclined to invest in countries that offered favorable institutional conditions. In contrast, a study by Cheng and Kwan (2000) revealed that while ownership and location advantages were essential, the internalization aspect was less critical in specific sectors, especially those characterized by intense competition and rapid innovation. These mixed findings suggest that while the OLI framework provides a robust theoretical basis, its applicability may differ based on industry context and regional characteristics.

Further examination of the OLI framework by Narula and Dunning (2000) highlighted that the interplay between these three factors is dynamic and shaped by external conditions. Their findings indicated that in regions with weak governance, firms might prioritize ownership and internalization advantages over location advantages. This insight is particularly relevant to the current study as it suggests that governance in Sub-Saharan Africa could significantly influence

the expected benefits of FDI. Understanding these dynamics can enhance our grasp of how FDI interacts with governance and economic growth.

In conclusion, the Eclectic Paradigm provides valuable insights for analyzing the relationship between FDI and economic growth, especially in regions where governance is a critical factor. While many studies support the core assumptions of the framework, the varying results emphasize the need for context-specific interpretations. This research aims to enrich the existing literature by examining how governance moderates the effects of FDI on economic growth in Sub-Saharan Africa, thereby broadening the applicability of the OLI framework in understanding investment dynamics in emerging markets. Integrating theoretical insights with empirical evidence will deepen our understanding of how FDI can be effectively leveraged to promote economic development in the region.

2.1.2 Endogenous Growth Theory

Endogenous Growth Theory emerged in the 1980s, marking a pivotal shift in our understanding of economic growth by focusing on internal mechanisms rather than solely external factors. At its core, this theory asserts that economic growth is largely driven by elements within the economy, such as human capital, innovation, and the accumulation of knowledge. Unlike earlier models that treated technological progress as an outside influence, Endogenous Growth Theory posits that investments in education, research, and development (R&D) can lead to sustainable growth by boosting productivity and fostering innovation (Romer, 1990). This perspective emphasizes that policy choices and prevailing economic conditions can directly shape growth trajectories through the encouragement of knowledge and technological advancement.

The assumptions of Endogenous Growth Theory underscore the importance of investing in human capital and R&D as essential drivers of economic growth. This is particularly relevant in Sub-Saharan Africa, where enhancing educational systems and innovation capabilities can have a profound impact on growth outcomes. The theory resonates with the current study by highlighting how effective governance plays a crucial role in facilitating such investments. Good governance can create an environment that nurtures innovation and supports human capital development, which, in turn, attracts Foreign Direct Investment (FDI) that further propels economic growth. By

exploring how these dynamics interact, this research aims to shed light on the mechanisms through which governance influences growth in the region.

Numerous empirical studies have tested the assumptions of Endogenous Growth Theory, yielding insights that both affirm its relevance and reveal complexities. For example, Benhabib and Spiegel (1994) examined the link between human capital and economic growth across various countries. Their findings indicated that nations that prioritize education and skill development tend to experience higher growth rates, supporting the theory's claim that accumulating human capital is key to sustained economic progress. However, other research, such as that by Pritchett (1996), cautioned that simply increasing education levels does not guarantee economic growth, highlighting the importance of the quality of education and the specific contexts in which human capital investments are made. This underscores the need for nuanced interpretations of the theory across different economic settings.

Another notable study by Aghion et al. (2005) investigated the relationship between innovation and growth, concluding that stronger intellectual property rights can motivate firms to invest in R&D, ultimately leading to higher growth rates. This finding aligns well with Endogenous Growth Theory, suggesting that policies aimed at fostering innovation can significantly influence economic outcomes. However, the authors also pointed out potential downsides to innovation-driven growth, such as rising inequality and market concentration, which must be addressed to ensure sustainable development. This complexity highlights the critical role of governance in shaping the innovation landscape and ensuring that growth is inclusive and benefits a wider segment of the population.

In summary, Endogenous Growth Theory offers a crucial framework for understanding the internal factors that drive economic growth, particularly in contexts where human capital and innovation are vital. While many studies support the core assumptions of the theory, the findings also emphasize the importance of context and the quality of investments in determining growth outcomes. This research aims to enrich the existing literature by examining how governance influences the relationship between FDI, human capital accumulation, and economic growth in Sub-Saharan Africa.

2.1.3 Institutional Theory

Institutional Theory, proposed by Meyer (1983) define institutions as the formal and informal rules, norms, and structures that guide social behavior impact economic activity. The central premise of this theory is that these institutions shape the strategies and behaviors of firms, influencing their decisions regarding Foreign Direct Investment (FDI). Various institutional arrangements, such as legal frameworks, regulatory policies, and cultural norms, can either facilitate or hinder investment flows. The theory posits that firms operating in different institutional environments will adopt distinct strategies to navigate the unique challenges and opportunities they encounter (North, 1990). Understanding this institutional context is essential for analyzing FDI patterns and their implications for economic growth.

The assumptions of Institutional Theory highlight that the effectiveness of governance and institutional quality play significant roles in shaping firms' investment decisions. In Sub-Saharan Africa, where institutional frameworks can often be weak or inconsistent, the theory emphasizes the importance of stable and transparent governance as a critical factor for attracting FDI. This relevance to the current study underscores the need to explore how governance structures and institutional quality influence the relationship between FDI and economic growth. By focusing on these elements, this research aims to clarify how governance impacts investment behavior and economic outcomes in the region.

Numerous empirical studies have tested the assumptions of Institutional Theory, producing findings that reinforce its significance. For instance, a study by Meyer and Peng (2005) examined the role of institutional distance in shaping the strategies of multinational enterprises. They found that firms are generally reluctant to invest in countries with significant institutional differences from their home countries, as these disparities can increase uncertainty and risk. Conversely, research by Cuervo-Cazurra (2006) revealed that firms with strong ownership advantages are more inclined to invest in countries with weaker institutions, suggesting that these firms can leverage their strengths to navigate challenging environments. These findings illustrate the nuanced ways in which institutional factors can affect FDI decisions.

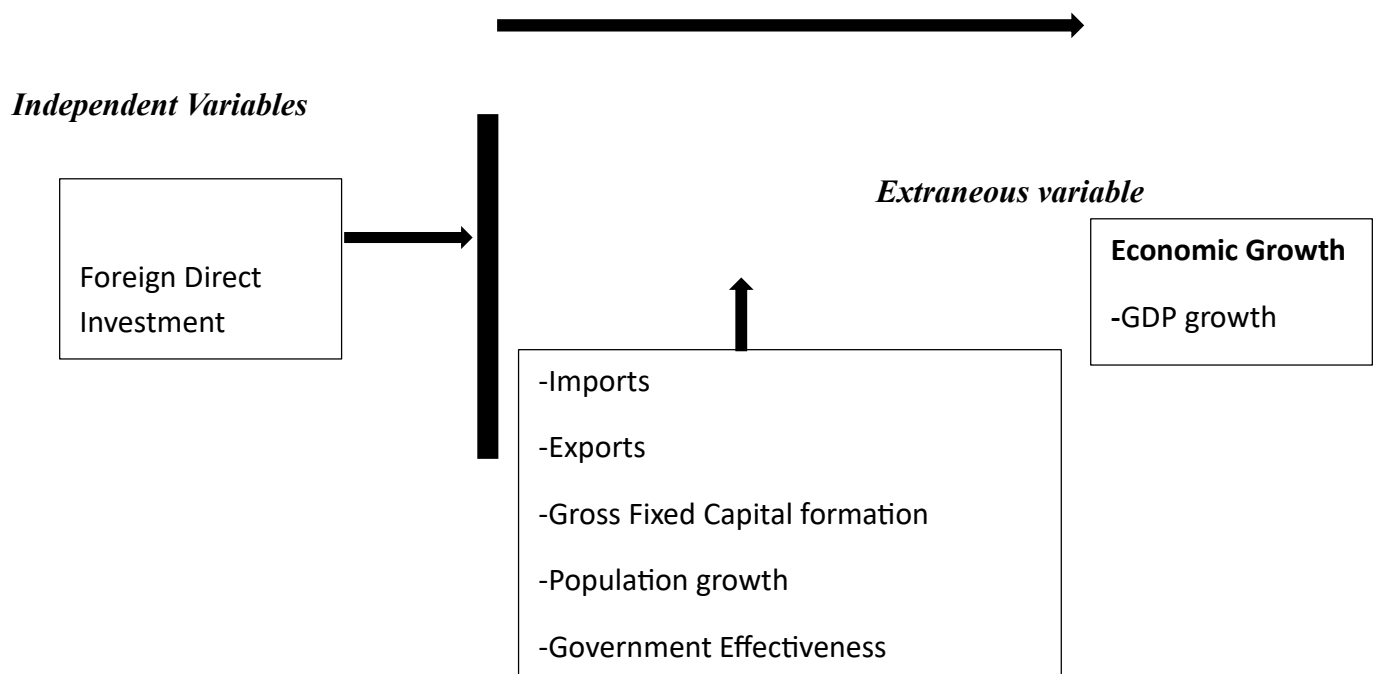
Another important examination of Institutional Theory was conducted by Khanna and Palepu (2000), who focused on the concept of institutional voids in emerging markets. Their research

showed that firms operating in such environments often develop innovative strategies to compensate for the lack of formal institutions. This insight is particularly relevant to the current study, as it indicates that firms in Sub-Saharan Africa may need to adapt their strategies to fit the existing governance landscape. Understanding how firms respond to these institutional challenges can shed light on the dynamics of FDI and economic growth in the region.

