COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF ECONOMICS

The Effect of Foreign direct Investment on Economic Growth in Sub-Saharan Africa: Moderation Analysis

By:

Tegegn Tise Mokona

A Thesis Submitted to the Department of Economics presented in partial Fulfillment of the requirements for the Degree of Master of Science in Economics (Economic Policy Analysis)

Advisor:

Mengesha Yayo (PH.D.)

Addis Ababa, Ethiopia

June, 2024

CERTIFICATION

Addis Ababa University

College of Business and Economics'

School of graduate studies

This is to certify that the thesis prepared by Tegegn Tise Mokona entitled: "**The Effect of FDI on Economic Growth in Sub-Saharan Africa: Moderation Analysis",** in partial fulfillment of the requirements for the Degree of Master of Science in Economics (Economic policy Analysis) complies with regulations of the University and meets the accepted standards with respect to originality and quality.

By: Tegegn Tise Mokona

Signature _____ Date 19/08/2024

Approved by Board of Examiners:

Advisor: Mengesha Yayo (PhD)

Signature _____ Date 19/08/2024

Internal examiner: Girma Estifanos Signature _____ Date Aug. 19/2024

External examiner: Dr. Yonas Mitiku Signature _____ Date Aug 27/2024

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to my thesis advisor, ***Dr. Mengesha Yayo***, for his invaluable guidance, insightful feedback, and unwavering support throughout the research and writing process. His expertise and mentorship have been instrumental in shaping this study and enhancing my academic and professional development.

I am deeply grateful to the African Economic Research Consortium (AERC) for providing me the opportunity and generous financial support to pursue my Master's degree at Addis Ababa University. I am also thankful to the Economics Department at Addis Ababa University, particularly the Head of Department, **Dr. Atnafu Gebremeskel**, and the Postgraduate Coordinator, **Dr. Abdurezack Hussein**, for their invaluable assistance in securing the AERC scholarship.

Finally, I owe a debt of gratitude to my father, **Mr. Tise Mokona**, whose unwavering support, inspiration, and deep passion for education have been a constant source of motivation throughout my academic journey. His tireless efforts and sacrifices have paved the way for my educational accomplishments, and I am forever grateful for his guidance and the indelible mark he has left on my life.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

FDI ……. Foreign direct investment

OLS …… Ordinary list square estimation

PVEC_GMM …… Panel Vector Error Correction with Generalized Method of Moments

SSA ……. ….Sub-Saharan Africa

UNCTAD ……...United Nations conference on trade and development

VIF ……..Variance inflation factor

ABSTRACT

Considering the empirical and literature gaps as well as ongoing debates and dilemmas about the effect of Foreign Direct Investment (FDI) on economic growth in sub Saharan African countries, the objective of this study is to examine the effect of foreign direct investment (FDI) on economic growth in sub-Saharan African countries and the moderating roles of macroeconomic stability, infrastructure development, and trade openness on this relationship. Using panel data for 18 sub-Saharan African countries from 2000 to 2022, the study employs System GMM (Generalized Method of Moments) and structural equation modeling techniques to analyze the dynamic relationships.

The findings indicate that Foreign Direct Investment has a positive and significant effect on economic growth in the region. However, the effectiveness of FDI in promoting growth is found to be contingent on the prevailing macroeconomic conditions, level of infrastructure development, and degree of trade openness. Specifically, the results show that macroeconomic stability and infrastructure development positively moderate the FDI-growth nexus, enhancing the growth-inducing impact of FDI. Conversely, trade openness is found to negatively moderate this relationship, suggesting that excessive trade liberalization may limit the growth benefits of FDI inflows.

These findings underscore the importance of establishing conducive macroeconomic environment, investing in infrastructure, and carefully managing trade policies to maximize the growth-enhancing effects of foreign direct investment in sub-Saharan Africa. The study provides valuable policy implications for governments and policymakers in the region aimed at leveraging FDI to foster sustainable economic development.

Key Words: Foreign Direct Investment (FDI), Economic Growth, Sub-Saharan Africa, Macroeconomic Stability Infrastructure Development, Trade Openness

CHAPTER ONE
INTRODUCTION

1.1. Background of the Study

In many developing countries, foreign direct investment is seen as a source of economic growth because of its direct and indirect benefits. The creation of jobs, the integration of international commerce, the investment in human capital, the spread of technology, and the development of a business-friendly environment are among the advantages of foreign direct investment (Kobrin, 2005; OECD, 2002). Romer (1993) emphasizes how FDI serves as a link to bridge the conceptual gap. Multinational companies can help reduce knowledge disparity in emerging nations by bringing new knowledge to the host nation.

Due to its perceived advantages, FDI has been seen as a key driver of growth especially in emerging markets like Sub-Saharan Africa. FDI brings in technology, improves management skills, creates jobs and encourages partnerships with local businesses which lead to increased production. Over the past few decades this has seen varying amounts of FDI inflows which has been influenced by political stability, macroeconomic stability, trade policy and the level of infrastructure development, market size and resource endowment. Despite the benefit FDI has on growth in SSA has been uneven and policymakers and scholars are still debating the issue (Asiedu, 2006; Borensztein, De Gregorio, & Lee, 1998).

Sub-Saharan Africa's economic landscape is, however, full of diversity; it houses countries with varied development stages and different economic structures as well as varied instances of the level to which opportunity for FDI can be maximized and utilized well to help the country attain economic growth and development. While some countries have reaped from the potentials of FDI to stimulate growth and development, others have not done so. This then means that the disparity calls for a detailed exploration into the conditions under which FDI can contribute effectively to the economic growth process of the region.(Kotrajaras, Tubtimtong, & Wiboonchutikula, 2011).

Macroeconomic stability, openness to trade and infrastructure development are key drivers of FDI to economic growth. Macroeconomic stability means low inflation, sustainable fiscal policies and stable exchange rate can create investment friendly environment.

Openness to trade by reducing trade barriers can make a country more attractive to foreign investors by providing bigger market size. Infrastructure development (transportation, communication and energy) is essential for economic activities and productivity (Kose, Prasad & Terrones, 2009; Meyer, 2004). Thus, it is very essential in examining the moderating effects of these macro variables on the FDI growth relationship.

For example FDI in a country with good infrastructure will yield better economic outcomes than in a country with bad infrastructure. Similarly FDI benefits are more in an environment of macro stability and trade openness (Blomström & Kokko, 1998; Alfaro et al., 2004). Furthermore, the differing impacts of FDI among Sub-Saharan African nations emphasize the need to investigate why these differences arise. Differences in institutional quality, governance, human capital development, and regional integration might explain why some nations gain more from foreign direct investment than others. Understanding these subtleties can assist in tailoring policies to optimize the developmental impact of FDI in the region (Quazi, 2007).

The study seeks to thoroughly examine the effect of FDI on economic growth in Sub-Saharan Africa, with a particular emphasis on the moderating effects of macroeconomic stability, trade openness, and infrastructure development. By evaluating these aspects, the research aims to provide insights regarding how SSA countries might maximize FDI to achieve long-term economic growth. Thus, this study used contemporary econometric methodologies in panel-data analysis to examine the relationship between FDI and economic growth, as well as the role of macroeconomic stability, Trade openness and infrastructure development in moderating the relationship between FDI and economic growth in the SSA region, with data covering the years 2000–2022.

1.2. Statement of the Problem

Foreign direct investment (FDI) has been recognized as a crucial driver of economic growth and development, particularly in developing countries (UNCTAD, 2021). Sub-Saharan Africa (SSA), with its vast resources and potential, has witnessed a significant increase in FDI inflows in recent years. However, despite this growth, the region continues to face significant economic challenges, including poverty, inequality, and unemployment (World Bank, 2023).

Several Sub-Saharan African (SSA) countries have attempted to attract foreign direct investment (FDI) by establishing export processing zones, special investment zones, and offering investment incentives like tax holidays, according to the UNCTAD report (UNCTAD, 2022). However, despite these efforts, FDI inflows to the region remain significantly lower than in other developing areas, accounting for only 3.6% of global FDI inflows in 2021 (UNCTAD, 2022). Furthermore, the distribution of FDI within SSA is highly uneven, with some countries receiving substantial inflows while others attract very little, which reflects underlying issues such as macroeconomic and political instability, poor infrastructure, and corruption (World Bank, 2023).

This disparity in the effect of the FDI on the economic growth combined with the region's persistent challenges of poverty, inequality, and unemployment, raises concerns about the effectiveness of FDI in driving sustainable economic growth in SSA, suggesting that deeper structural and institutional factors are hindering the region's ability to attract and benefit from FDI. Based on above contradictions and under performance of the FDI in the region, various scholars have concentrated on addressing the issues that hinder the flow of foreign direct investment (FDI). These hindrances encompass uncertainties related to macroeconomics, politics, institutions, and property rights (Asefa & Lemi, 2003; Udoh & Egwaikhide, 2008; Nieman & Thies, 2012).

Some recent studies have shifted their focus to examining the impact of uncertainties in macroeconomics, politics, and property. To begin with, it's important to note that sub-Saharan African countries receive a lower proportion of total FDI flows compared to other developing nations. Secondly, it is important to assess whether FDI contributes to economic and social development in SSA. This notion indicates that beyond inadequate market access and natural resources, the existing uncertainty and level of corruption in sub-Saharan Africa have hindered the growth of FDI in the region (Te Velde, 2001).

The study by Fosu (2022) found that FDI has a noteworthy and beneficial effect on economic growth, although the impact varies among countries and is influenced by institutional quality and human capital. Njuguna and Kimuyu (2021) revealed that FDI has a positive impact on poverty reduction, but the impact is small and depends on the type of FDI and sector. Adeyemi and Adegboye (2020) showed that institutional quality plays a crucial role in enhancing the positive impact of FDI on economic growth, while Olayeni and Ajetomobi (2019) found that FDI has both direct and indirect positive impacts on economic growth, with the indirect impact mediated through human capital development and technological innovation.

Nwachukwu and Okoro (2018) identified a bidirectional causal relationship between FDI and economic growth, and Nketiah-amponsah and Sarpong (2019) suggested that FDI has a favorable influence on economic growth when it interacts with the host country's infrastructure. Furthermore, Makiela and Ouattara (2018) concluded that FDI contributes positively to host nations' economic growth.

In contrast to the favorable and significant effects of foreign direct investment, Katerina et al. (2004) found no meaningful relationship between foreign direct investment and economic development in 17 transition economies from 1995 to 1998, both in the short and long term. Herzer et al. (2006) discovered a similar finding by applying co-integration approaches to 28 developing countries on a country-by-country basis. The study's findings show that foreign direct investment has no statistically significant effect on short-term economic development in the great majority of countries.

Dinh et al. (2019) conducted another research on developing countries from 2000 to 2014 using VECM and FMOLS, and discovered that, while foreign direct investment slows economic growth in the short run, it enhances it in the long term. Furthermore, Khobai et al. (2018) use quantile regressions to study South Africa's FDI-growth phenomena from 1970 to 2016. The results demonstrate that foreign direct investment has a considerable negative impact at the lower extreme quantiles but has no effect at the upper quantiles.

Examining moderating factors in the dynamics between FDI and Economic growth is found to be very crucial due to the region's persistent low economic growth and the ambitious policies aimed at attracting FDI. Despite the impressive rate of return on investment, foreign investment continues to elude the region, and the COVID-19 outbreak has made the vulnerability of the influx even more apparent. Despite having abundant natural resources and significant FDI inflow, the Sub-Saharan African region still faces significant economic challenges like poverty, inequality, and unemployment. As a result, it appears highly convincing to conduct this policy study to reconcile the conflicting findings in the existing literature and to investigate both the short-term and long-term effects of FDI on economic growth in SSA, thereby providing valuable guidance for policymakers in order to promote sustainable economic development in the region.

Even though there are significant number studies, which have analyzed the complex relationship between FDI and economic growth, they have the following major limitations. Firstly, the existing literature on FDI and economic growth presents mixed findings. Some studies report a positive relationship, while others find a negative or insignificant relationship.

This inconsistency underscores the necessity for a more refined approach that can reconcile these differences. This study seeks to provide clarity by using PVEC-GMM model to account for potential endogeneity and other methodological challenges that may have contributed to the mixed results in previous research. Secondly, most of the past studies have analyzed cause and effect relationship between FDI and Economic growth, and did not examined the moderating effect of various macroeconomic and infrastructure factors in moderating this relationship. Thus, this study has implemented necessary mediation and moderation analysis techniques to analyze how the relation between FDI and economic growth was moderated by various Macroeconomic, infrastructural, trade and institutional quality factors in selected sub Saharan African countries.

Further, another significant limitation of past studies is their failure to analyze why the effects of FDI on economic growth vary across different countries. There is a need to understand why some countries benefit more from FDI than others. Thus, this study would explore these variations by considering the unique economic environments of different Sub-Saharan African countries, thereby providing a clearer picture of the factors that contribute to the differential impacts of FDI. Finally, most of the past studies have focused on short-term models and have not adequately explored the long-term effects of FDI on economic growth. Understanding both the short-term and long-term dynamics is crucial for policymakers. Therefore, to overcome this methodological gap, this study has employed a Panel Vector Error Correction Model (PVECM) estimated by the Generalized Method of Moments (GMM) approach and Structural Equation Modeling (SEM) to conduct Mediation analysis. This methodology is well-suited to examining both short-term and long-term relationships and addressing endogeneity issues among the variables.