In conclusion, Institutional Theory provides a valuable perspective for analyzing the relationship between FDI and economic growth, especially in contexts marked by varying institutional quality. While many studies lend support to the theory's fundamental assumptions, the findings also underscore the complexity and variability of institutional influences on investment decisions. This research aims to contribute to the existing literature by examining how governance and institutional context moderate the effects of FDI on economic growth in Sub-Saharan Africa. By integrating insights from Institutional Theory with empirical evidence, we can enhance our understanding of how effective governance can facilitate FDI and drive economic development in the region.

2.2 Conceptual Framework

Figure 1: Conceptual framework



2.3 Empirical Literature

2.3.1 Impact of imports and exports on economic growth

Duhu, (2022) explores the intricate relationship between export diversification and economic growth in Nigeria, analyzing annual time series data from 1980 to 2017. The study employed the Autoregressive Distributed Lag (ARDL) model, which intricately connects various factors such as GDP per capita, the Theil export diversification index, and domestic investment metrics. Surprisingly, the findings indicate that while export diversification has a positive impact on economic growth, this effect remains statistically insignificant in both the short and long terms. In contrast, domestic investment emerges as a significant driver of growth, particularly in the short run. The exchange rate also tells a complex story, negatively influencing growth in the short term but showing a positive effect over the long run. Additionally, the study highlights the adverse effects of economic openness on growth, particularly in the long term. The study recommends for policymakers to redirect oil revenues towards developing non-oil sectors like agriculture and manufacturing, aiming to create a more resilient export base. This research ultimately deepens our understanding of the factors influencing growth in Nigeria and underscores the urgent need for diversification.

Abdul & Damba, (2024) makes a significant contribution to the literature by utilizing the innovative Non-linear Autoregressive Distributed Lag (NARDL) model to examine the dynamics between agricultural exports and economic growth in Ghana from 1970 to 2019. The study uncovers a compelling long-run asymmetric cointegration relationship, revealing that both cashew nuts and cocoa beans positively influence economic growth, thereby reinforcing the export-led growth theory. Notably, cocoa bean exports have a more pronounced effect than cashew nuts, underscoring the importance of crop selection in shaping agricultural policy. The Granger causality test indicates a unidirectional causality flowing from economic growth to these agricultural exports, suggesting that fostering agricultural export growth is crucial for Ghana's economic development. Furthermore, the study emphasizes the need for government initiatives to promote agricultural exports and implement measures for exchange rate stability, both of which are vital for enhancing economic growth and expanding exports. Overall, Abdul's research offers valuable insights for policymakers, emphasizing the critical role of agricultural exports in driving economic prosperity.

Gizaw et al., (2022) analyzes the impact of coffee exports on economic growth in Ethiopia, employing an extended generalized Cobb–Douglas production function model with data spanning from 1980 to 2017. Through rigorous cointegration testing and a Vector Error Correction Model (VECM), the research reveals a significant long-run relationship where coffee exports meaningfully boost economic growth, despite exhibiting an insignificant impact in the short run. The Granger causality analysis uncovers a bidirectional relationship, indicating that enhancing the efficiency of the coffee sector can yield substantial long-term benefits. Moreover, the study highlights the positive roles of labor force participation, capital formation, and non-coffee exports in fostering growth. These findings underscore the interconnectedness of various economic factors in driving development. The study recommends for adding value to coffee beans before export to further stimulate economic growth in Ethiopia.

Hordofa, (2023) embarks on a thorough examination of the complex relationships influencing Ethiopia's sustainable development, utilizing an autoregressive distributed lag model with annual data from 1982 to 2021. The study investigates the roles of foreign direct investment (FDI), remittances, real exchange rates, and imports in catalyzing economic growth. Notably, FDI emerges as a consistent engine of growth, while remittances show only transient significance, which necessitates cautious policy considerations for ongoing development. The complexities of exchange rates reveal unexpected nonlinear effects, challenging conventional wisdom regarding their relationship with economic growth. Robustness tests confirm the reliability of the findings while also highlighting the ambiguous relationship between imports and growth, emphasizing the importance of context-sensitive policy approaches. The study calls for evidence-based strategies that prioritize community development and sustained economic prosperity, suggesting that addressing these multifaceted challenges can enhance Ethiopia's growth trajectory.

Mustafin et al., (2022) explores the critical issues surrounding import substitution in the Russian Federation, focusing on achieving macroeconomic balance and regional economic development. Through rigorous panel data modeling, the study tests the hypothesis that economic growth can be assessed via gross regional product (GRP) per capita. The results reveal that regions implementing import substitution policies achieve a 10% greater efficiency in economic growth compared to those lacking such strategies. This finding underscores the importance of effective economic policies in driving regional development and highlights the potential benefits of targeted import

substitution initiatives. Musafin's work stresses the need for a strategic approach to economic policy that prioritizes regional strengths and capabilities. Ultimately, the research advocates for a balanced approach that considers both local and national economic dynamics, enhancing overall growth.

Wu et al., (2020) investigates the dual impact of exports and imports on economic growth in Burundi, analyzing annual data from 1989 to 2018 through Granger causality and Johansen cointegration approaches. The findings reveal a unidirectional causality flowing from exports to imports, suggesting that economic growth in Burundi is propelled by both export-led and growth-led import strategies. This research emphasizes the pivotal role of exports and imports in shaping Burundi's economic landscape, illustrating how trade dynamics can significantly influence overall growth. Additionally, the study posits that fostering export growth can enhance import capabilities, creating a beneficial cycle for the economy. Niyonsaba's analysis provides critical insights for policymakers, advocating for strategies that integrate export promotion with effective import management. The research contributes to the broader discussion on trade and economic growth in developing countries, highlighting the interdependence of these factors.

Sunde et al., (2023) examines the impact of exports, imports, and trade openness on Namibia's economic growth through the ARDL cointegration method. The results unveil a significant negative relationship between imports and economic growth, while exports and trade openness demonstrate positive and significant correlations. This study posits that trade liberalization and export-led growth are essential for Namibia's economic development, aligning with mercantilist theories advocating for active participation in global markets. The findings indicate that Namibia should focus on strategies that enhance export performance while carefully managing imports. Sunde's work provides valuable insights into the trade dynamics influencing economic growth in Namibia.

Ali et al., (2017) investigates the dynamic relationship between exports, imports, and economic growth in Somalia from 1970 to 1991, employing econometric methods such as Ordinary Least Squares. The analysis reveals that while economic growth does not Granger-cause exports, a unidirectional causality exists from exports to GDP. Additionally, there is bidirectional Granger causality between imports and exports, indicating that Somalia would benefit from an export-led

growth strategy. The research emphasizes that both imports and exports are vital components of economic growth, underscoring their interdependence. Ali's findings advocate for a strategic approach that leverages both exports and imports to foster economic growth in Somalia.

2.3.2 Impact of gross fixed capital formation on economic growth

Adedoyin, Mavengere and Mutanga, (2022) delves into the intriguing relationship between patent intensity and economic growth in South Africa, highlighting a significant gap in existing literature concerning Information and Communications Technology (ICT) and patent intensity in the African context. Analyzing data spanning from 1980 to 2020, the study establishes a dynamic connection between patent intensity and economic growth, integrating essential macroeconomic variables such as government expenditure, gross fixed capital formation, labor force, and trade. By employing the Autoregressive Distributed Lag (ARDL) model, the research effectively captures both short-run and long-run effects. The findings reveal that government expenditure, labor force engagement, and trade openness significantly boost economic growth in both time frames. Interestingly, while patent intensity and gross fixed capital formation generally support growth, their interaction term surprisingly dampens overall growth. This nuanced insight leads to the conclusion that increasing patent intensity can have a lasting positive effect on sustainable economic growth in South Africa. Therefore, the study recommends that policymakers focus on enhancing patent intensity to strengthen long-term economic performance.