By adopting these rigorous statistical techniques, this study provides more reliable and robust empirical evidence regarding the relationship between FDI and economic growth in Sub-Saharan Africa, thereby bridging the methodology gap found in previous studies and offering more conclusive insights into this important area of research. Further, by using more recent data for emerging economies in the region, this study provided a more up-to-date study on the effect of FDI on economic growth and examined the role of macroeconomic, infrastructural, and institutional factors in moderating this effect. Overall, this study has made a significant contribution to the literature on FDI and economic growth in Sub-Saharan Africa. The findings will be valuable for policymakers and researchers seeking to promote the positive spillover effect of FDI in enhancing sustainable economic development in the region.

1.3. Basic Research Question

The main research questions of the study are the following:

- What is the effect of the FDI in Economic Growth in the Sub Saharan African Countries?
- How do macroeconomic stability, trade openness, and infrastructure development moderate the relationship between FDI and economic growth in Sub-Saharan African countries?
- Why do the effects of FDI on economic growth vary across different Sub-Saharan African countries?

1.4. Objectives of the study

1.4.1. General objective

The general objective of the study is to examine the effect of Foreign Direct Investment (FDI) on economic growth in Sub-Saharan African countries, with a focus on understanding the moderating effects of various macroeconomic variables and infrastructure development.

1.4.2. Specific objectives

The specific objectives of this study are:-

- To examine the effect of the FDI in Economic Growth in the Sub Saharan African Countries.
- To assess the moderating role of macroeconomic stability, trade openness, and infrastructure development in the relationship between FDI and economic growth in Sub-Saharan African countries.
- To examine why effects of FDI on economic growth vary across different Sub-Saharan African countries

1.5. Significance of the study

This study is significant as it addresses critical gaps in existing research by analyzing the relationship between Foreign Direct Investment (FDI) and economic growth in Sub-Saharan Africa. It explores the diverse impacts of FDI across different countries, considering the roles of macroeconomic stability, institutional quality, trade openness, and infrastructure development. By employing a refined econometric model, this research provides deeper insights into both short-term and long-term dynamics of FDI's impact. The findings is expected to be highly valuable for policymakers in Sub-Saharan African countries, helping them formulate targeted

policies to enhance the conditions necessary for maximizing the benefits of FDI. Additionally, the study is expected to contribute to academic literature, offering new evidence and insights that can inform future research. As a result, the research will contribute to the body of knowledge in the field.

1.6. Scope of the study

The scope of this study is delimited to examining the impact of foreign direct investment on economic growth in Sub-Saharan Africa to determine how macroeconomic stability, trade openness, and infrastructural development moderated this effect. The primary goal of this research is to perform an in-depth examination and investigate theoretical agendas and policy implications for sub-Saharan African nations seeking to capitalize on the beneficial spillover effect of FDI on economic growth. Furthermore, this analysis employed balanced panel data for 18 countries covering 22 years, from 2000 to 2022.

1.7. Limitation of the Study

All studies are faced with various limitations, and this study is no exception to this phenomenon. This study used a limited number of macroeconomic variables to analyze the effects of FDI on economic growth and the moderating role of selected macroeconomic variables in 18 Sub-Saharan African countries over a 22-year period, which may limit the strength of the findings compared to using more variables. Though the use of panel data provided a more comprehensive approach, the study was limited by potential inconsistencies in data quality across countries and time periods, and the 18-country sample may not be fully representative of the diverse economic and institutional conditions in the region, while the 22-year time frame may not have captured the full dynamic evolution of the FDI-growth nexus. Nevertheless, the study offers valuable empirical evidence on the complexities of leveraging FDI for sustainable development in Sub-Saharan Africa.

1.8. Organizations of the Study

The paper is structured into five major chapters. The first chapter discusses an approach to the problem. The second chapter provides an examination of related theoretical and empirical literature. The third chapter presents the research's methodology, while the fourth chapter does an econometric analysis of the study. The final chapter offers findings and policy implications.

CHAPTER TWO
LITERATURE REVIEW

2.1. Theoretical literature review

2.1.1. Theories of Foreign Direct Investment (FDI)

In theory, more extensive approaches have been used to evaluate the patterns and reasons behind FDI inflows. Three comprehensive theories serve as the foundation for the majority of FDI theories: international commerce theory, firm theory, and international capital market theory (Popovici & Călin, 2014; Makoni, 2015). Macroeconomic theories of foreign direct investment (FDI) explain the motivations and trends of FDI from the perspective of international trade at the national level (e.g., Capital Market Theory of FDI, Institutional FDI Fitness theory of gravity approach); microeconomic theories of FDI relate the reasons for cross-border investment from the viewpoint of investors (e.g., the Eclectic paradigm of dunning) (Shin & Stulz, 1998; Lipsey, 2004). When examining similar types of foreign direct investment (FDI) from different perspectives, it's common to find variations in theories and hypotheses. Several researchers, including Hymer (1976), Rugman (1980), Hosseini (2005), and Nayak & Choudhury (2014), have presented an overview and hypothesis of FDI theories. To comprehend the impact of uncertainty and institutional quality on FDI inflows, it's important to consider certain concepts related to FDI and uncertainty. This study utilized the institutional FDI fitness theory, Eclectic Dunning theories, and FSA-CSA matrix theory.

I. Institutional FDI Fitness Theory

As per the proponents of the theory (Wilhelms, 1998), "FDI institutional fitness" denotes a nation's capability to draw in, assimilate, and keep FDI. A country's adeptness in conforming to investors' expectations determines its edge in enticing FDI inflows. The theory is constructed on a pyramid framework consisting of four fundamental elements that make up institutional FDI fitness. Positioned at the foundation of the pyramid are sociocultural influences as per the author. The pyramid of sociocultural factors, as stated by (Wilhelms, 1998), is comprehensive and the most intricate of establishments due to the time it takes to change. The exposure of citizens to foreign cultures and integration into the global economy depends on their openness to different sociocultural and business practices. A high level of openness enhances the nation's ability to draw foreign direct investment (FDI).

According to (Dunning, 2000), foreign companies might be drawn to host countries with similar cultural characteristics. The theory's second pillar emphasizes the role of education in boosting R&D creativity and information processing ability, making the environment more appealing for FDI. Regarding the third pillar, well-functioning physical and financial markets play a key role in MNCs investment decisions. The fourth and final pillar, as suggested by (Wilhelms, 1998), pertains to the government's role in managing market effectiveness and facilitating business operations. Ultimately, government fitness is essential. Additionally, (Popovici & Călin, 2014) stated that government fitness involves economic openness, minimal intervention, improved trade policy performance, exchange rate intervention, and enhanced transparency. The authors state that multinational corporations will avoid countries with hostile investment policies and political instability. According to Wilhelms (1998), it is concluded that all aspects of the theory are interconnected, and a country can gain a competitive advantage in the global FDI market through the institutions, policies, and their implementation.

II. The Eclectic Theory of FDI

Dunning's eclectic theory is considered the most comprehensive and integrated framework for analyzing the behavior of Multinational Enterprises (MNEs) when making investment decisions. Developed in 1977 by Dunning, the concept is heavily based on both micro and macroeconomic approaches (Heshmati, 2018). Instead of focusing on the levels and structures of FDI, the theory emphasizes the motives behind foreign enterprises' decisions and offers a holistic framework to identify and evaluate the significant factors that influence their decisions to establish initial production and expand, alongside the actions of host country firms (Dunning & Lundan, 2008).

In accordance with the eclectic or OLI paradigm, the global movement of FDI depends largely on having three categories of advantages (Ownership advantage, Location advantage, and Internationalization factors), which significantly influence the decision of MNEs to invest. The framework states that foreign companies invest in other countries when all three determining factors (advantages) are present simultaneously, allowing MNEs to gain advantages over the costs of establishing and operating in foreign markets for better performance in their overseas investments (FDI). Dunning's OLI paradigm integrates industrial organization, location, and internalization theories to elucidate the phenomenon of FDI (Dunning & Lundan, 2008).

The ownership advantage emphasizes that a multinational enterprise (MNE) must possess unique advantages over other firms operating in a specific market. These advantages should be exclusive to the firm and easily transferable within the firm and across countries (Dunning & Lundan, 2008).

The location-specific advantage that multinational enterprises (MNEs) consider is related to the optimal placement of their plants and the choice of host country, as pointed out by Dunning (2001). The advantage of internationalization is connected to the efficiency of transaction costs for the activities of multinational enterprises. It highlights how much companies bring their advantages, including those stemming from being multinational, in-house to prevent market failures related to licensing or exporting to foreign companies (when it is considered probable) from outweighing the costs of overseas operations (Dunning & Lundan, 2008).

III. The FSA-CSA matrix Theory

M. Rugman (1981) presented an analysis of the factors influencing multinational corporations' decisions to expand their operations abroad based on the theory of internalization. This analysis involves creating a matrix that considers both home country specific advantages (CSAs) and firm specific advantages (FSAs). Rugman (2008) scrutinizes how companies select foreign markets to leverage their unique strengths. Rugman's matrix consists of two axes, with the first axis representing Firm Specific Advantages (FSA) such as marketing capabilities, technical innovation, managerial expertise, and global experience. The next factor is the country-specific advantage (CSA), which is determined by the presence of natural resources, the caliber of the labor market, or the attributes of public policies that foster a thriving business environment. Multinational corporations (MNCs) choose where to invest after carefully assessing the strengths and weaknesses within these two dimensions (Alan M. Rugman and Verbeke, 2008).

The matrix analysis assesses the strengths and weaknesses of each country in comparison to others and examines how a company measures up against its rivals. Initially, the concept was developed for the native country, with country-specific advantages (CSA) seen as benefits of the home location; however, it now allows for country-specific advantages (CSA) to be advantages of the destination country. Apart from traditional geographical benefits like resource abundance or demand, the conceptual framework considers a factor that fosters a firm's potential growth: cluster formation or the ability to foster interactions within and between firms. The author further suggests that institutional characteristics are among the most crucial factors in gaining a competitive advantage and attracting foreign direct investment.

2.1.2. Theories of Economic Growth

The impact of FDI on the economic development of the host country has been explained using two main theoretical perspectives: the modernization perspective, which is based on neoclassical

and endogenous growth theories, and the dependency theories. This division is not just for illustration but reflects the actual divisions that exist among the theories.

a) Dependency Theory

The ideology behind it is Marxist, and according to specialists, foreign investment has a negative impact on developing nations because of the repatriation of profits, reduced reinvestment, and income inequality. Consequently, the influx of Foreign Direct Investment (FDI) into the "periphery" weakens local businesses, hampers technological advancements, and displaces domestic companies (Dixon and Boswell, 1996). Likewise, Dixon and Boswell (1996) propose that although foreign investment initially stimulates growth, it eventually exerts an adverse effect on it. Infrastructure and institutions generated by foreign investment attract more foreign capital while also leading to harmful side effects such as joblessness, excessive urbanization, and economic disparity.

In the same way, Moran (1978) contends that foreign investors use their influence to corrupt or weaken political processes in host nations by co-opting local elites or exerting influence in their own countries. It is implied that the benefits of FDI are distributed unequally between the MNC and the host country, with the MNC gaining an economic surplus that could have been used for international development. In the 1970s and 1980s, economists widely supported the dependence hypothesis of foreign direct investment and its impact on economic growth in developing countries.

b) Neoclassical Theory

Neoclassical growth theory, which dates back to Solow (1956) and Rostow (1995), views FDI as a significant economic element for developing economies. Rostow's (1956) growth model views FDI as a means of facilitating the capital and technology transfers essential for economic change. Solow (1956) highlights rising foreign capital and technological advancement as essential factors in production growth and so development. Furthermore, this theory proposes that economic growth is derived from two sources: factor accumulation and total factor productivity increase.

As a result, FDI serves two purposes: it contributes to capital accumulation while also enhancing total factor productivity (Lucas, 1990). Similarly, in neoclassical growth models, FDI stimulates economic growth by boosting investment and/or efficiency, but it only has a short-term impact on growth due to falling long-run capital returns.

Capital flows in reaction to changes in interest rate disparities across nations or regions. Multinational corporations are considered as capital arbitrageurs, moving capital from low-returning nations to high-returning ones. As a result, investment decisions are purely based on rate of return, with domestic and foreign direct investments considered perfect substitutes (Lucas, 1990).

c) Endogenous Growth Theory

The theory of endogenous growth focuses on how economic growth is stimulated by foreign direct investment, specifically through the training of labor and acquisition of skills, as opposed to the development of human capital, implementation of open trade policies, and the presence of well-established financial markets. Within the endogenous growth framework, foreign direct investment has the potential to impact economic growth through several different mechanisms. Initially, it contributes to capital formation in the country receiving the investment by introducing new resources and technology. The second factor is that knowledge and skills are enhanced through management and labor training. Additionally, foreign direct investment (FDI) promotes competition in the host country's industry, breaking down entry barriers and reducing the market power of existing firms (Gorg, 2000). This is also associated with the growth-promoting impact of FDI through spillovers, which involve the extension of resources, particularly knowledge, without a formal connection, leading to externalities. In the literature, there is often a distinction made between linkages and spillovers, with linkages being essential for spillovers to take place.