Zaidi et al., (2019) explores the multifaceted impact of globalization, natural resources, and human capital on financial development within OECD countries, while carefully controlling for the effects of economic growth and capital. Covering data from 1990 to 2016, this research employs sophisticated second-generation econometric techniques to tackle issues of cross-sectional dependence and heterogeneity in the panel data. The results from the cointegration method illustrate a long-run relationship among the studied variables. Empirical findings indicate that globalization, natural resources, and human capital significantly and positively influence financial development, alongside favorable contributions from economic growth and gross fixed capital formation. Causality analysis further confirms that globalization and economic growth positively feedback onto financial development. Based on these insights, the study advocates for policies that

avoid protectionism against globalization, promote the mobility of human capital, and enhance the development of financial institutions through a globally integrated approach.

Amidi, Majidi and Javaheri, (2020) investigates the spatial effects of geographical distance on economic growth, recognizing the critical role of economic interdependence among nations. Drawing from contemporary growth theories, the research employs spatial dynamic panel data and spatial cross-sectional data models, analysing selected Asian countries over the period from 1992 to 2016. The findings reveal that spatial spill over or dependency significantly contributes to economic growth spill-overs across the region. In the spatial dynamic panel data model, the log of gross domestic product (GDP), gross fixed capital formation, and growth rate of the labour force exhibit varying impacts, negative, positive, and negative, respectively. Conversely, in spatial cross-sectional data models that include human capital, negative impacts are observed on growth, while models that exclude human capital show positive effects from GDP and gross fixed capital formation. These insights highlight the importance of considering spatial dynamics when formulating effective economic strategies.

Eniekezimene, Wodu and Anda, (2023) examines the influence of human capital development on economic growth in Nigeria from 1981 to 2021, utilizing the autoregressive distributed lag (ARDL) method. This study analyses annual time series data on the real gross domestic product growth rate (RGDPG) alongside independent variables like government expenditure on education and health, and gross fixed capital formation. The Augmented Dickey-Fuller (ADF) unit root test confirms a mix of variables integrated of order one, $I(1)$, and order zero, $I(0)$. The Bounds test indicates a long-run relationship among the variables, with an F-statistic exceeding the 5% upper bounds value. ARDL results reveal that government expenditure on education and tertiary school enrolment negatively impact growth in the long run, while government expenditure on health and gross fixed capital formation positively influence growth, albeit insignificantly. In light of these findings, the study advocates for the government to establish annual health expenditure targets aimed at achieving the Abuja agreement of 15% of total public expenditure, expecting this strategy to yield a significant boost to Nigeria's economic growth.

Ijirshar and Andohol, (2022) investigates the intricate nexus between renewable energy, real GDP, greenhouse gas emissions (GHG), and gross fixed capital formation in Sub-Saharan African (SSA)

countries. By employing the panel autoregressive distributed lag (PARDL) technique on data collected from 1990 to 2018, the research confirms a significant long-run relationship among the variables, underscoring the interconnectedness of economic growth, renewable energy, GHG emissions, and gross fixed capital formation. The findings indicate that renewable energy and real gross fixed capital formation exert positive impacts on long-run growth in SSA countries. From an environmental sustainability perspective, real GDP and gross fixed capital formation positively influence GHG emissions, while renewable energy hurts these emissions. Granger causality analysis reveals long-run feedback effects between real GDP, renewable energy, and gross fixed capital formation, with unidirectional causality running from renewable energy to CO2 emissions. The study concludes that renewable energy's positive effects on economic growth, coupled with its negative effects on GHG emissions, present a viable path toward achieving both economic and environmental sustainability in SSA countries.

Rahmayani et al., (2022) explores the dynamic relationship between tourism development and economic growth across 33 provinces in Indonesia from 2011 to 2021. Utilizing the Solow growth model with a Harrod-Neutral approach, the study derives an econometric model through the Fixed Effects Model (FEM), with gross regional domestic product serving as the dependent variable. Independent variables include gross fixed capital formation, labor, and tourism indicators, specifically measuring the average length of stay of domestic and foreign guests in classified hotels. The FEM analysis reveals that gross fixed capital formation, labor, and the average length of domestic guests significantly and positively impact economic growth, while foreign guests do not significantly influence growth outcomes. Notably, tourism development appears to have a more substantial effect on economic growth stemming from domestic guests compared to foreign guests. These findings underscore the importance of supporting tourism development across all provinces to effectively stimulate economic growth in Indonesia.

2.3.3 Impact of population growth on economic growth

Bala et al. (2020) explore the complex interplay between population growth, poverty, unemployment, and economic growth in Nigeria using the Auto Regressive Distributed Lag (ARDL) model. Through a careful examination of econometric procedures, including unit root tests like the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests, the study sheds light on how these variables interact. The analysis reveals that some variables are stationary at level

$I(0)$, while others require first differencing to become stationary. Importantly, the cointegration tests confirm a long-term relationship among the variables, indicating they are interconnected. The findings suggest that population growth and foreign direct investment have a positive influence on GDP, while poverty and unemployment negatively impact it. Based on these findings, the study calls on policymakers to bolster productive sectors of the economy to enhance productivity, create jobs, reduce inflation, and ultimately drive economic growth while alleviating poverty.

Wafiq & Suryanto, (2021) investigates the relationship between economic growth, population density, and environmental quality in Indonesia, highlighting the urgent need for sustainable development. The study seeks to understand how economic growth and population density affect the environmental quality index (EQI). By utilizing quantitative methods and secondary data from 33 provinces between 2010 and 2016, the research employs Pearson correlation and panel data regression analyses. The results reveal a moderate yet significant negative impact of both economic growth and population density on environmental quality. This finding emphasizes the necessity for policymakers to prioritize environmental sustainability alongside economic growth to ensure a healthier and more sustainable future for all.

Yusuf et al., (2020) addresses the pressing global issue of an aging population and its implications for economic growth in Malaysia. As improvements in mortality rates and declining fertility become more pronounced, this demographic shift is increasingly visible, particularly in developing countries across Southeast Asia. Using annual data from 1985 to 2016, the study examines key variables such as total fertility rates, life expectancy, labor force participation rates, and the old-dependency ratio. Through a Multiple Linear Regression Model, the analysis reveals that Malaysia is poised to experience significant population aging, which will inevitably influence its economic trajectory. These findings underscore the importance of adapting economic strategies to address the challenges posed by this demographic transition.

Lubbock et al. (2022) investigate the effects of inflation, unemployment, and population growth on economic growth in the Philippines, spanning from 1991 to 2020. Drawing on data from the World Bank Open Data, the study employs unit root tests and Johansen cointegration tests to explore the relationships among these economic variables. The Ordinary Least Squares (OLS) results indicate that inflation positively influences economic growth, while both unemployment

and population growth have negative effects. The unit root tests confirm that unemployment, population growth, and economic growth are non-stationary, with inflation being stationary. However, through the first difference, these variables become stationary. Additionally, Johansen's Cointegration Test reveals a long-run relationship among the variables, highlighting the interconnectedness of these economic factors.

Liu et al., (2023) delves into the impact of population aging on economic growth, a crucial issue as population structures evolve. The paper begins by formulating hypotheses based on a thorough literature review and theoretical analysis of the varying effects of aging on economic growth. Utilizing data from 30 provinces in Mainland China from 2000 to 2019, the research employs static and dynamic panel data models, as well as a mediating effect model, to empirically test these hypotheses. The analysis concludes that population aging significantly hinders economic growth, with industrial structure upgrading playing a mediating role. Specifically, the study finds that aging affects economic growth by influencing the overall upgrading and optimization of the industrial structure. Based on these findings, the research provides valuable policy recommendations aimed at mitigating the negative consequences of an aging population on economic growth.

2.3.4 Impact of government effectiveness on economic growth

Mahran, (2023) delves into the significant role that governance plays in driving economic growth, paying special attention to how countries influence each other. Using spatial regression models, the study analyzes data from 116 countries for the year 2017. The findings reveal a compelling connection: a 1% increase in governance leads to an average 1% growth in economic performance, with this correlation being statistically significant at various levels (10%, 5%, and 1%). Moreover, the research highlights that the economic growth of one nation can positively impact its neighboring countries, suggesting that shared characteristics or similar environments among adjacent nations also contribute to their growth. This study enriches our understanding of governance's impact on economic performance by considering these spatial dynamics, a perspective that has often been overlooked in the literature.

Duan et al. (2022) investigate the complex interplay between human capital, economic freedom, governance performance, and economic growth. The study seeks to understand whether governance and economic freedom act as mediators between human capital and economic growth.

Employing panel data regression methods, the authors test five hypotheses and validate their findings through various robustness checks, including the Chow test and Granger causality tests. Covering data from China, India, Russia, Brazil, and South Africa between 2000 and 2018, the results indicate that the relationship between human capital and economic growth is not straightforward; rather, it follows an inverted U-shape. This suggests that human capital positively influences economic growth only during certain periods. Additionally, governance performance enhances the positive effects of human capital on economic growth within the BRICS nations. This study offers valuable insights into the complexities of human capital and its implications for future economic strategies.

Al-Naser and Hamdan, (2021) examines how public governance affects economic growth in the Gulf Cooperation Council (GCC) countries, active since their establishment in 1981. Analyzing data from six GCC nations over the period from 1996 to 2019, the study focuses on how public governance indicators impact economic growth as measured by Gross Domestic Product (GDP). Using a multiple regression model, the research assesses four key governance indicators: control of corruption, government effectiveness, regulatory quality, and the rule of law. The findings reveal that while control of corruption and the rule of law have a positive but statistically insignificant effect on economic growth, government effectiveness and regulatory quality demonstrate a significant positive impact. The study also considers various control variables, such as labor force, working capital, oil prices, inflation rates, population, and the Human Development Index, providing a comprehensive view of the factors influencing economic growth in the region.

Samarasinghe, (2018) investigates the evolving understanding of the impact of governance on economic growth. The research emphasizes that controlling corruption is a vital factor for enhancing economic performance, with findings showing that a one-unit increase in corruption control can lead to a 6.9% increase in economic growth. The study underscores the importance of effectively managing not just corruption but also political stability and indicators related to violence or terrorism to achieve higher economic growth.

Feyisa et al. (2022) highlight the critical role of good governance in promoting economic growth, particularly in Sub-Saharan Africa, a region that grapples with governance challenges and economic development. Using panel data from 34 countries spanning 2005 to 2019, the study

employs principal component analysis (PCA) to evaluate the impact of governance on economic growth. The findings reveal that among six governance quality indicators, control of corruption, government effectiveness, regulatory quality, and the rule of law positively influence real GDP per capita. Conversely, political stability, the absence of violence, and voice and accountability do not significantly affect economic growth. The results reinforce that both economic and institutional dimensions of governance, along with overall composite governance indicators, positively impact growth. Additionally, factors like foreign direct investment and government fixed capital formation contribute positively, while government consumption expenditure and age dependency ratio have negative effects on economic growth. The study advocates for strengthening political activities and enhancing both economic and institutional dimensions of governance in Sub-Saharan Africa to promote overall development.

2.4 Research gap

This study fills an important gap in the existing literature by introducing a variable that has not been explored in previous analyses of Foreign Direct Investment (FDI) and economic growth in Sub-Saharan Africa. Many past studies have zeroed in on specific countries, while this research takes a broader perspective, examining the entire Sub-Saharan region. This approach allows for a more comprehensive understanding of the complex dynamics at play. Moreover, several earlier studies are somewhat outdated, raising questions about the relevance of their findings in today's fast-evolving economic landscape. Most of these studies relied heavily on Ordinary Least Squares (OLS) regression techniques, which may overlook some of the data's complexities. In contrast, this research will employ panel OLS to strengthen the robustness of the results while also validating the findings through additional methods, including Modified OLS (MOLS), Dynamic OLS, and Canonical regression. Utilizing this diverse set of methodologies aims to offer a richer and more reliable analysis of how governance influences FDI and economic growth in Sub-Saharan Africa.

2.5 Conclusion

In conclusion, the current chapter has offered a thorough exploration of the theoretical and empirical literature that informs an investigation of the study. It has spotlighted key theories that connect foreign direct investment, governance, and other variables with economic growth, while

also drawing on empirical studies that shed light on this important relationship. The conceptual framework developed here illustrates the complex interactions between governance indicators and economic performance, providing a strong foundation for our research. This chapter highlights the need for further exploration, especially regarding how nations influence each other and the role of institutional factors. Addressing these gaps will deepen an understanding of how governance impacts economic growth, ultimately benefiting policymakers and stakeholders who seek to foster development. This synthesis of theoretical and empirical insights lays the groundwork for our analysis, ensuring that our research is well-grounded in a scholarly context. The findings from this chapter will significantly shape our investigation, enhancing its relevance in the broader discussions on economic development.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter takes a closer look at the methodological framework of this study, emphasizing the importance of model specification, variable justification, and the diagnostic tests needed to ensure the findings are robust. The econometric model selected aims to uncover the complex relationships between governance and economic growth, allowing for a thorough analysis of how these elements interact. Each variable in the model is thoughtfully chosen and backed by both theoretical insights and empirical evidence, ensuring they accurately reflect the dynamics at play. The chapter also explains the reasoning behind selecting specific indicators, such as governance quality and economic performance metrics, to make the study more relevant and impactful. To maintain the model's integrity, rigorous diagnostic tests will be used to check for issues like multicollinearity, heteroscedasticity, and autocorrelation. This attention to methodological detail not only bolsters the research's validity but also provides a clear path for understanding how governance shapes economic growth. Ultimately, this chapter lays the groundwork for a deeper investigation into the empirical results, ensuring the analysis is firmly anchored in a solid methodological approach.

3.1 Model Specification

Given the characteristics of the dataset for this research, panel data is the most suitable choice, leading to its selection for the study. The fundamental panel model utilized was adapted from (Boateng, Agbola and Mahmood, 2021) can be expressed as:

$$Y_{it} = \delta_0 + \varphi X_{it} + \varepsilon_t \quad [1]$$

In this equation, Y_{it} denotes the dependent variables, δ_0 is a constant term, φX_{it} is a K-dimensional vector of explanatory variables, and ε_t is the error term, which can be broken down into the following disturbance components:

$$\varepsilon_t = \mu_{it} + v_{it} \quad [2]$$

In this context, the unobserved or heterogeneity effect is represented, while v_{it} denotes the traditional error term found in regression models. To transition from the general approach outlined

in equation [1] to a more detailed model, akin to that used by (Haldar and Sethi, 2022), the study's model was defined as:

$$GDP = f(FDI, IMP, EXP, POP, GFCF, GOV) \quad [3]$$

$$GDP_{it} = \delta_0 + \delta_1 FDI_{it} + \delta_2 IMP_{it} + \delta_4 EXP_{it} + \delta_5 POP_{it} + \delta_6 GFCF_{it} + \delta_7 GOV_{it} + \varepsilon_{it} \quad [4]$$

Institutional quality and its interaction with FDI are incorporated into equation [5] to examine whether institutions can improve the effectiveness of aid. This is expressed as:

$$GDP_{it} = \delta_0 + \delta_1 FDI * GOV_{it} + \delta_2 FDI_{it} + \delta_4 IMP_{it} + \delta_5 EXP_{it} + \delta_6 POP_{it} + \delta_7 GFCF_{it} + \varepsilon_{it} \quad [5]$$

Where GDP is the GDP per capita growth, GOV is Government effectiveness, FDI is Foreign Direct Investment, IMP is imports, EXP is exports, POP is Population Growth, GFCF is the Gross Fixed Capital Formation, (FDI * GOV) is the interaction between Foreign Direct Investment and Government Effectiveness.

3.2 Justification of Variables

3.2.1 Foreign Direct Investment (FDI)

Foreign direct investment is defined by the World Bank (2023) as an investment made by a company or individual in one country in business interests in another country, typically in the form of establishing business operations or acquiring assets. FDI is measured by the net inflows of foreign direct investment as a percentage of GDP. This variable is anticipated to have a positive impact on GDP growth, as FDI brings not only capital but also technology, expertise, and job creation to host countries. (Muse and Mohd, 2021) found a positive relationship between FDI and economic growth, reinforcing the idea that foreign investment can significantly boost domestic economic activities. It is against this backdrop that the variable is expected to carry a positive sign.