The theoretical literature presents four potential ways in which spillovers can occur, contributing to increased productivity and economic growth in recipient nations. These "four channels" encompass imitation, skill acquisition, competition, and export. Nevertheless, the magnitude of spillovers is contingent upon the complexity of the goods and processes involved. For instance, it is believed that basic manufacturing and processes, as well as management and organizational innovation, are easier to replicate than intricate production.

Any enhancement of local technology resulting from imitation may lead to a positive spillover effect. The skill acquisitions are the second spillover channel, which may happen when multinational corporations invest in training local staff. As a result, local workers who have acquired these skills may move to local companies, leading to enhanced productivity due to the implementation of new technology and knowledge. The third route involves impact through competition.

It is proposed that foreign direct investment (FDI) enhances the competitiveness of the economy it enters, compelling local businesses to use existing technology more effectively, and leading to increased productivity in the host country. Ultimately, spill-over effects occur through exports as domestic companies acquire knowledge of entering the export market from multinational corporations (MNCs) through cooperation or imitation (Greenaway et al., 2004). In addition, Nunnekampe and Spatz (2003) contended that it is challenging to find definitive proof to back the notion that FDI enhances growth in developing countries. They maintained that the growth influence of FDI is unclear due to the use of aggregate data, and past research failed to distinguish between various types of FDI (resource, market, and efficiency-seeking FDI) and their resilience in different host economy conditions.

2.1.3. Role of FDI on enhancing Economic Development

Foreign Direct Investment (FDI) is critical to promoting economic growth in host nations. Several hypotheses describe the ways by which FDI promotes economic development. Let's look at a few of them below:

I. Productivity Spillover Theory:

This theory proposes that FDI might result in productivity spillovers in the host nation. Foreign enterprises provide sophisticated technology, management methods, and information to the host nation, which local firms may learn and adapt, resulting in enhanced productivity and competitiveness in the home market. Numerous studies have presented empirical evidence that FDI generates productivity spillovers. Blomström and Kokko (1998) performed a research on manufacturing enterprises in Mexico and discovered that the presence of foreign firms increased the productivity of indigenous firms in the same industry. They determined that the transfer of technology, information, and management methods from foreign enterprises had a considerable impact on the productivity of local firms.

Similarly, Aitken and Harrison's (1999) research of Venezuela indicated that enterprises exposed to international competition through FDI saw productivity benefits. The research ascribed these improvements to the transfer of technology, skills, and expertise from international to domestic enterprises. Furthermore, Javorcik (2004) investigated the effect of foreign direct investment on productivity in the Czech Republic. The study discovered that domestic enterprises located near to overseas affiliates enjoyed favorable productivity spillovers.

Smeets (2008) investigated the impact of FDI on Belgian business productivity and discovered that local firms in multinational enterprises' (MNE) supply chains enjoyed favorable spillover effects. The study highlighted the importance of backward and forward linkages between foreign and domestic firms in transferring knowledge and improving productivity.

II. Technology Transfer Theory

Technology Transfer Theory highlights the importance of Foreign Direct Investment (FDI) in transferring technical knowledge and innovation to the host nation. When foreign enterprises invest in a host nation, they frequently offer sophisticated technology, research skills, and management techniques that may be shared with local firms, therefore promoting technical advancement and industrial growth.

Various studies have found evidence to support the Technology Transfer Theory. For example, Keller (2004) discovered that the presence of foreign enterprises had a favorable impact on local firms' technical growth, demonstrating that technology and expertise were transferred from foreign to domestic firms. Similarly, Borensztein, De Gregorio, and Lee (1998) found out that FDI has a considerable impact on knowledge transfer and productivity in host nations. Furthermore, Blalock and Gertler (2008) did a research on Mexican manufacturing businesses and discovered that local enterprises in sectors with a higher representation of foreign affiliates received more technical upgrading. The study emphasized the significance of sectoral connections and technological spillovers from overseas enterprises to domestic firms.

In addition to direct technology transfer, FDI can promote indirect technology spillovers via a variety of avenues. For example, Lachenmaier and Wößmann (2006) examined the influence of foreign direct investment on innovative activities in German enterprises. The study discovered that places with a larger concentration of foreign affiliates had a favorable impact on the innovation performance of local businesses, demonstrating the presence of technology spillovers. Overall, the Technology Transfer Theory sheds light on the ways by which FDI might contribute to technical advancement and innovation in the host nation. The transfer of sophisticated technologies, research skills, and management techniques from foreign enterprises to local firms can boost the host country's technical capacity, resulting in economic growth and industrial development.

III. Export Expansion Theory

According to Export Expansion Theory, Foreign Direct Investment (FDI) can help a country expand its exports. Foreign companies frequently participate in export-oriented production, utilizing their worldwide networks and markets. By investing in the host nation, they can boost the country's exports, which can improve the trade balance and drive economic growth.

The empirical evidence supports the Export Expansion Theory, emphasizing the relationship between FDI and export growth. For example, Görg and Greenaway (2004) used firm-level data from UK manufacturing enterprises to investigate the connection between FDI and export performance. According to the study, foreign-owned enterprises had higher export intensity than domestically held firms, demonstrating that FDI had a beneficial influence on export expansion. Similarly, Kokko, Tansini, and Zejan (2001) looked at the influence of foreign direct investment in Uruguayan export development. The study discovered that foreign investment has a beneficial influence on the export operations of domestic enterprises. It claimed that the existence of foreign affiliates aided knowledge spillovers, market access, and technology transfer, hence facilitating local businesses' export development.

Furthermore, Javorcik (2004) investigated the influence of foreign direct investment on the Czech Republic's export competitiveness. The study discovered that overseas affiliates had higher export intensity than domestic enterprises. It proposed that the presence of foreign enterprises in the host country provided access to worldwide markets, distribution networks, and global supply chains, hence promoting export growth. In essence, the Export Expansion Theory demonstrates how foreign direct investment (FDI) may drive export development by leveraging foreign enterprises' worldwide networks and markets. The existence of foreign affiliates can enhance knowledge transfer, market access, and technological spillovers, resulting in greater export activity and improved trade balance.

IV. Human Capital Theory

According to this theory, people' knowledge, skills, education, and other characteristics known as "human capital" have a substantial influence on their economic output and earning potential. This idea contends that expenditures in education, training, and skill development may improve an individual's human capital, resulting in enhanced productivity, better employment chances, and higher income. Human Capital Theory was initially developed by economist Gary Becker in the 1960s.

Becker claimed that individuals make educational and training decisions based on their expected returns, taking into account the costs and advantages of accumulating human capital. According to this hypothesis, people spend in education and training to boost their productivity and earning potential in the job market. Empirical research supports the predictions of Human Capital Theory. For example, Hanushek and Woessmann (2012) did a cross-country investigation and discovered a positive relationship between a country's average degree of education and its economic growth. According to the study, advances in human capital can result in greater productivity, creativity, and economic development. Furthermore, Human Capital Theory emphasizes the value of ongoing learning and skill development throughout one's career. As technology and the nature of work change, individuals must adapt and learn new skills in order to stay productive and competitive in the job market. Individuals must engage in lifelong learning and make investments in updating and upgrading skills in order to preserve and improve their human capital.

In conclusion, Human Capital Theory highlights the importance of education, training, and skill development in increasing individual productivity, earning potential, and total economic growth. Investments in human capital not only help people by boosting work opportunities and income, but they also have broader societal and economic consequences.

V. Capital Formation Theory

Capital Formation Theory, as applied to Foreign Direct Investment (FDI), investigates how FDI contributes to capital accumulation in a country, as well as its influence on economic growth. Foreign direct investment (FDI) is an investment made by foreign firms to create or grow productive operations in a host nation. FDI brings in financial resources, technology, managerial skills, and access to global markets, all of which can help the host country's capital creation efforts. Furthermore, FDI can increase local savings and investment.

Foreign investors' presence in a host nation can result in beneficial spillover effects such as enhanced competition, information diffusion, and links to native enterprises. These spillovers can encourage local enterprises to spend more in physical and human capital, hence boosting total capital creation and economic development. Empirical research has shown evidence supporting the link between FDI and capital formation. Borensztein, De Gregorio, and Lee (1998) concluded that FDI promotes capital accumulation and increases productivity in host nations. The existence of overseas affiliates can lead to greater investment rates and capital formation.

In conclusion, when seen through the lens of Capital Formation Theory, FDI promotes capital accumulation in the host nation. It brings in financial capital, technology, and expertise, all of which help to build physical and human capital. This, in turn, promotes economic growth and development by raising productivity, output, and competitiveness.

VI. Employment Creation Theory

The Employment Creation Theory of FDI examines how foreign direct investment affects job creation in the host country's economy. It investigates the effects of FDI on employment levels, job quality, and labor market trends. FDI can directly create job opportunities by creating new or growing existing enterprises in the host nation. When foreign investors establish enterprises, they often recruit local staff, which creates jobs. This is especially true in areas like manufacturing, services, and technology-intensive sectors, where FDI frequently delivers improved manufacturing processes and management knowledge. These investments can boost employment, provide job possibilities, and lower unemployment rates.

Empirical studies have provided evidence supporting the Employment Creation Theory of FDI. For example, Zhang and Markusen (1999) examined the connection between FDI and employment in the United States and found that FDI inflows led to an increase in employment levels. The study emphasized the positive impact of Foreign Direct Investment on job creation, especially in industries with a higher share of foreign-owned firms. FDI can also have indirect effects on employment through its spillover effects on the domestic economy. When foreign investors establish operations, they often create linkages with local suppliers, service providers, and distributors. This stimulates economic activities in related sectors, leading to additional job opportunities.

Moreover, FDI can promote knowledge and technology transfer, which can enhance productivity and competitiveness of domestic firms, thereby creating employment opportunities within the local economy. Empirical studies have highlighted the spillover effects of FDI on employment. Markusen and Venables (1999) investigated the impact of inbound FDI on employment in the United Kingdom and discovered that FDI had a positive employment effect, not just in foreign-owned enterprises but also in local firms via spillovers and linkages. The study stressed the relevance of FDI in creating job prospects in addition to its direct benefits. Furthermore, FDI can help to increase the quality of jobs in the host nation.

Foreign investors frequently bring innovative technology, management methods, and better skill levels, which can result in the development of more skilled and well-paying positions. This can benefit the whole labor market by boosting skill levels, rising earnings, and improving working conditions. Empirical research demonstrates the link between FDI and employment quality improvement. Görg and Strobl (2005) investigated the influence of FDI on salaries and working conditions in developing nations, concluding that foreign-owned enterprises paid higher pay and offered better working conditions than native firms. According to the report, foreign direct investment helps to improve job quality and standards. In conclusion, the Employment Creation Theory of FDI stresses how FDI may contribute to job creation, both directly and indirectly, via connections, spillovers, and increased employment quality. Empirical research has confirmed the beneficial association between FDI and employment levels, job quality, and labor market dynamics.

2.1.4. Factors affecting the effectiveness of (FDI) in enhancing economic growth

Several theories explain the factors affecting the effectiveness of Foreign Direct Investment (FDI) in enhancing economic growth. Here are three prominent theories with a brief explanation of each:

I. Absorptive Capacity

Absorptive Capacity Theory posits that the effectiveness of Foreign Direct Investment (FDI) in enhancing economic growth is contingent upon the host country's ability to absorb and utilize the knowledge, technology, and skills brought in by foreign investors. This theory emphasizes the importance of the host country's capacity to assimilate and leverage the benefits of FDI. Several factors influence absorptive capacity, as supported by scholarly research. Capital is a critical determinant of absorptive capacity. A well-educated and skilled workforce is essential for understanding and effectively utilizing the knowledge and technology embedded in foreign investments (Borensztein et al., 1998).

Research by Zhang and Markusen (1999) found that countries with higher levels of human capital tend to experience greater spillover effects from FDI in terms of increased productivity and innovation. Another element to consider is technological infrastructure. Adequate infrastructure, such as modern telecommunications, stable electrical supply, and efficient transportation networks, aids the acceptance and dissemination of new FDI-related technologies (Li and Liu, 2005).

According to empirical research conducted by Wang and Xu (2013) and Alfaro et al. (2014), nations with higher technical infrastructure are more likely to benefit from FDI in terms of productivity increases and economic growth. Supportive institutions have an important role in increasing absorptive ability. Institutions that safeguard intellectual property rights, enforce contracts, and encourage competition foster technological transfer and knowledge spillovers (Li and Liu, 2005). Research by Javorcik (2004) and Beugelsdijk et al. (2018) has shown that robust institutional frameworks improve the effectiveness of FDI in supporting economic growth. The capabilities of local firms in assimilating and adapting foreign technologies and knowledge are also critical for absorptive capacity. Strong linkages between foreign and domestic firms can facilitate knowledge transfer and diffusion (Kokko et al., 2003). Görg and Strobl (2005) and Cuervo-Cazurra and Genc (2008) found that well-integrated local enterprises are more likely to gain from FDI by increasing productivity and innovation.