3.2.2 Gross Fixed Capital Formation (GFCF)

Gross fixed capital formation is defined as the net increase in fixed assets within an economy, which serves as a measure of investment in physical assets like infrastructure, machinery, and buildings (World Bank, 2021). It is computed as the total value of gross fixed capital acquired by

the economy less disposals of fixed assets. GFCF is expected to positively influence GDP growth, as increased investment in physical capital enhances productive capacity and economic output. Kesar *et al.*, (2023) support this expectation by demonstrating a positive relationship between GFCF and GDP growth rate, highlighting the importance of capital investment in fostering economic expansion. It is against this backdrop that the variable is expected to carry a positive sign.

3.2.3 Population Growth (POP)

Population growth, as defined by the World Bank, (2023), refers to the rate at which the number of individuals in a population increases, typically expressed as a percentage of the total population. It is measured by the annual percentage change in population size. An increase in population can lead to greater demand for goods and services, thus stimulating economic growth. (Tartiyus, Dauda and Peter, 2015) found a positive relationship between population growth and GDP growth, suggesting that a larger population can contribute to a more dynamic labor force and increased market size. It is against this backdrop that the variable is expected to carry a positive sign.

3.2.4 Imports

Imports, as defined by the World Bank (2023), refer to the total value of goods and services brought into a country from abroad, usually expressed as a percentage of GDP. They play a crucial role in driving economic growth by offering access to a diverse range of products and services, enhancing competition, and enabling technology transfer. Research by Edwards (1998) shows that higher import levels can boost productivity and economic efficiency. Moreover, imports can complement local production, allowing countries to focus on their strengths and specialize in areas where they have a comparative advantage. Considering these factors, it's expected that imports will positively influence economic growth in Sub-Saharan Africa, especially when governance structures effectively manage trade policies. Therefore, the anticipated sign for imports is positive (+).

3.2.5 Exports

Exports, as defined by the World Bank (2023), are the total value of goods and services produced within a country and sold to international markets, typically expressed as a percentage of GDP.

They are vital for economic growth because they generate foreign exchange, create jobs, and stimulate domestic production. Research by Krugman and Obstfeld (2009) shows that countries with higher levels of exports often experience faster economic growth, as exports can drive increased investment and foster innovation. In Sub-Saharan Africa, effective governance plays a key role in boosting export performance by maintaining quality standards and reducing trade barriers. Therefore, this study anticipates that exports will have a positive impact on economic growth, with the expected sign being.

3.2.6 Government Effectiveness

Government effectiveness, as defined by the World Bank (2023), refers to the quality of public services, the capabilities of the civil service, and how independent it is from political pressures, along with the effectiveness of policy formulation and implementation. Strong governance is crucial for fostering an environment that supports economic growth, as it directly affects investment decisions and the overall business climate. Research by Kaufmann, Kraay, and Mastrorillo (2010) indicates that countries with higher levels of government effectiveness are more likely to attract Foreign Direct Investment (FDI), which can significantly boost economic growth. In Sub-Saharan Africa, where governance issues are often a challenge, this study suggests that improving government effectiveness will have a notably positive impact on economic growth, especially concerning FDI inflows. Hence, the expected sign for government effectiveness is positive.

3.2.7 Error Term (ϵ_{it})

The error term typically indicates that the model is not entirely precise (Gujarati, 2004). Therefore, the researcher incorporated the error term to account for other variables that are not included in the model but still have a significant impact on GDP.

3.3 Study Population and Sample

The study sample comprises 38 sub-Saharan African countries, with data sourced from the World Development Indicators provided by the World Bank, covering the period from 2000 to 2023. This selection of countries is justified as it captures a diverse range of economic and institutional contexts within the region, allowing for an analysis of the role of foreign direct investment and

institutional quality on GDP growth. Including both economically advanced and less developed nations enables a better assessment of the varying impacts of foreign aid and investment across different governance and economic environments. Furthermore, these countries collectively represent a significant portion of the sub-Saharan African landscape, providing a robust dataset that reflects the unique challenges and opportunities faced by the region. This diversity enhances the generalizability of the findings, making them more relevant for policymakers aiming to understand the dynamics of economic growth in sub-Saharan Africa. The chosen timeframe also enables the analysis to capture recent trends and shifts in economic policies and external influences that may affect growth outcomes.

3.4 Static Panel Model Diagnostic Test

In this study, the dataset comprises a blend of characteristics over time (time series) across 38 individual countries (cross sections) up to 2024, forming the panel data utilized in the research (Milanoski et al., 2023). As Aguguom (2020) points out, panel data is created by merging time series and cross-sectional observations, which allows for richer insights. This method provides greater variability, reduces collinearity among variables, increases degrees of freedom, and enhances efficiency. Given that the number of cross-sectional subjects (44) surpasses the number of time periods (24), a short panel data approach is adopted. Moreover, the panel is balanced, ensuring that each cross-section has an equal number of observations. A static panel data model is considered appropriate for estimating coefficients when there are many cross-sections and a fixed, smaller time series (Rendón, 2012). This rationale supports the decision to use a static panel model in this research. Before proceeding with the estimation of the panel data model, it is essential to diagnose the data for any econometric issues, ensuring the precision, efficiency, consistency, and reliability of the results (Gujarati, 2010).

3.4.1 Panel Unit Root Test

To assess the stationarity of all variables included in the model, the researcher performed a unit root test. Wooldridge (2003) highlights the necessity of verifying that all variables are stationary; if any are non-stationary, they require different treatment, as combining stationary and non-stationary series can compromise data integrity. For this analysis, the Levin-Lin-Chu (LLC) Test was employed to check the stationarity of the variables. Levin et al. (2002) support the use of the

LLC test, particularly for small to moderate-sized panels ($10 < n < 250$). Additionally, Barbieri (2006) notes that the LLC method is suitable when the number of time periods (T) is less than the number of cross-sectional units (N). This reasoning justifies the choice of the LLC test in this study. Other unit root tests, such as the Fisher and Pesaran tests, may lack sufficient power for small or moderate panels, making the LLC test a more effective option (Bertsatos, Sakellaris, and Tsionas, 2022). A non-stationary condition indicates a potential unit root problem. Consequently, all variables were tested for stationarity until they achieved this status, and the order of integration was identified. The hypotheses were formulated as follows:

H0: There is no stationarity

H1: The variable is stationary

The decision rule stated that the null hypothesis would not be rejected if the p-value exceeded 0.1; otherwise, it would be rejected. A significance level of 0.1 was chosen due to the one-tailed nature of the test, as indicated in the alternative hypothesis.

3.4.2 Hausman Specification Test

Stephanie (2017) distinguishes between two types of effects to analyze: "random effects" and "fixed effects." The random effects model assumes no correlation between the exogenous variables and the unobserved effects, while the fixed effects model posits that such a correlation exists, allowing unobserved factors to influence the observed explanatory variables. The fixed effects model is advantageous because it controls for other variables that may be correlated with the exogenous variables. To determine the most appropriate model for this study, the researcher applied Hausman's test, which compares the random effects model to the fixed effects model within the context of panel data. This test helps differentiate between the two models, preferring random effects when they demonstrate greater efficiency in line with the null hypothesis. Hausman's test also assists in identifying any endogenous regressors within the model (Patrick, 2020), making it vital for ensuring the consistency and reliability of the chosen model. The hypotheses were formulated as follows:

H0: Random Effects Model is suitable

H1: The Fixed Effects Model is suitable

The decision rule indicated that the null hypothesis would not be rejected if the p-value exceeded 0.05; otherwise, it would be rejected. This approach is crucial for the current study as it ensures the selection of the most fitting model for analyzing the impact of foreign aid and institutional quality on GDP growth in sub-Saharan Africa.

3.4.3 Breusch-Pagan Lagrangian Multiplier (BPLM) Test

The Breusch-Pagan Lagrangian Multiplier (BPLM) test is employed to determine whether the pooled Ordinary Least Squares (OLS) model or the random effects model is more appropriate for the data. This straightforward process is vital in panel data analysis, as it helps control for individual heterogeneity and enhances the reliability of results (Le Gallo and Sénégas, 2023). If the test indicates that the pooled OLS regression is suitable, the researcher would pool the observations, disregarding their cross-sectional characteristics based on the assumption that the error term encompasses all relevant variations. However, this method risks overlooking any heterogeneity and individuality among the variables (Mohammed, 2018). In this study, the researcher used the Breusch-Pagan test to decide whether to adopt the pooled OLS or the random effects model.