Finally, absorptive capacity theory emphasizes the importance of human capital, technical infrastructure, supportive institutions, and local company capacities in determining the efficacy of FDI in boosting economic development. These factors influence a host country's ability to absorb and utilize the advantages of FDI. Countries may improve their absorptive capacity and maximize the beneficial impact of FDI on economic growth by investing in education, infrastructure, institutions, and encouraging ties between foreign and indigenous enterprises.

II. Institutional Quality

Institutional Quality Theory emphasizes the role of institutions in determining the efficacy of FDI in driving economic growth. Strong institutions, defined by well-functioning legal systems, property rights protection, transparent governance structures, and a lack of corruption, foster an atmosphere conducive to FDI growth. Research confirms the importance of institutional quality in influencing the effect of FDI on economic development. The rule of law is a crucial aspect of institutional quality that influences FDI effectiveness. A reliable legal system that enforces contracts, protects property rights, and ensures a fair business environment is vital for attracting and retaining FDI (Kumar and Pradhan, 2002). Studies by Li and Resnick (2003) and Desbordes and Wei (2007) have shown that countries with stronger rule of law tend to attract more FDI and experience higher economic growth. Effective governance and transparency are also essential components of institutional quality. Transparent and accountable governance structures reduce corruption, ensure stability, and enhance investor confidence (Gupta et al., 2002).

Research by Wei (2000) and Knack and Keefer (1995) indicates that countries with better governance structures and lower corruption levels tend to draw additional FDI and experience positive economic outcomes. The regulatory environment is another important factor influenced by institutional quality. Efficient and streamlined regulations that facilitate business operations, investment processes, and market competition can attract more FDI (Kaufmann et al., 2002). Studies by Djankov et al. (2002) and Bénassy-Quéré et al. (2007) have demonstrated that countries with business-friendly regulatory frameworks tend to attract higher levels of FDI and experience greater economic growth. Investor protection is a critical aspect of institutional quality. Strong legal frameworks and investor protection mechanisms provide security and encourage long-term investments (Busse and Hefeker, 2007). Research by Aggarwal et al. (2021) and Doytch and Uctum (2016) has shown that countries with better investor protection frameworks tend to attract more FDI and experience positive economic effects.

In conclusion, Institutional Quality Theory emphasizes the importance of institutions in determining the effectiveness of FDI in enhancing economic growth. Strong institutions characterized by the rule of law, effective governance and transparency, favorable regulatory environments, and investor protection mechanisms create a conducive environment for FDI to drive economic growth. By focusing on strengthening institutional quality, countries can attract more FDI and unlock its potential benefits for their economies.

III. Sectoral Linkages

Sectoral Linkages Theory emphasizes the role of linkages and spillover effects between FDI and domestic sectors in promoting economic growth. According to this hypothesis, FDI may have a large positive influence on the host country's economy by establishing connections across diverse sectors, resulting in higher productivity, innovation, and overall economic progress. Several variables determine the degree and efficacy of sectoral connections in the context of foreign direct investment.

Forward linkages refer to the connections between foreign investors and domestic supplier industries. When foreign investors establish relationships with local suppliers, it can lead to technology transfer, knowledge diffusion, and capacity building within the domestic supply chain (Liu et al., 2002). Studies by Görg and Strobl (2003) and Javorcik (2004) have shown that strong forward linkages between FDI and domestic suppliers can enhance productivity and stimulate economic growth. Backward linkages, conversely, involve connections between foreign investors and domestic buyers of intermediate goods or services.

FDI can stimulate demand for local inputs, boosting the growth and expansion of domestic industries (Liu et al., 2002). Research by Kokko et al. (2003) and Rasiah (2004) has demonstrated that robust backward linkages between FDI and domestic buyers can result in increased employment, technology absorption, and overall economic benefits. Horizontal linkages involve interactions between foreign investors and domestic firms within the same industry. FDI can lead to knowledge spillovers, competition, and innovation through collaborations and exchanges between foreign and domestic firms (Blomström and Kokko, 1998). Studies by Coe et al. (2009) and De Mello Jr. (1997) have shown that strong horizontal linkages among Foreign Direct Investment and domestic firms can stimulate productivity growth and technology diffusion. Additionally, FDI can also have vertical linkages with various sectors, including upstream and downstream industries. Upstream linkages involve connections between foreign investors and industries that provide raw materials or components, while downstream linkages pertain to industries that utilize the outputs of FDI (UNCTAD, 2019). Through these vertical linkages, FDI can contribute to the development of an integrated supply chain, leading to increased efficiency, specialization, and economic growth (Lall, 2000).

2.1.5. Theories on the Moderating and Mediating Role Analysis

According to several theories, macroeconomic stability is a key moderator in maximizing the contribution of foreign direct investment (FDI) to economic growth. These ideas emphasize how crucial a stable macroeconomic climate is for drawing in FDI and optimizing its beneficial effects on economic growth. It is theorized that macroeconomic stability—which is defined by low inflation, steady exchange rates, and responsible fiscal policies—will increase FDI's potential to spur economic growth. This hypothesis is supported by several theoretical frameworks, including uncertainty reduction theory (Rodrik, 1998), investment climate theory (Wheeler & Mody, 1992), signaling theory (Spence, 1973), institutional quality theory (North, 1990), and human capital theory (Lucas, 1988). By reducing uncertainty, fostering a conducive investment climate, signaling commitment to sound economic policies, strengthening institutions, and promoting human capital development, macroeconomic stability can significantly enhance the effectiveness of FDI in driving sustainable economic growth in SSA countries.

I. Uncertainty Reduction Theory: Mediating Role of Macroeconomic Stability

According to the uncertainty reduction hypothesis, FDI's (foreign direct investment) potential to spur economic growth is enhanced when macroeconomic stability is present.

According to this idea, attracting and optimizing the beneficial effects of foreign direct investment (FDI) on economic development requires a stable macroeconomic environment. High inflation, exchange rate volatility, and fiscal imbalances create uncertainty for businesses, discouraging FDI by increasing the risk of investments. This uncertainty stems from the difficulty in predicting future economic conditions and the potential impact on investment returns. A stable macroeconomic environment, characterized by low inflation, stable exchange rates, and sound fiscal policies, reduces uncertainty and makes SSA countries more attractive to foreign investors. This stability provides businesses with a predictable and reliable economic environment, allowing them to make informed investment decisions with greater confidence.

Recent developments in behavioral economics suggest that investors may be more sensitive to losses than gains and overweight recent events when making decisions (Kahneman & Tversky, 1979). Big data analytics can be used to analyze large datasets and identify patterns that can help predict future economic and political events, mitigating uncertainty and creating a more stable investment environment (Varian, 2014). Policy implications include transparency and communication of government plans to reduce uncertainty and build trust among investors (Rodrik, 2023). Maintaining consistent policies over time is essential to avoid confusion and discourage investment (Wheeler & Mody, 2022). Investing in strong institutions, such as an independent judiciary and effective regulatory frameworks, is crucial for reducing uncertainty and creating a more attractive investment climate (North, 1990).

Empirical studies have provided significant evidence supporting the validity of uncertainty reduction theory. These studies have consistently found a positive correlation between macroeconomic stability and FDI inflows, suggesting that countries with lower inflation, stable exchange rates, and sound fiscal policies tend to attract more FDI compared to those with high levels of uncertainty (Rodrik, 2023; Wheeler & Mody, 2022). Furthermore, studies have demonstrated that macroeconomic stability plays a mediating role in the relationship between FDI and economic growth, meaning that it enhances the positive impact of FDI on economic development (Herzer & Nunnenkamp, 2021). However, the impact of uncertainty on FDI and economic growth can vary across countries and industries, depending on factors such as the level of development, institutional quality, and the type of FDI (Alfaro et al., 2010).

II. Investment climate

Investment climate theory posits that a stable macroeconomic environment is crucial for fostering a conducive investment climate, attracting foreign direct investment (FDI), and promoting economic growth (Wheeler & Mody, 1992).

This theory emphasizes the importance of macroeconomic stability in reducing uncertainty, enhancing investor confidence, and creating a predictable and transparent business environment. A stable macroeconomic environment is characterized by low inflation, stable exchange rates, sound fiscal policies, openness to trade and investment, and strong institutions (Dollar & Kraay, 2003). These factors provide investors with greater confidence that their investments will be protected and that contracts will be enforced, leading to increased FDI inflows.

Empirical studies have consistently found that macroeconomic stability is a key determinant of the investment climate and economic growth (Herzer & Nunnenkamp, 2012). Countries with stable macroeconomic environments tend to have more attractive investment climates, leading to higher levels of FDI and economic growth. Policy implications of investment climate theory include maintaining macroeconomic stability, improving institutions, and promoting openness to trade and investment. By implementing these policies, governments can create a more attractive investment climate that will attract foreign investment and drive sustainable economic development. Additionally, moderation analysis investigates how the connection between two variables varies according to the moderator, a third variable, at different levels. The moderating impacts of elements like infrastructure, trade openness, foreign direct investment (FDI), and institutional quality on economic development are explicitly covered by several theories and frameworks. The following important hypotheses have been combined with the results of contemporary research:

Endogenous Growth Theory: Endogenous growth theory, developed by economists such as Romer (1986) and Lucas (1988), suggests that investment in human capital, innovation, and knowledge contributes to economic growth. The theory implies that FDI can lead to technology spillovers and skill development, enhancing economic growth. These effects can be moderated by factors like infrastructure quality, trade openness, and institutional quality. Better infrastructure and high trade openness facilitate efficient transfer and utilization of new technologies brought by FDI, while strong institutions ensure the stability needed for sustained growth. Studies conducted by Alfaro et al. (2004) and Borensztein et al. (1998), reinforce this by

demonstrating that FDI has a more positive economic growth impact on nations with open trade agreements and well-developed financial markets.

New Economic Geography (NEG) Theory: NEG theory, as articulated by Krugman (1991), focuses on the spatial distribution of economic activities. It posits that infrastructure and trade openness play critical roles in attracting FDI to certain regions, which in turn influences regional economic development. Good infrastructure reduces transaction costs, and high trade openness makes markets more accessible, thus moderating the impact of FDI on economic growth. Effective institutions further enhance this relationship by providing conducive business environment. **Asiedu (2006)** highlights that FDI in Africa is positively influenced by trade openness and strong institutions, emphasizing the importance of these factors in moderating the relationship between FDI and economic growth.

Absorptive Capacity Theory: This theory, introduced by Cohen and Levinthal (1990), suggests that a country's ability to benefit from FDI depends on its absorptive capacity, which includes factors like human capital, infrastructure, and trade openness. Countries with higher absorptive capacity can better assimilate and utilize the technologies and practices introduced by foreign investors, thus enhancing the positive impact of FDI on economic growth. Institutional quality also plays a crucial role in this process by ensuring that the benefits of FDI are widely distributed and sustained. **Crespo and Fontoura (2007)** reviewed empirical studies and emphasized that positive spillovers from FDI depend on the absorptive capacity of the host country, including infrastructure quality and trade openness.

Institutional Theory: Institutional theory emphasizes the role of institutional quality and governance in economic development. North (1990) argues that institutions, including regulatory frameworks and governance effectiveness, can moderate the impact of FDI on economic growth. Good governance and effective regulations enhance the positive effects of FDI by ensuring a stable and predictable business environment, reducing corruption, and improving the rule of law, which attract and retain foreign investors. Studies by **Alfaro et al. (2004)** and **Kose et al. (2009)** suggest that trade and financial openness can amplify the positive effects of FDI on economic growth, pointing to the moderating role of macroeconomic policies and institutional quality.

Resource-Based View (RBV): The RBV, popularized by Barney (1991), posits that a firm's resources and capabilities are critical for achieving competitive advantage. Applied to a national level, the theory suggests that a country's resources, such as infrastructure, human capital, and trade openness, determine its ability to attract and benefit from FDI. Thus, the quality of infrastructure, trade openness, and strong institutions can moderate the relationship between FDI and economic growth. Asiedu (2006) and Crespo and Fontoura (2007) highlight the importance of these factors in maximizing the benefits of FDI.

Eclectic Paradigm (OLI Framework): Developed by Dunning (1980), the OLI framework (Ownership, Location, and Internalization) explains why companies engage in FDI. The 'Location' component of this paradigm suggests that the attractiveness of a location for FDI is influenced by factors like infrastructure, trade openness, and regulatory quality. These factors can moderate the extent to which FDI contributes to economic growth by making certain locations more favorable for investment. This is supported by studies like Alfaro et al. (2004), which found that countries with good infrastructure and open trade regimes benefit more from FDI.