The rationale for selecting the Lagrange Multiplier (LM) test lies in its effectiveness for testing parametric restrictions (Tu et al., 2023). Its main advantage over other tests, such as the Likelihood Ratio (LR) and Wald tests, is that the LM statistic is calculated solely based on the null hypothesis, simplifying the restricted model compared to the unrestricted one. If the null hypothesis indicates that the tested parameter lies within acceptable boundaries, the LM test retains its standard distributional properties, which may not be the case for other tests. The hypotheses were stated as follows:

H0: Pooled OLS model is suitable

H1: The Random Effects model is suitable

The decision rule specified that the null hypothesis would not be rejected if the p-value exceeded 0.05; otherwise, it would be rejected. This process is essential for the current study as it ensures

the appropriate model is chosen to analyze the effects of foreign aid and institutional quality on GDP growth in sub-Saharan Africa.

3.4.4 Model Specification Test

Post-estimation checks are critical for confirming that the correct functional form has been applied in the model, ensuring that measurement errors and model misspecification do not occur. To achieve this, the Ramsey RESET test is recommended (Oyidih, 2023). This test evaluates the null hypothesis of correct model specification against the alternative hypothesis of model misspecification. The hypotheses are formulated as follows:

H0: The model is correctly specified

H1: The model is not correctly specified

The decision rule indicates that the null hypothesis will not be rejected if the p-value exceeds 0.05; otherwise, it will be rejected. Conducting the Ramsey RESET test is vital in this study to validate the functional form of the model analyzing the impact of foreign aid and institutional quality on GDP growth in sub-Saharan Africa. Ensuring model specification accuracy enhances the reliability of the findings and contributes to a more robust analysis.

3.4.5 Multicollinearity Test

Multicollinearity refers to the linear relationships among the exogenous variables in a regression model, which can lead to inflated variances and covariances that complicate precise estimation (Shrestha, 2020). Significant multicollinearity can widen confidence intervals and increase the likelihood of a Type II error, meaning the null hypothesis may not be rejected even when it should be, as the true population coefficient differs from zero. This situation undermines the *ceteris paribus* assumption, affecting the interpretation of estimated parameters and making it difficult to ascertain the true effect of each variable (Kim, 2019). A correlation coefficient of 0.8 or higher indicates potential severe multicollinearity (Chan et al., 2022). In this study, a correlation matrix was used to assess multicollinearity among the variables, ensuring that the analysis of the impact of foreign aid and institutional quality on GDP growth in sub-Saharan Africa is both valid and reliable.

3.4.6 Heteroscedasticity Test

Heteroscedasticity arises when the variances of the error terms are not constant, violating the efficiency property of linear regression models (Jochmans, 2022). When a model experiences heteroscedasticity, it can lead to inefficient estimators, resulting in coefficients that do not qualify as Best Linear Unbiased Estimators (BLUE), even though they may still be linear and unbiased (Long and Ervin, 2000). To determine whether the error terms in the model exhibit homoscedasticity or heteroscedasticity, the Breusch-Pagan-Godfrey (BPG) test was employed. This test regresses the squared residuals on the original regressors, providing an advantage over the White test (Cai, Poor, and Chen, 2023). The BPG test operates under the assumption of linearity of the original regressors. The hypotheses for the test are formulated as follows:

H0: There is homoscedasticity

H1: There is heteroscedasticity (two-tailed)

The decision rule states that the null hypothesis will not be rejected if the p-value is greater than 0.05; otherwise, it will be rejected, indicating that the empirical model is heteroscedastic. This testing is essential for ensuring the reliability of results in the current study, which examines the impact of foreign aid and institutional quality on GDP growth in sub-Saharan Africa.

3.5 Conclusion

In conclusion, this chapter presents a detailed methodological framework for this study, emphasizing the connections between FDI, governance, and economic growth. By utilizing a static panel data model, the research effectively leverages the advantages of panel data, which allows for deeper insights through both time series and cross-sectional analysis. The selection of key variables—such as Foreign Direct Investment, Gross Fixed Capital Formation, population growth, imports, exports, and government effectiveness—draws from established theoretical and empirical sources, ensuring they align with the study's goals. To validate the model's assumptions and strengthen the findings, rigorous diagnostic tests like the panel unit root test and Hausman specification test are employed. This careful attention to detail helps mitigate econometric challenges, such as multicollinearity and heteroscedasticity, while establishing a solid groundwork for analyzing the empirical results. Overall, this chapter lays the foundation for a thorough

examination of how foreign aid and institutional quality influence GDP growth in sub-Saharan Africa, setting the stage for insightful conclusions in the following sections.

CHAPTER FOUR: RESULTS PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter presents the empirical results from the econometric analysis, detailing the diagnostic evaluations and regression results that examine the relationship between foreign direct investment (FDI) and economic growth in Sub-Saharan Africa, emphasizing the role of institutional quality, which use fixed-effects and random-effects estimators in conjunction with Hausman tests to tackle unobserved heterogeneity and possible endogeneity, the analysis begins with diagnostic validations to confirm model robustness.

4.1 Descriptive statistics

This section will present and analyze the descriptive statistics of the study variables. The results are shown in Table 1 below.

Table 1: Descriptive Statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
GDP	23.1572	23.2542	26.8506	19.6767	1.5268	888
CFCF	26.1407	26.7104	31.9777	10.4409	3.2857	888
EXP	21.8451	22.0388	25.6344	17.2504	1.7236	888
FDI	0.7052	0.8134	5.2367	-6.1672	1.3363	888
GOV	-0.9790	-0.4841	1.3632	-13.0103	1.9405	888
IMP	26.6306	27.2214	32.2220	13.6789	2.9920	888
POP	15.9746	16.2939	18.4770	11.3038	1.4896	888

The descriptive statistics in Table 1 reveal notable variation across all variables, with GDP and investment proxies like CFCF showing moderate dispersion indicated by standard deviations below 4. FDI exhibits a wide range, from a minimum negative value of -6.17 to a maximum of

5.24, reflecting diverse foreign investment experiences among countries. Governance scores have a negative mean and significant variability, suggesting varying institutional quality within the sample. Exports and imports maintain relatively stable averages around 22 and 26, respectively, with moderate spread. Population figures cluster closely, indicating consistent demographic size across observations.

4.2 Diagnostics results

This subsection will present the diagnostic results as outlined in the previous chapter on methodology.

4.2.1 Panel unit root results

This study performed a panel unit root analysis using the Levin, Lin, and Chu approach to test the stationarity of the variables involved. The results are summarized in Table 2.

Table 2: Unit root results

Variable	T-Statistic	Order of Integration
GDP	−12.9308***	I(1)
GFCF	−4.08259***	I(0)
EXP	−6.39574***	I(0)
FDI	−4.57982***	I(0)
GOV	−2.46892**	I(0)
IMP	−3.57419***	I(0)
POP	−10.0765***	I(0)

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The unit root test results in Table 2 indicate that most variables are stationary at the level, with GFCF, EXP, FDI, GOV, IMP, and POP integrated of order zero, $I(0)$, as shown by significant t-statistics at conventional levels. GDP is the exception, exhibiting stationarity only after first differencing, classified as $I(1)$, with a highly significant test statistic. This mixture of integration orders suggests the need for a cointegration test to see if the variables have a long-run association.

4.2.2 Cointegration results

The study employed the Johansen cointegration method to carry out cointegration analysis. The results are shown in Table 3 below.

Table 3: Cointegration results

Test	Statistic	Probability (p-value)
Group rho-Statistic	6.527539	0.0000
Group PP-Statistic	-5.00704	0.0000
Group ADF-Statistic	0.426727	0.0052

The cointegration test results in Table 3 provide strong evidence of a long-run equilibrium relationship among the variables. Both the Group rho-Statistic (6.527539, $p = 0$) and Group PP-Statistic (-5.00704, $p = 0$) are highly significant. Additionally, the Group ADF-Statistic (0.426727) is significant at the 1% level with a p-value of 0.0052, further reinforces the presence of cointegration.