Human Capital Theory: Becker (1964) emphasized the role of education and training in economic development. This theory suggests that the impact of FDI on economic growth can be moderated by the level of human capital in the host country. Higher levels of education and skills enable the workforce to better utilize and adapt to the technologies and practices brought by foreign investors, thereby enhancing the benefits of FDI. Trade openness also facilitates the flow of knowledge and technology, while institutional quality ensures that these benefits are maximized. Borensztein et al. (1998) highlighted the importance of human capital in realizing the growth benefits of FDI.

Dependency Theory: While often critiqued, dependency theory (Prebisch, 1950; Frank, 1967) argues that FDI can lead to dependency and underdevelopment, particularly in less developed countries. This theory suggests that the relationship between FDI and economic growth can be moderated by structural factors like infrastructure, trade openness, and governance. Poor infrastructure, limited trade openness, and weak institutions might exacerbate dependency and limit the positive effects of FDI. This viewpoint underscores the mixed findings in the literature, where some studies find positive relationships while others find negative or negligible effects.

These theories and studies underscore the complex and moderated relationship between FDI, infrastructure, trade openness, institutional quality, and economic development. They highlight the importance of contextual factors in determining the impact of FDI on economic growth and the need for a nuanced approach to understanding these dynamics.

2.3. Empirical Literature review

2.3.1. Global studies

Since the mid-1980s, FDI has become increasingly crucial in the global economy. Their increasing rate and relevance have impacted both global trade and international financial activities. This also indicates that FDI has become a dominant force in the global economy and a key component of global economic integration, sometimes known as globalization (UNCTAD, 2002). Zhang (2001) found that FDI brings about technology transfer and spillover efficiency in 11 Latin American developing nations. The study revealed that FDI positively impacts only five of these nations, and the author emphasized that these gains are not automatic but rather depend on factors such as the host nation's absorptive capacities, open trade policy, human capital, and export-oriented FDI policy. Similarly, Bengoa and Sanchez-Robes (2003) observed that FDI significantly contributes to the economic growth of developing countries. They emphasized that to harness the benefits of FDI, the host country must possess sufficient human capital, economic stability, and a liberalized capital market.

In their 2011 analysis, Agrawal and Khan examine the rapid expansion of China compared to India, attributing it to the utilization of FDI. A study tracking the impact of FDI on economic growth in both China and India over time demonstrates a positive effect. The research suggests that the growth of the two countries is heavily influenced by their trade liberalization policies from the 1990s and the subsequent increase in foreign capital inflows. In 1975, China and India had the same GDP, but China's GDP per capita was 33% lower at $146 compared to India's $220. Nevertheless, China's development outpaced India's, and by 1984, China had surpassed India in GDP per capita. In their 2002 study, Ram and Zhang utilized econometric methods such as unit root and cointegration tests to examine data from 11 East Asian and Latin American nations. Their findings revealed that FDI fosters economic development in countries with open trade policies and a skilled and educated workforce. Consistent with Ram and Zhang's conclusions, foreign direct investment (FDI) allows swift entry into international markets and serves as a channel for host countries to engage in the process of globalization.

On the contrary, there are other research studies that have suggested that foreign direct investment (FDI) could have a negative impact on the economic growth prospects of the receiving country. This is due to the fact that multinational corporations (MNCs) typically operate in industries with imperfect competition, which means that FDI may not necessarily lead to increased growth rates. As a result, FDI might decrease domestic savings and investment. Additionally, FDI could have an unfavorable effect on the country's external balance because the repatriation of profits tends to reduce the capital account. It is also sometimes associated with dominant investment, low employment, income inequality, and heightened external dependency (Ramirez, 2000).

Blonigen and Wang (2005) uses the same sample as Borensztein et al. (1998) but make a distinction between developed and developing nations. Their findings agree with those of Borensztein et al. (1998), but only for impoverished nations. Blonigen and Wang (2005) argue that education is an important absorptive capacity component in developing countries. However, in developed countries, schooling has been shown to have little influence on absorptive ability. However, Li and Liu (2005) find evidence that schooling is beneficial to absorptive ability.

The influence of foreign direct investment (FDI) on development is examined by the OECD (2002), with a focus on analyzing its advantages and disadvantages. The purpose of this paper is to offer light on how FDI promotes economic growth, technology transfer, human capital development, competition, corporate governance, and environmental sustainability. Furthermore, it seeks to identify the policies necessary to maximize the benefits of FDI. The research emphasizes the necessity of host countries developing clear and effective investment policies, while developed countries may assist by supporting policy consistency, facilitating access to markets and technology, and sharing investment capacity-building programs.

The increase in foreign direct investment (FDI) can enhance a country's production and efficiency by expanding its capital investment, optimizing the use of current resources, and utilizing underutilized resources. Various forms of FDI lead to different types of knowledge transfer, spillover effects, and both tangible and intangible capital inflows (Hooda, 2011). Moreover, FDI encourages the advancement and dissemination of technological capabilities through global corporations, internal transfers, as well as business relationships and spillovers (Borensztein et al, 1998). Additionally, FDI enhances local market competition, introduces modern employment opportunities, and facilitates market entry for developed nations (Noorbakhsh et al, 2001), all of which are expected to contribute to the economic advancement of recipient countries.

2.3.2. African Studies

Arthur S. (2023) used the Ordinary Least Squares (OLS) Multiple Regression statistical technique, as well as policy implications from the findings, to determine how FDI has worked in Zambia in terms of human capital accumulation, infrastructure development, trade liberalization, and macroeconomic stability. The findings indicated that there is a positive correlation between foreign direct investment (FDI) and economic growth. Additionally, it revealed that FDI is linked to the development of human capital, trade liberalization, and macroeconomic stability in a positive manner. The construction of infrastructure was found to have a mutual impact on foreign direct investment.

In a study conducted by Geeti Sh (2023), the impact of foreign direct investment on the economic growth of BRICS countries was investigated using a descriptive analysis based on secondary data source. ANOVA (Analysis of Variance) and regression analysis are expressly noted as statistical methodologies used. It was found that FDI has a significant and positive influence on economic growth, especially in India and China compared to other BRICS countries. Consequently, the study suggests that it is advisable for the governments of these countries to prioritize attracting foreign direct investment in order to boost economic growth.

In a recent study, John and colleagues (2023) delved into the connection between corruption and foreign direct investment in sub-Saharan Africa, using a new panel threshold regression approach. The findings revealed that the correlation between corruption and FDI is influenced by a single threshold, with the optimal corruption threshold value identified as 5.37%. It was observed that at this threshold, corruption exerts a negative impact on foreign direct investment. Any corruption level below the threshold indicates an adverse relationship with foreign investment. On the other hand, a negative correlation emerges when the corruption level surpasses the optimal threshold, although it lacks statistical significance.

Jacques Yana Mbena's (2022) recent research explored the present state of sustainable FDI in West and Central Africa. It revealed an ongoing theoretical discussion that influences the policy recommendations for sustainable foreign direct investment in these regions. The significance of FDI quality for promoting long-term regional growth is widely acknowledged. However, the focus of the taxonomy's implementation has predominantly been on macroeconomic and environmental factors, as indicated by the emphasis placed on OECD-defined policy components like technical and monetary assistance, international agreements, and standards.

Belesity B. (2022) conducted a study that used an empirical approach to examine how foreign direct investment affects economic growth in Sub-Saharan Africa. This study utilized the PMG/ARDL model and found that although foreign direct investment has a substantial and positive impact in the long term; its significance is not statistically verified in the short term. The report concludes that foreign direct investment plays a significant role in driving long-term economic growth. Therefore, Sub-Saharan African countries should prioritize efforts to attract foreign direct investment.

Samson Edo and Obianuju Nnadozie (2022) conducted more study on the drivers of FDI divestment in Sub-Saharan Africa, including macroeconomic and institutional variables. In the comparative analysis, Sub-Saharan Africa and other regions are revealed to have had consistent divestment in recent years. The model's projected findings indicate that macroeconomic performance and institutional quality are the key drivers of divestiture. In their study on the influence of foreign direct investment, remittances, and official development aid on economic growth, Amna Zardoub and Faouzi Sboui (2020) noted that implementing economic strategies could help tackle some of the concerns regarding unforeseen results. It was suggested that governments in these nations enhance their economic situations by establishing a structure that fosters increased domestic and foreign investment.

Edward et al. (2018) undertook a research to investigate patterns in foreign direct investment inflows to Africa, with the ultimate goal of providing policy implications. They discovered that Africa receives a lesser percentage of FDI than advanced nations and other emerging areas, despite its need for finance. FDI inflows to Africa are concentrated at the sub-regional and national level. Southern Africa receives the highest FDI, followed by Northern Africa, with East and Central Africa receiving the least. Africa's FDI is predominantly focused in the primary (extractive) sector, limiting regional advantages. In contrast, East Asia's FDI was mostly in the secondary (manufacturing) sector. African nations must reconsider their approach to FDI promotion, concentrating on developing a domestic climate conducive to entrepreneurship and business rather than just offering incentives.

Biratu B. and Mekonnen Be. (2018) carried out a study to explore how foreign direct investment affects the economic growth of Eastern Africa. They used the dynamic generalized technique of moment estimator for data analysis after conducting all necessary diagnostic tests. Their empirical findings indicate that foreign direct investment has a significant and positive impact on the economic growth of the region. Through the paired Granger causality test, they found -

evidence of one-way causation from economic growth to FDI. This suggests that governments need to carefully consider the type and composition of foreign direct investment when aiming to boost economic growth. Overall, the study suggests that FDI can contribute to sustainable economic development in Eastern Africa by stimulating economic growth, transferring technology and skills, promoting employment opportunities, and integrating the region into global production networks. However, the research acknowledges the need for the right policy environment and adequate levels of education, technology, and infrastructure expansion to make the most of the benefits of FDI.

Mebratu Seyoum, Renshui Wu, & Jihong Lin (2015) delved into the causal connection between foreign direct investment (FDI) and economic growth in emerging African nations. This study analyzed annual balanced panel data to investigate the Granger causal relationship between foreign direct investment (FDI) and economic growth (real GDP growth) in 23 African countries spanning from 1970 to 2011. The results unveiled a bidirectional Granger causal relationship between FDI and economic growth. Moreover, it is disclosed that this cause-and-effect connection changes among the countries in our study.

Specifically, we see a one-way relationship between FDI and GDP growth in Egypt, Gabon, and Mauritania, and also between GDP growth and FDI in Côte d'Ivoire, Kenya, South Africa, and Zambia. Their main finding stayed in line with evaluations of FDI as a percentage of total capital formation and actual GDP growth.

Mijiyawa (2015) investigated factors influencing FDI in Africa between 1970 and 2009, employing the system-GMM estimation approach. The findings reveal that delayed FDI inflows, trade openness (measured by the sum of exports and imports), market size, political stability, and return on investment (measured by the inverse of GDP per capita) all have a substantial and positive influence on FDI inflows. Furthermore, the study's key findings include that more open and politically stable nations can attract FDI, whereas countries with greater rates of return on investment promote FDI. This study proposed that nations with more FDI now are more likely to support higher FDI inflows in the future.

Anyanwu and Yaméogo (2015) explored the factors that drive foreign direct investment (FDI) by analyzing the regional differences in five African regions. These regions include Central, East, North, Southern, and West Africa, and the study covers the period from 1970 to 2010. The research focuses on the importance of FDI for the economic progress of these areas and simultaneously examines their ability to attract FDI. The researchers employed cross-country-

time series data regression and utilized pooled ordinary least squares (OLS) and system-GMM estimation techniques for their analysis. The findings indicate that the delayed impact of FDI has a negative effect in West Africa, and GDP per capita exhibits a negative influence across all five regions, displaying a U-shaped relationship in West, North, and Central Africa. In Central Africa, the growth of GDP is positively linked to FDI inflows, but it has a significantly negative impact in West Africa. The development of infrastructure quality significantly boosts FDI inflows in East and North Africa, while higher life expectancy discourages FDI in Central Africa but attracts it to East and North Africa. Except in East Africa, trade openness has a significant and positive effect on FDI inflows in all five regions. In East Africa, the inflation rate hinders FDI inflows. Natural resources only attract FDI in regions where they are abundant. Political instability negatively affects FDI inflows in West Africa. Generally, the researchers typically propose that enhancing FDI appeal to the region necessitates economic and political reforms, fostering sustainable development, and cultivating ties with foreign partners.

Oluyomi and Oyebanke (2014) analyze the impacts of FDI in the presence or absence of strong social protection policies and identify the best institutional framework for promoting inclusive and sustainable growth through FDI. Resource-rich African countries attract high levels of FDI, but FDI inflows do not necessarily lead to improved living standards or human development indicators. In some circumstances, FDI has been associated with inequalities, low human development indicators, and social and environmental consequences. The inclusion of inclusive social policies and institutions is critical for protecting the poor and vulnerable while also guaranteeing an equitable distribution of FDI gains. Host nations should work on building inclusive social policies and institutions that promote social welfare and poverty reduction while efficiently recruiting and managing foreign direct investment (FDI).

Mijiyawa (2015) used the system-GMM estimate approach to investigate the determinants influencing FDI in Africa between 1970 and 2009. The findings show that a delay in foreign direct investment (FDI) inflows, the level of trade openness (measured by the combined value of exports and imports), the size of the market, political stability, and the return on investment (measured by the reciprocal of GDP per capita) all have a significant and positive influence on FDI inflows. Additionally, the main discoveries of the research indicate that nations that are more open and politically stable tend to attract FDI, as do countries that offer higher rates of return on investment. As per this study, countries with higher FDI at present are more likely to experience increased FDI inflows in the future.

Rosetta Morris and Abdul Aziz (2011) delved into the correlation between the ease of conducting business and the inflow of foreign direct investment (FDI) into Sub-Saharan Africa and Asia. This study examines how various business-related factors impact the amount of FDI in nations across Sub-Saharan Africa (SSA) and Asia. Their findings revealed that "property registration" and "cross-border trading" had a significant association with FDI over the entire six-year study period (2000-2005) for the combined sample. Numerous factors have been pinpointed as having an impact on the FDI received by SSA and Asian nations over time.

Asiedu (2006) investigated the factors influencing foreign direct investment (FDI) in Africa, finding that a strong legal system and low inflation encourage FDI, while corruption and political instability have negative effects on FDI in the region. Nadu, in 2009, utilized a vector-error correction model to analyze the factors influencing FDI in Nigeria from 1970 to 2006. According to this research, Nigeria's FDI flow is heavily impacted by its natural resource endowment, openness, and macroeconomic risk variables including inflation and currency rates.

Dupasquier & Osakwe, (2006) examined the promotion, potential, and performance of foreign direct investment (FDI) in Africa. The research findings showed that issues such as macroeconomic and political instability, insufficient infrastructure quality, poor governance, and low institutional quality were identified as barriers to FDI inflow in the African region. Furthermore, the study aimed to uncover strategies and measures that nations could adopt to boost FDI inflow in Africa, such as enhancing the region's reputation by promoting economic stability, improving the legal framework (e.g., property rights and profit repatriation laws), investing in infrastructure and regional cooperation, strengthening governance with regional oversight mechanisms, improving access to international markets, and reducing trade barriers and subsidies.

Theodore et al. (2005) investigate the effect of foreign direct investment (FDI) on growth in developing nations. The authors' goal is to provide insights into the various consequences of FDI and propose policy implications for host nations. The effect of FDI on a developing country's economy varies greatly. FDI may have a beneficial and bad impact. Under competitive conditions with low trade barriers and operational limitations, FDI can improve host nation operations and provide new economic prospects. FDI may have a positive impact on local enterprises by increasing competitiveness, productivity, and quality. FDI may provide specific help and coaching to local businesses, improve access to foreign markets, cut input costs, and-

drive economic growth. However, FDI in protected markets with restrictive policies can result in inefficient resource utilization, outdated technology, and hindered host country growth.

A noteworthy study by Hansen and Rand (2022) examined the influence of FDI on economic growth in a sample of 85 developing countries. Their findings revealed a positive and statistically significant effect of FDI inflows on economic growth. The study further emphasized the importance of macroeconomic stability, encompassing low inflation and sound fiscal policies, in enhancing the positive relationship between FDI and growth.

Li and Liu (2013) carried out research that involved the examination of panel data from 60 emerging market economies to explore the correlation between FDI, macroeconomic stability, and economic growth. The findings of the study underscored the beneficial influence of FDI on economic growth. Furthermore, the study stressed that nations with higher macroeconomic stability, especially low inflation and a steady exchange rate, are inclined to witness more pronounced growth impacts from FDI.

Lee and Park (2014) focused on the impact of FDI on economic growth in a sample of 75 Asian countries. The results of their research suggested that FDI had a noteworthy impact on enhancing economic growth. The scholars highlighted the significance of upholding macroeconomic stability, encompassing low inflation and responsible fiscal administration, to optimize the favorable impacts of FDI on growth.

Chen and Wang (2014) conducted research that explored the connection between foreign direct investment (FDI), macroeconomic stability, and economic growth in countries with transition economies, analyzing data from 50 nations. Their results showed that FDI inflows have a positive influence on economic growth. Additionally, their study emphasized the significance of macroeconomic stability, including low inflation and a stable financial system, in enabling higher growth rates as a result of FDI.

Gupta and Sharma (2015) carried out an in-depth examination of how macroeconomic stability influences the effectiveness of FDI in promoting economic growth. Their analysis, which looked at 100 developing nations, yielded strong evidence of a favorable correlation between FDI and economic growth. The scholars highlighted the importance of macroeconomic stability, such as low inflation, prudent fiscal policies, and steady exchange rates, in maximizing the beneficial effects of FDI on growth.

2.4. Existing Research Gap

Even though foreign direct investment (FDI) plays a crucial role in driving economic growth in Sub-Saharan Africa, there is a lack of comprehensive research that specifically examines the mediating role of macroeconomic stability in enhancing the effectiveness of FDI in promoting economic growth in the region. Macroeconomic stability, encompassing factors such as inflation, exchange rates, fiscal policies, and institutional frameworks, is essential for creating an enabling environment for FDI to translate into sustainable economic growth.

Therefore, understanding the mediating role of macroeconomic stability can provide valuable insights into the mechanisms through which FDI impacts economic growth in Sub-Saharan Africa. The existing research on FDI and economic growth in Sub-Saharan Africa has primarily focused on analyzing the relationship between these variables and identifying factors that affect FDI inflows. While some studies have considered the influence of macroeconomic stability, there is a significant research gap concerning the mediating role of macroeconomic stability in enhancing the effectiveness of FDI in driving economic growth in the region. This research gap calls for a comprehensive empirical examination of how macroeconomic stability mediates the relationship between FDI and economic growth in Sub-Saharan Africa. By bridging this gap, the study aims to contribute to the existing literature on FDI in the region and provide policymakers with valuable insights on how to optimize the benefits of FDI through the promotion of macroeconomic stability.

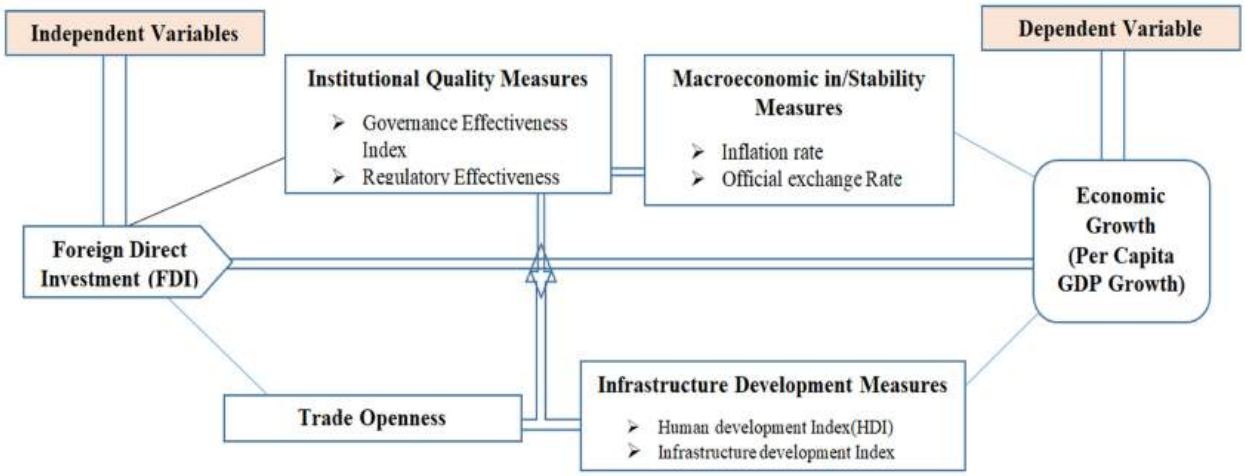
2.5. Conceptual Framework

The conceptual framework encompasses the relationships between the independent variable (Foreign Direct Investment), control variables (Trade Openness, Government Expenditure on Infrastructure, Human Capital), the mediating variable (Macroeconomic Stability), and the dependent variable (Economic Growth). This framework has been widely utilized in previous studies examining the impact of FDI on economic growth while considering the mediating role of macroeconomic stability and controlling for relevant factors. For example, studies by Borensztein, De Gregorio, and Lee (1998) and Hermes and Lensink (2003) have explored the direct relationship between FDI and economic growth, while Asiedu (2002) and Zejan and Whealan-George (2015) have examined the mediating role of macroeconomic stability.

By adapting this conceptual framework for the current study, it allows for a comprehensive analysis of how FDI influences economic growth in Sub-Saharan Africa, considering the mediating effect of macroeconomic stability and controlling for important factors such as trade openness, government infrastructure expenditure, and human capital. This framework is vital as it provides a structured approach to investigate the complex relationships between FDI, macroeconomic stability, and economic growth, thereby enabling a deeper understanding of the factors influencing economic development in the Sub-Saharan African context.

After reviewing the literature and empirical evidence, the study has created the following diagram to represent the conceptual framework.

Figure 2.1: conceptual framework



Source: Own development from literature review above

CHAPTER THREE
DATA AND METHODOLOGY

3.1. Research Design

An explanatory research design utilizing secondary data analysis was utilized in this study. Further, the study utilized quantitative research approach to explore the relationship between foreign direct investment and economic growth in Sub-Saharan Africa, while considering other contributing factors to economic growth. Additionally, the study investigated the moderating influence of macroeconomic stability, infrastructure development, and trade openness on the relationship between foreign direct investment (FDI) and economic growth in Sub-Saharan Africa. Furthermore, a descriptive analysis was conducted to examine the theoretical agenda and policy implications for Sub-Saharan Africa.

3.2. Source and data type

Secondary data was utilized for the study, collected from databases such as the World Bank (World Development Indicator and World Governance Indicator), African Development Bank for the African Infrastructure Development Index (AIDFI), and the Global Data Lab's Subnational HDI Database. To fulfill the study's objectives, panel data spanning from 2000 to 2022 for 18 selected countries in sub-Saharan Africa was employed.

3.3. Target Population, Sampling technique and Sample size

Target population for this study is countries in Sub Saharan Africa. The study used judgmental sampling technique to select representative sample form Target Population. Two main judgmental criteria were used to select 18 countries form target population. Based on data availability, 18 countries in Sub-Saharan Africa were selected for the study. Countries with incomplete data on the relevant variables were not included in the study. Further, the level of economic growth in the region was also considered to be the second sample selection criteria; mainly countries within the low and low-middle income categories were selected as samples. Accordingly, the countries considered in this research are the following:

- ✓ **Low-Income Countries:** Benin, Burkina Faso, Burundi, Central African Republic, Chad, Democratic Republic of the Congo (DRC), The Gambia, Guinea, Madagascar, Mali, Mauritania, Niger, Sierra Leone, Togo
- ✓ **Lower-Middle-Income Countries:** Côte d'Ivoire, Rwanda, Senegal, Tanzania

This classification is based on the World Bank's 2023 income classifications, where low-income economies are defined as those with a Gross National Income (GNI) per capita of $1,085 or less, and lower-middle-income economies are those with a GNI per capita between $1,086 and $4,255.

3.4. Description of Variables and Measurements

Tis study used GDP per capita growth as a proxy for measuring economic growth, making it the dependent variable. The study also included various other variables as explanatory factors, such as foreign direct investment, macroeconomic stability (proxied by inflation rate and exchange rate stability), trade openness (measured by trade in percent of GDP), and infrastructure development. Physical infrastructure was proxied using the African Infrastructure Development Index developed by the African Development Bank, while human infrastructure was proxied using the Human Development Index. The descriptions and measurements of the dependent and the explanatory variables that the model included in this paper are explained as follows:

- ➢ **GDP Per Capita:** It is a financial metric that assesses a country's economic performance per person by dividing its GDP by its population. Information for this measure was collected from the World Bank's development indicators. For this estimation, the growth of GDP per capita measured in current US dollars was employed as a representation of overall economic expansion.
- ➢ **Foreign Direct Investment:** It involves a resident enterprise from one economy making an investment in another economy with the aim of gaining a lasting interest in an enterprise there. The term "persistent interest" signifies an enduring relationship between the investing enterprise and the foreign enterprise, along with significant control over the management of the firm. When a direct investor owns 10% or more of the voting power in a foreign enterprise, it demonstrates this kind of relationship. To measure this, the inflow of FDI as a percentage of GDP was utilized, with data sourced from the UNCTAD database.