4.2.3 Multicollinearity Results

The study aimed to determine if the explanatory variables were related. The results are shown in Table 4 below

Table 4: Multicollinearity results

Variables	GDP	FDI	CFCF	EXP01	GOV	IMP	POP
GDP	1						
FDI	0.0485	1					
CFCF	0.3148	0.0316	1				
EXP01	0.6023	0.2039	0.2291	1			
GOV	-0.1911	-0.1365	0.0346	-0.2384	1		
IMP	0.2871	0.0363	0.7752	0.2229	0.0569	1	
POP	0.7536	-0.1046	0.4078	0.5275	0.0139	0.3746	1

The correlation matrix in Table 4 indicates that all explanatory variables exhibit pairwise correlations well below the common threshold of 0.8, suggesting no severe multicollinearity among regressors. Low correlation coefficients imply that the regressors convey distinct information content, minimizing redundancy and ensuring stable coefficient estimates. This reduces the risk of inflated standard errors, which enhances the precision and reliability of the econometric inference. The independence among explanatory variables supports consistent parameter estimation and avoids identification issues within the panel regression framework.

4.2.4 Hausman Results

The study carried out the Hausman test to select between the random and fixed effects models. Below are the obtained results in Table 5.

Table 5: Hausman Results

Test Summary	Chi-Squ. Statistic	Chi-Sq. d.f	Prob.
Cross-section random	324.5648	7	0.0000

The Hausman test results in Table 5, with a Chi-Square statistic of 324.5648 and a p-value below 0.05, strongly reject the null hypothesis that the individual effects are uncorrelated with the regressors. This indicates that the random effects estimator is inconsistent due to correlation between the regressors and the individual-specific effects. Consequently, the fixed effects model is the appropriate specification for this panel data analysis, as it provides consistent and unbiased parameter estimates. The test confirms the problem of endogenous individual effects, which fixed effects can appropriately control for.

4.3 Regression Results

Having concluded all the diagnostic results. This section will now analyze the regression results in relation to the study objectives.

Table 6: Random Effects (RE) and Fixed Effects (FE) Estimates

Variables	Model 1: Random Effects	Model 2: Fixed Effects
FDI	−0.0769*** (0.0108)	−0.0817*** (0.00825)
EXP	0.637*** (0.0176)	0.607*** (0.0224)
IMP	−0.104 (0.0812)	−0.160** (0.0699)
POP	0.374*** (0.0238)	0.382*** (0.0250)
CFCF	0.0953 (0.0736)	0.136** (0.0644)

Variables	Model 1: Random Effects	Model 2: Fixed Effects
GOV	−0.0104 (0.0106)	−0.0245** (0.0101)
FDI × GOV	−0.0123* (0.00646)	−0.00125** (0.00584)
Constant	3.569*** (0.339)	4.532*** (0.209)
Observations	888	888

Notes: Robust standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.2.1 Impact of FDI on GDP growth in Sub-Saharan Africa

The fixed effects model shows that FDI has a negative and statistically significant effect on GDP growth (-0.0817), deviating from the expected positive relationship commonly found in growth theory but consistent with empirical findings in certain Sub-Saharan African contexts. Studies such as Rjoub (2017) and Amoah & Edmund (2022) highlight that FDI's impact can be mitigated by weak host-country capacities, poor infrastructure, and institutional deficiencies, leading to FDI crowding out rather than complementing domestic investment. The negative coefficient suggests challenges in effectively harnessing FDI for growth in the region, perhaps due to limited technology transfer or profit repatriation by foreign firms. However, some literature indicates that the beneficial effects of FDI may emerge only in the long run or when accompanied by supportive economic policies and financial development, conditions that may not be fully met in the sampled countries (Ibrahim & Alagidede, 2017).

Additionally, the negative FDI impact may arise from sectoral composition, where extractive foreign investments dominate and contribute less to inclusive growth or productivity gains (Edmund & Amoah, 2022). This underscores the complexity of FDI-growth relationships and the importance of local context. The negative sign thus corroborates nuanced empirical research suggesting that FDI is not a panacea for economic growth unless integrated within a broader development strategy that addresses institutional weaknesses. Policymakers should not rely solely

on FDI attraction but also strengthen absorptive capacities and domestic investment to maximize growth benefits, aligning with Alfaro et al.'s (2004) findings on the contingent nature of FDI's growth effects.

4.2.2 Impact of Exports, Imports, Population growth, and Gross Fixed Capital Formation on GDP growth

Exports carry a strong positive and significant coefficient (0.607), aligning with export-led growth theory which posits that expanding export markets and foreign exchange earnings stimulate wider economic expansion (McKinnon, 1973). This finding is supported by empirical evidence emphasizing the critical role exports play in Sub-Saharan Africa's growth trajectory, fostering productivity gains and competitive advantages (Ibrahim & Alagidede, 2017). Similarly, population growth positively affects GDP (0.382), consistent with endogenous growth models that highlight labor force expansion as a driver of aggregate production and demand growth (Keynes, 1936). These descriptive results reaffirm theoretical expectations and regional empirical patterns.

Conversely, imports have a negative impact (-0.160) that is statistically significant, which may reflect the structural challenges faced by the region, such as dependence on imported goods and limited domestic productive capacity, which can negatively affect the trade balance and growth (Edmund & Amoah, 2022). Gross Fixed Capital Formation is positively related to GDP growth (0.136), confirming the fundamental role of investment in physical capital accumulation and expansion of productive capacity consistent with Solow-type growth models. The significance of CFCF supports extensive empirical work linking capital formation to growth in developing regions, as capital deepening remains a vital component of Sub-Saharan economic development (Ibrahim & Alagidede, 2017).

4.2.3 Impact of the interactions of FDI and government effectiveness on GDP growth

Governance effectiveness shows a negative and significant effect on GDP growth (-0.0245), which contrasts with the common expectation that better governance fosters growth by enhancing institutional quality and reducing transaction costs (Alfaro et al., 2004). The negative sign of the interaction term between FDI and governance (-0.00125) further suggests that governance in these countries may not be sufficiently robust to leverage FDI for positive growth outcomes. This result calls for a reassessment of the governance-growth nexus in Sub-Saharan Africa, potentially

indicating inefficiencies or governance challenges that undermine the expected benefits of FDI (Rjoub, 2017).

These findings imply that, in this region, governance structures may sometimes inhibit the optimal deployment of foreign investment, possibly due to corruption, policy inconsistency, or weak regulatory enforcement, which diminishes FDI's growth-promoting effect (Ibrahim & Alagidede, 2017). The significantly negative interaction term emphasizes that governance quality is a crucial moderating factor and that without improvements in institutional frameworks, FDI inflows alone are unlikely to translate into sustainable economic growth. This nuanced outcome corroborates emerging empirical literature that stresses enhancing governance alongside FDI as a prerequisite for realizing growth dividends in Sub-Saharan Africa (Edmund & Amoah, 2022).

4.3 Conclusion

The study presented diagnostic results confirming the validity and reliability of the data used in the analysis. Specifically, unit root and cointegration tests verified the stationarity and long-run equilibrium relationships among the variables, which underpin the robustness of the econometric methodology employed. Multicollinearity diagnostics further assured that explanatory variables were sufficiently independent, enhancing the credibility of coefficient estimates. The Hausman test decisively favored the fixed effects model, providing a consistent framework for understanding the determinants of GDP growth in Sub-Saharan Africa. The regression results from the fixed effects estimation revealed various impacts of foreign direct investment, trade variables, population growth, and governance on economic performance. These findings both corroborate and extend theoretical and empirical studies. Further, all the diagnostic results validated the fixed effects model.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter provides a synthesis of research on the relationship between Foreign Direct Investment (FDI) and economic growth in Sub-Saharan Africa, with a particular focus on the moderating role of governance quality. This chapter encapsulates the study's principal findings, articulating the research objectives, methodological framework, and inherent limitations that may have influenced the analysis. The conclusions drawn from the empirical results underscore the nuanced dynamics between FDI, GDP growth, and key economic variables such as exports, imports, and gross fixed capital formation. In addition, this chapter delineates a series of targeted recommendations for policymakers, emphasizing the necessity of institutional reform and governance enhancement to optimize the developmental impacts of FDI. Ultimately, this chapter aims to contribute to the broader economic discourse by providing actionable recommendations.

5.1 Summary

This study aimed to investigate the role of Foreign Direct Investment (FDI) on economic growth in Sub-Saharan Africa, with a particular focus on the significance of governance. Using a panel dataset of 888 observations across various countries, the research employed econometric methods, including fixed-effects and random-effects models, to analyze the relationships among FDI, GDP growth, and other economic indicators such as exports, imports, population growth, and gross fixed capital formation (GFCF). Key limitations of the study included the availability and reliability of data on governance measures and FDI, as well as potential endogeneity issues inherent in cross-country analyses. These constraints may have affected the robustness of the results. Despite these challenges, the findings reveal a complex interplay between FDI, governance, and economic growth, highlighting the necessity for improved institutional frameworks to leverage FDI effectively.