- **Macroeconomic stability factors:** The Inflation Rate and Exchange Rate were utilized as proxy indicators of macroeconomic stability. Inflation and currency exchange rates are given prominence over other indicators because they have a direct influence on investment attractiveness and economic stability. High inflation reduces returns, and unstable exchange rates raise investment risks, both of which are important for understanding the effect of FDI on economic growth in Sub-Saharan Africa. These indicators give unique perspectives into the economic environment, which is necessary for this research.
  - ✓ **Inflation:** It describes the prolonged and consistent increase in the general price level within a country. It is measured by the annual growth rate of the GDP implicit deflator, which indicates the speed of price fluctuations in the overall economy. The GDP implicit deflator is computed by dividing the GDP in the present local currency by the GDP in the constant local currency. The data was collected from the World Bank Development Indicators database.
  - ✓ **Exchange Rate:** The exchange rate is determined by national authorities or in a legally authorized exchange market. It is calculated as an annual average using monthly averages (local currency units in relation to the US dollar). The data was collected from the World Bank Development Indicators database.
- **Infrastructure development factors:** Infrastructure refers to the fundamental facilities and systems that support the sustainable functionality of households and firms. It includes essential services and structures required for the economy to operate efficiently. There are two type of Infrastructure: Physical and Human infrastructure. Physical infrastructure consists of tangible, built assets that are crucial for economic activities. These include transportation systems (roads, bridges, railways, airports), utilities (electricity, water supply, sewage systems), and communication networks (internet, telephone), whereas Human infrastructure refers to the intangible assets that enhance the capabilities and productivity of the workforce. It includes education, healthcare, and social services that improve the overall quality of life and human capital. Thus, for this study physical Infrastructure was proxied by African Infrastructure Development Index developed by African development Bank, and human infrastructure was proxied by Human Development Index.
  - ✓ **African Infrastructure Development Index (AIDI):** It measures the state of infrastructure across African countries, encompassing transport, energy, ICT, and water and sanitation infrastructure. It provides a comprehensive assessment of infrastructure development, highlighting areas for improvement and guiding policy

and investment decisions. It uses a scale typically ranging from 0 to 100. This range allows for a standardized measure where 0 represents the lowest level of infrastructure development and 100 represents the highest. The data was collected from Africa Infrastructure database by African development bank (AfDB).

- ✓ **Human Development Index (HDI):** The HDI calculates the impact of health and education on worker productivity. The final index score runs from zero to one and assesses the future worker productivity of a kid born today in comparison to the benchmark of full health and education. For the empirical examination in this work, this study used HDI data from the Global Data Lab's Subnational HDI Database.

- ➢ **Trade Openness (ToP):** Trade openness is defined as the total of exports and imports of commodities and services as a percentage of GDP, and most research utilize this variable to assess trade limitations (Asiedu, 2002). The high tariff rate, as per the standard hypothesis, is believed to raise business costs and discourage foreign direct investment (FDI), making it an attractive factor for foreign businesses (Gary Hufbauer & Darius Lakdawalla, 1994). Nevertheless, some arguments suggest that a low tariff rate may facilitate the attraction of horizontal FDI (Caves, 1996). The data was gathered from the World Bank Development Indicators database.
- ➢ **Institutional quality Factors;** Institutional quality refers to the effectiveness and efficiency of a country's institutions in shaping economic performance and development. Two critical aspects of institutional quality are **regulatory effectiveness** and **governance effectiveness**.
  - ✓ **Regulatory Effectiveness Index:** It measures the capacity of the government to create and enforce effective policies and a regulation that facilitates and promotes private sector growth is evaluated. The score of the country's overall indicator is displayed on a standard normal distribution scale, with a range from -2.5 to 2.5. Data from the World Bank's Worldwide Governance Indicators (WGI) was used to collect data on regulatory quality in different countries.
  - ✓ **Governance Effectiveness Index:** Perceptions of public service quality, the independence of the civil service from political constraints, the effectiveness of policy development and implementation, and the government's adherence to these policies are all measured. The score for the country's overall indicator is represented in standard normal distribution units, with a range from -2.5 to 2.5.

3.5. Model Speciation and Estimation Method

This study has employed two different data estimating techniques in order to achieve the study's two objectives. Details description and the rationale behind choosing them will analyze here under:

3.5.1. The System GMM Method

When dealing with a dynamic panel data model involving unobserved individual-specific differences, it is common practice to convert the model into first differences. Subsequently, sequential moment conditions are applied, using lagged variables as instruments for endogenous differences and estimating parameters through the generalized method of moments (GMM) (Arellano and Bond, 1991). Studies have extensively shown (for example, Blundell and Bond (1998)) that the GMM estimator in the first-differenced (DIF) model may exhibit poor properties in terms of bias and precision in finite samples when the series exhibit persistence, as the instruments then become weak predictors of the endogenous changes.

Blundell and Bond (1998) suggested the use of additional moment conditions based on the initial observation's stationarity. In Monte Carlo studies, Blundell and Bond (1998) and Blundell, Bond, and Windmeijer (2000) found that when these conditions are satisfied, the resulting SYS GMM estimator exhibits significantly better finite sample properties in terms of bias and root mean squared error compared to the DIF GMM estimator. Due to its superior performance in terms of finite sample bias and RMSE, the SYS GMM estimator has become the preferred choice in many applicable panel data scenarios.

Due to its aforementioned advantage when dealing with dynamic panel data, the system GMM model was used by this study to explore the effect of foreign direct investment on economic growth in Sub-Saharan African countries. In addition to above advantage, the study employee System GMM model due to its comparative advantage in dealing with the Endogeneity problem, which may rise due to the nature of the majority of the variables under investigation. As it can be clearly seen in the above section, the variables such as Foreign Direct Investment (FDI), economic growth, and macroeconomic stability, are likely to be simultaneously determined by various factors, leading to potential biases in parameter estimates if not appropriately addressed. By employing the GMM framework, this study effectively address this endogeneity problems by exploiting moment conditions and instrumental variables, thereby achieving consistent and efficient parameter estimates.

Furthermore, GMM offers several additional advantages that make it well-suited for our analysis. It accommodates unobserved heterogeneity and time-varying effects in panel data settings, enhances efficiency by incorporating information from moment conditions beyond the first moments, and provides robust inference even in the presence of heteroscedasticity and autocorrelation. Moreover, GMM allows for flexible model specification and can handle missing data more gracefully compared to other econometric techniques. Thus, embracing the GMM model not only enables us to address endogeneity concerns effectively but also enhances the rigor and validity of empirical analysis, contributing to the advancement of knowledge in the field of Foreign Direct Investment and Economic Growth in Africa.

In recent study, Nketiah-amponsah and Sarpong (2019) utilized the Generalized Method of Moments (GMM) model to investigate the correlation between foreign direct investment (FDI) and economic growth in 46 sub-Saharan African countries. Jugurnath et al. (2016) also applied GMM in their study of 32 Sub-Saharan African nations. Additionally, Makiela and Ouattara (2018) used the system GMM, and Joshua et al. (2021) employed pooled OLS, fixed effects, random effect, and system GMM to analyze SSA. These studies collectively indicate that foreign direct investment has a positive impact on economic growth. Given the existing literature and its benefits, the researcher chose to use the system GMM methods to assess the influence of foreign direct investment on economic growth.

The growth of GDP per capita is determined by foreign direct investment, inflation rate, official exchange rate, trade openness, human development index, Africa infrastructure development index, regulatory effectiveness index, and governance effectiveness index. In order to assess how foreign direct investment (FDI) impacts economic growth, the researcher has developed the following model:

Per Capita GDP= f {foreign direct investment, Inflation Rate, official Exchange Rate, Trade openness, Human development Index, Africa Infrastructure development Index, Regulatory Effectiveness index, and Governance effectiveness Index}

Using information from previous research, the equation shown can be represented in statistical form as stated below:

$$(\mathbf{Ln(GDPpc)}_{it} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 ln(FDI}_{it}) + \boldsymbol{\beta_2 INF}_{it} + \boldsymbol{\beta_3 OXCR}_{it} + \boldsymbol{\beta_4 LnToP}_{it} + \boldsymbol{\beta_5 HDI}_{it} + \boldsymbol{\beta_6}$$
$$\mathbf{infra\_ind}_{it} + \boldsymbol{\beta_7}\ \mathbf{gov\_eff\_ind}_{it} + \boldsymbol{\beta_8}\ \mathbf{reg\_eff\_ind} + \mathbf{e}_{it}$$

Where:

- $GDPpc_{it:}$ it indicates the rate of increase in real GDP per person in country i during time t.
- FDI_{it} : denotes Foreign Direct Investment inflows in country i during time t, capturing the effect of FDI on current GDP growth.
- INF_{it} : is the inflation rate in country i during time t, reflecting the impact of price stability on economic growth.
- $OXCR_{it}$: It represents Official Exchange Rate and measures the stability of the exchange rates in country i during time t, influencing investment decisions and trade competitiveness.
- ToP_{it} : it represents the degree of openness to international trade in country i during time t, influencing economic growth through increased market access and specialization.
- HDI_{it} : represents the level of human capital development in country i at time t, capturing the influence of education and Health on economic productivity and growth.
- **infra_ind**$_{it}$: It denotes the level of infrastructure in transport infrastructure, electricity, ICT, and water and sanitation in country i at time t, provides a quantifiable measure of infrastructure development across African countries.
- **gov_eff_ind**$_{it}$: It measures the level of governance effectiveness index in country i during time t.
- **reg_eff_ind**$_{it}$: It measures the level of regulatory effectiveness index in country i during time t.
- β_0 : is the intercept term, and $\beta_1,\beta_2,...,\beta_8$ are the coefficients to be estimated.
- $\mathbf{e_{it}}$: is the error term representing unobserved factors affecting GDP per capita growth in country i at time t.

The main objective of this research model is to evaluate how FDI and different macroeconomic and institutional factors impact the growth of GDP per capita in specific sub Saharan African nations, offering valuable perspectives into the factors driving economic progress in the area.

3.5.2. Structural Equation Modeling (SEM)

SEM mediation analysis was used to investigate how macroeconomic stability, infrastructure development, and trade openness moderate the connection between foreign direct investment (FDI) and economic growth in Sub-Saharan Africa. SEM enables the simultaneous estimate of many connections and offers information about the direct and indirect effects of variables within a complicated causal framework. By using mediation/moderation analysis inside SEM, we can systematically analyze the mediating function of the aforementioned macroeconomic factors in the link between FDI and economic growth, resulting in a better understanding of the underlying mechanisms driving African economic growth. Furthermore, the researcher identified the direct effect of FDI on economic growth, as well as the moderating influence of those factors in boosting the efficacy of FDI's positive spillover effect on the economic growth of the selected sub-Saharan African nations. The researcher also tested for moderation by determining the significance and size of the indirect effects using bootstrapping or other resampling approaches.

The detailed formulation of the Structural Equation Model (SEM) to achieve the objective of examining the moderating role of Macroeconomic Stability, which was proxied by Inflation Rate and Exchange Rate Stability, Trade Openness measured by trade in percent of GDP, Infrastructure development, where physical Infrastructure was proxied by African Infrastructure Development Index developed by African development Bank, and human infrastructure was proxied by Human Development Index, in the relationship between FDI and economic growth:

Structural Equations

To operationalize the conceptual framework using SEM, we define a series of structural equations that represent both direct and moderated relationships.

1. **Direct Effect of FDI on Economic Growth:**

$$\text{GDPpc} = \beta_0 + \beta_1 \cdot \text{FDI} + \epsilon$$

2. **Moderating Effect of Macroeconomic Stability:**

$$\mathbf{LnGDPpc} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1} \cdot \mathbf{FDI} + \boldsymbol{\beta_2} \cdot \mathbf{INF_{it}} + \boldsymbol{\beta_3} \cdot \mathbf{OXCR_{it}} + \boldsymbol{\beta_4} \cdot (\mathbf{FDI} \times \mathbf{INF_{it}}) + \boldsymbol{\beta_5} \cdot (\mathbf{FDI} \times \mathbf{OXCR_{it}}) + \boldsymbol{\epsilon}$$

3. **Moderating Effect of Infrastructure Development:**

$$\mathbf{LnGDPpc} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1} \cdot \mathbf{FDI} + \boldsymbol{\beta_2} \cdot \mathbf{Infra\_index} + \boldsymbol{\beta_3} \cdot \mathbf{HDI} + \boldsymbol{\beta_4} * (\mathbf{FDI} \times \mathbf{Infra\_index}) + \boldsymbol{\beta_5} \cdot (\mathbf{FDI} \times \mathbf{HDI}) + \boldsymbol{\epsilon}$$

4. Moderating Effect of Trade Openness:

$$\mathbf{GDPpc} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1} \cdot \mathbf{FDI} + \boldsymbol{\beta_2} \cdot \mathbf{ToP} + \boldsymbol{\beta_3} \cdot (\mathbf{FDI} \times \mathbf{ToP}) + \boldsymbol{\epsilon}$$

In the context of Structural Equation Modeling (SEM) to examine the moderating effects, the interaction terms are the coefficients that represent the interaction between FDI and the various moderating variables. These interaction terms help us to understand how the relationship between FDI and economic growth changes under different levels of the moderating variables.