5.2 Conclusions

In conclusion, the study found that FDI exerts a negative and statistically significant effect on GDP growth in Sub-Saharan Africa. This unexpected outcome suggests that the region may not be effectively harnessing FDI benefits due to institutional weaknesses, inadequate infrastructure, and the predominance of low-impact foreign investments. In addition, the analysis confirmed that

exports and population growth positively contribute to GDP growth, whereas imports negatively impact it. More so, GFCF is positively associated with growth, underscoring the crucial role of physical capital investment in economic development. The findings also indicate that governance effectiveness has a negative impact on GDP growth, and the interaction between FDI and governance further suggests that weak governance structures may inhibit the potential growth benefits of FDI. This stresses the importance of enhancing governance to enable FDI to foster sustainable economic growth.

5.3 Recommendations

In light of the conclusions drawn from this study, the following recommendations are proposed:

Enhancing Institutional Quality: Policymakers in Sub-Saharan Africa should prioritize improving governance structures to create a conducive environment for FDI. This includes addressing corruption, enhancing regulatory frameworks, and ensuring policy consistency to build investor confidence.

Diversifying FDI: Efforts should be made to attract more diverse forms of FDI that contribute to inclusive growth rather than relying heavily on extractive industries. This can be achieved through incentives for sectors that promote technology transfer and local entrepreneurship.

Investing in Infrastructure: Governments should invest in infrastructure development to support FDI and enhance productivity. Improved transport, energy, and communication systems can facilitate better integration of foreign investments into the local economy

Encouraging Domestic Investment: Strengthening domestic investment frameworks alongside FDI attraction is essential. This includes providing support for local businesses to ensure that they complement rather than compete with foreign enterprises.

Further Research: Additional studies should be conducted to explore the long-term impacts of FDI on economic growth in Sub-Saharan Africa, particularly examining sector-specific effects and the role of regional governance variations in influencing FDI outcomes.

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Null Hypothesis: Unit root (common unit root process)

Series: D(GDP)

Date: 12/03/25 Time: 22:07

Sample: 2000 2023

Exogenous variables: None

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 777

Cross-sections included: 37

	Statist	Prob.*
Method	ic	*
	-	
	12.93	0.000
Levin, Lin & Chu t*	08	0

** Probabilities are computed assuming asymptotic normality

Intermediate results on D(GDP)

Null Hypothesis: Unit root (common unit root process)

Series: CFCF

Date: 12/03/25 Time: 22:09

Sample: 2000 2023

Exogenous variables: Individual effects, individual linear trends

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 814

Cross-sections included: 37

Method	Statistic	Prob.*
	-	
	4.082	0.000
Levin, Lin & Chu t*	59	0

** Probabilities are computed assuming asymptotic normality

Intermediate results on CFCF

Null Hypothesis: Unit root (common unit root process)

Series: EXP01

Date: 12/03/25 Time: 22:12

Sample: 2000 2023

Exogenous variables: Individual effects, individual linear trends

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 814

Cross-sections included: 37

	Statist	Prob.*
Method	ic	*
	-	
	6.395	0.000
Levin, Lin & Chu t*	74	0

** Probabilities are computed assuming asymptotic normality

Intermediate results on EXP01

Null Hypothesis: Unit root (common unit root process)

Series: FDI

Date: 12/03/25 Time: 22:13

Sample: 2000 2023

Exogenous variables: None

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 814

Cross-sections included: 37

	Statist	Prob.*
Method	ic	*
	-	
	4.579	0.000
Levin, Lin & Chu t*	82	0

** Probabilities are computed assuming asymptotic normality

Intermediate results on FDI

Null Hypothesis: Unit root (common unit root process)

Series: GOV

Date: 12/03/25 Time: 22:14

Sample: 2000 2023

Exogenous variables: None

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 814

Cross-sections included: 37

Method	Statistic	Prob.*
	ic	*
	-	
	2.468	0.006
Levin, Lin & Chu t*	92	8

** Probabilities are computed assuming asymptotic normality

Intermediate results on GOV

Null Hypothesis: Unit root (common unit root process)

Series: IMP

Date: 12/03/25 Time: 22:16

Sample: 2000 2023

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 814

Cross-sections included: 37

	Statist	Prob.*
Method	ic	*
	-	
	3.574	0.000
Levin, Lin & Chu t*	19	2

** Probabilities are computed assuming asymptotic normality

Intermediate results on IMP

Null Hypothesis: Unit root (common unit root process)

Series: POP

Date: 12/03/25 Time: 22:18

Sample: 2000 2023

Exogenous variables: Individual effects, individual linear trends

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 814

Cross-sections included: 37

	Statist	Prob.*
Method	ic	*
	-	
	10.07	0.000
Levin, Lin & Chu t*	65	0

** Probabilities are computed assuming asymptotic normality

Intermediate results on POP

Appendix 4: Cointegration

Pedroni Residual Cointegration Test

Series: GDP CFCF EXP01 FDI GOV IMP POP

Date: 12/03/25 Time: 22:20

Sample: 2000 2023

Included observations: 888

Cross-sections included: 37

Null Hypothesis: No cointegration

Trend assumption: No deterministic trend

User-specified lag length: 1

Newey-West automatic bandwidth selection and Bartlett
kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Weighted			
	<u>Statistic</u>	<u>Prob.</u>	<u>Statistic</u>	<u>Prob.</u>
Panel v-Statistic	-2.147257	0.9841	-2.407802	0.0020
Panel rho-Statistic	4.320596	1.0000	4.590434	0.0000
Panel PP-Statistic	-2.506075	0.0061	-3.231928	0.0006
Panel ADF-Statistic	0.702292	0.7588	-2.408968	0.0094

Alternative hypothesis: individual AR coefs. (between-
dimension)

	<u>Statistic</u>	<u>Prob.</u>
Group rho-Statistic	6.527539	0.0000
Group PP-Statistic	-5.007036	0.0000
Group ADF-Statistic	0.426727	0.0052

APPENDIX 5: MULTICOLLINEARITY

	GDP	CFCF	EXP01	FDI	GOV	IMP	POP
GDP	1	0.3148115	0.6022641	0.0484918	-0.191135	0.2871215	0.7536056

CFCF	0.3148115	1	0.2291308	0.0315859	0.0346332	0.675158	0.4078241
EXP01	0.9022641	0.2291308	1	0.2038793	-0.2383875	0.2229369	0.527455
FDI	0.0484918	0.0315859	0.2038793	1	-0.1364604	0.0362883	-0.1045686
GOV	-0.191135	0.0346332	-0.2383875	-0.1364604	1	0.0568581	0.0138668
IMP	0.2871215	0.775158	0.2229369	0.0362883	0.0568581	1	0.3746057
POP	0.7536056	0.4078241	0.527455	-0.1045686	0.0138668	0.3746057	1

APPENDIX 6: HAUSMAN TEST

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Chi-Sq.			
Test Summary	Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	324.5648	6	0.0000

Cross-section random effects test comparisons:

APPENDIX 7: REGRESSION RESULTS

Dependent Variable: GDP

Method: Panel Least Squares

Date: 12/03/25 Time: 22:34

Sample: 2000 2023

Periods included: 24

Cross-sections included: 37

Total panel (balanced) observations: 888

Coefficien				
Variable	t	Std. Error	t-Statistic	Prob.
CFCF	-0.045424	0.012231	-3.713846	0.0002
EXP01	0.358853	0.016422	21.85155	0.0000
FDI	-0.005139	0.007609	-0.675439	0.4996
GOV	0.000150	0.008042	0.018616	0.9852
IMP	0.121210	0.017525	6.916343	0.0000
POP	1.408246	0.074031	19.02238	0.0000
FDI*GOV	-0.002584	0.004537	-3.569585	0.0091
C	-9.217514	0.888108	-10.37882	0.0000

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.980918	Mean dependent var	23.15722
Adjusted R-squared	0.979946	S.D. dependent var	1.526843
-			
S.E. of regression	0.216221	Akaike info criterion	0.176748

Sum squared resid	39.45842	Schwarz criterion	0.060543
		Hannan-Quinn	-
Log likelihood	122.4762	criter.	0.086043
F-statistic	1008.973	Durbin-Watson stat	0.489870
Prob(F-statistic)	0.000000		