Based on the structural equations provided:

- **Macroeconomic Stability**:
  - ✓ **Interaction Term for moderating effect of inflation: $\boldsymbol{\beta_4} \cdot (\mathbf{FDI} \times \mathbf{INF_{it}})$**
  - ✓ **Interaction Term for moderating effect of exchange rate : $\boldsymbol{\beta_5} \cdot (\mathbf{FDI} \times \mathbf{OXCR_{it}})$**
  - ✓ **Coefficients to examine moderating effect: β4 and β5**

- **Infrastructure Development**:
  - ✓ Interaction Term for moderating effect of infrastructure development index: $\beta_4 * (\text{FDI} \times \text{Infra\_Index})$
  - ✓ Interaction Term for moderating effect of Human development Index: $\beta_5 \cdot (\text{FDI} \times \text{HDI})$
  - ✓ Coefficients to examine moderating effect: β4 and β5

- **Trade Openness**:
  - ✓ Interaction Term for moderating effect of term of trade: $\boldsymbol{\beta_3} \cdot (\mathbf{FDI} \times \mathbf{ToP})$
  - ✓ Coefficient to examine moderating effect: β3

In summary, the interaction terms (β3, β4, & β5, etc.) play a crucial role in analyzing how the connection between foreign direct investment (FDI) and economic growth is influenced by macroeconomic stability, infrastructure development, trade openness, and institutional quality. Specifically, each interaction term coefficient evaluates the alteration in the impact of FDI on economic growth as a result of the presence of a moderating variable.

3.6. Diagnostic Tests

A. The Sargan test : tests check the Validity of the Model

For GMM estimations to be valid, it is crucial that the instruments are exogenous rather than endogenously determined. The Sargan test is utilized to confirm the validity of the econometric model and the accuracy of the instrument descriptions. Therefore, in this specific investigation, the Sargan test will be employed to assess the validity of the GMM model.

B. Panel unit root test

Assessing whether trending data should be first differenced or regressed on deterministic time functions to achieve stability can be done using unit root tests. The fundamental advantage of utilizing panel unit root tests is that they have much higher power than normal time-series unit root tests in finite samples for testing alternative hypotheses with relatively persistent departures from equilibrium. Stata uses xtunitroot to perform a number of unit root or stationarity tests on panel datasets. As a result, the researcher will do xtunitroot for this study.

C. Heteroskedasticity test for panel data

It is typical for panel data models (PDMs) to have heteroscedastic error terms. In the existing research, heteroscedastic consistent covariance matrix estimators (HCCMEs) have been utilized to adequately assess the PDM coefficients. The researcher will use the relevant testing instrument to verify the heteroskedasticity of the error term.

D. Serial correlation test for panel data

Since serial correlation biases standard errors and makes outcomes less efficient in linear panel-data models, researchers need to check for serial correlation in the idiosyncratic error component. Thus, the researcher will use the Wooldridge Test to conduct a serial correlation test on panel data. The Stata command xtserial, which runs the Wooldridge test for serial correlation in panel data, will be utilized.

CHAPTER FOUR
DATA PRESENTATION AND ANALYSIS

4.1. Introduction

This section presents and analyzes data collected from various secondary sources in accordance with the specific objectives outlined by the researcher. The chapter is divided into two parts: the first part focuses on descriptive analysis, encompassing descriptive statistics of the variables considered, as well as the trends of FDI inflow into selected Sub-Saharan African countries and its relationship with economic growth. The second part involves conducting econometric analysis through regression analysis to explore the impact of Foreign Direct Investment on Economic Growth in the selected Sub-Saharan African countries spanning from 2000 to 2022. In addition, this econometrics study investigates how macroeconomic variables listed on moderating the link between Foreign Direct Investment and Economic Growth. The World Bank database (including World Development Indicator and World Governance Indicator), African Development Bank database for African Infrastructure Development Index (AIDFI), and Subnational HDI Database of the Global Data Lab (GDL) provided the data.

4.2. Descriptive Analysis

4.2.1. Descriptive Statistics

In this section, before the detailed econometric analysis that follows, we discuss summary data regarding the behavior of individual country units' variables and categories. The variables under consideration are the natural logarithm of GDP per capita (lngdppc), the natural logarithm of Foreign Direct Investment (lnfdi), the inflation rate (infr), the exchange rate (oxcr), trade openness (top), the Human Development Index (hdi), the infrastructure index (infra_ind), the government effectiveness index (gov_eff_ind), and the regulatory effectiveness index (reg_eff_ind). Each variable is examined using a sample size of 414 observations. The descriptive analysis entails a statistical summary of the data employed for regression analysis. Table 4.2 shows the mean, standard deviation, lowest and maximum values, and number of observations for each variable under consideration.

Table 4.1: Descriptive Statistics of the Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
lngdppc	414	6.39	0.62	4.74	7.87
lnfdi	414	18.70	1.99	7.60	21.92
infr	414	13.02	129.36	-11.88	2630.12
oxcr	414	1003.97	1520.14	1.99	9679.21
top	414	55.92	18.55	20.96	126.35
hdi	414	0.43	0.07	0.26	0.55
infra_ind	414	11.45	6.32	1.40	31.30
gov_eff_ind	414	-0.93	0.44	-1.88	0.27
reg_eff_ind	414	-0.74	0.39	-1.84	0.19

Source: Own Computation rom secondary data

The value of the descriptive statistics of the variables under investigation was summarized as follows:

The log of GDP per capita (lngdppc) has a mean value of 6.39, with a standard deviation of 0.62, ranging from 4.74 to 7.87. This relatively narrow range indicates modest variations in income levels across the countries in the sample, suggesting a degree of economic similarity in terms of per capita income within the region. The log of Foreign Direct Investment (lnfdi) shows a mean of 18.70, with a standard deviation of 1.99, and values ranging from 7.60 to 21.92. The considerable variation in FDI suggests diverse levels of foreign investment across the countries, highlighting the differences in attractiveness or capacity to attract foreign investment, which could be due to varying policy environments, infrastructure, and economic stability.

The inflation rate (infr) has a mean of 13.02, with a substantial standard deviation of 129.36, and values ranging from -11.88 to 2630.12. This high standard deviation and wide range indicate extreme volatility in inflation rates, with some countries experiencing hyperinflation. Such volatility can significantly affect economic stability and investor confidence, impacting long-term economic growth and development. The official exchange rate (oxcr) has a mean of 1003.97, with a standard deviation of 1520.14, and values ranging from 1.99 to 9679.21. The wide variation in exchange rates reflects significant differences in currency valuations and stability across the countries, which can influence trade dynamics, inflation, and the overall economic environment.

Trade openness (top) has a mean of 55.92 and a standard deviation of 18.55, with values ranging from 20.96 to 126.35. This variation indicates differing levels of openness to trade, which can have substantial impacts on economic dynamics, including exposure to global markets and integration into the global economy.

The Human Development Index (hdi) shows a mean value of 0.43, with a standard deviation of 0.07, and ranges from 0.26 to 0.55. These relatively low HDI values indicate that the sampled countries generally have lower levels of human development, reflecting challenges in health, education, and living standards. The Infrastructure Development Index (infra_ind) has a mean of 11.45 and a standard deviation of 6.32, with values ranging from 1.40 to 31.30. This significant variation in infrastructure development can impact both FDI inflows and economic growth, as well-developed infrastructure is crucial for efficient economic activities and attractiveness to foreign investors.

The Government Effectiveness Index (gov_eff_ind) has a mean of -0.93, with a standard deviation of 0.44, ranging from -1.88 to 0.27. The negative mean suggests generally low government effectiveness in the sample, which could adversely affect economic performance and FDI attractiveness due to potential inefficiencies in public administration and service delivery. The Regulatory Effectiveness Index (reg_eff_ind) has a mean of -0.74, with a standard deviation of 0.39, and it ranges from -1.84 to 0.19. Similar to government effectiveness, regulatory effectiveness is generally low, potentially influencing economic stability and growth by affecting the regulatory environment, which is crucial for business operations and investment decisions.

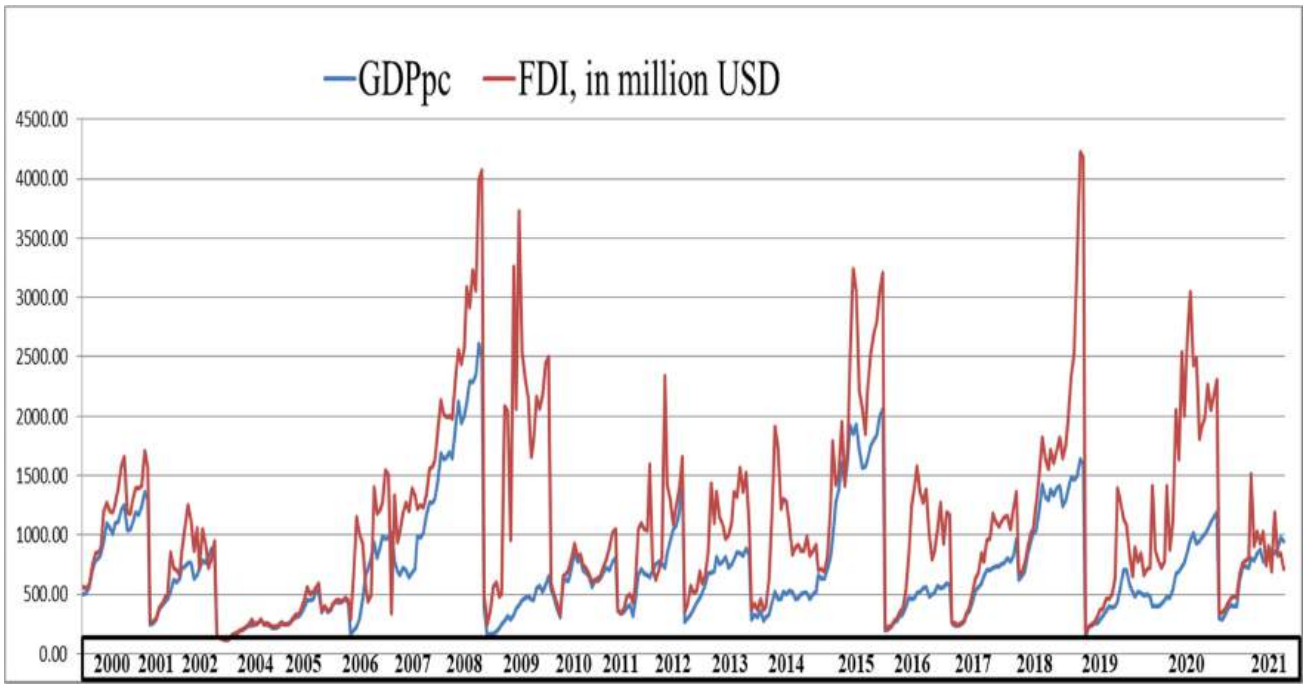
In general, the descriptive statistics provide essential insights into the variables of interest. The moderate variation in GDP per capita, significant variation in FDI levels and high volatility in inflation and exchange rates highlight the diverse economic conditions within Sub-Saharan Africa. Additionally, low levels of human development, government effectiveness, and regulatory effectiveness underscore the challenges in achieving macroeconomic stability in the region. These findings lay the groundwork for further empirical analysis on the impact of FDI on economic growth and the mediating role of macroeconomic stability.

When we look at the variables under investigation, such as macroeconomic stability, infrastructure development, trade openness, and other institutional quality proxies' have shown significant variation across the countries, as indicated by various past studies that have shown that those variables are significant factors affecting both the inflow and effectiveness of FDI in Africa. We can conclude that their variation across countries is the main factor contributing to the significant variation in the effects of FDI on economic growth across different sub-Saharan African countries.

4.2.2. Trends in FDI and Economic Growth

Before conducting deep econometrics analysis, in order to show general trends in foreign direct investment inflows and per capita GDP as well as to show how the trends correlated, the researcher depicted the FDI inflow into the region and per capita GDP across the countries, and the result is depicted in the following figure 4.2

Figure 4.2: Trends in FDI inflow and Per capita GDP



Source; generated from Secondary Data

The line graph was designed to examine the correlation between foreign direct investment (FDI) inflows and GDP per capita (GDPpc) in selected sub-Saharan African nations. The graph and its research provide vital insights into the complicated dynamic that exists between these two economic indices.

Firstly, the general trends show that both FDI inflows and GDP per capita exhibit fluctuations over the observed period, but FDI inflows demonstrate more volatile patterns with larger peaks and troughs compared to the more gradual increase in GDP per capita. This suggests that the correlation between the two is not straightforward, as periods of higher FDI inflows do not always result in immediate or proportional increases in GDP per capita, and vice versa.

Further analysis highlights the volatility of FDI inflows, which experience sharp increases followed by steep declines. This volatility could be attributed to various factors, such as political instability, changes in investment policies, global economic conditions, or the start and conclusion of major investment projects. Despite this volatility, GDP per capita shows a more gradual and sustained upward trend, indicating that while FDI is important for economic growth, its immediate impact might be buffered or amplified by other underlying macroeconomic activities and investments.

In general, even though there is a positive correlation between FDI inflows and GDP per capita in sub-Saharan African countries, the relationship is complex and influenced by multiple factors. Therefore, Policymakers should consider ways to stabilize and sustain FDI inflows to support continuous economic growth. Enhancing factors like macroeconomic stability, infrastructure development, and trade openness could help mitigate the volatility of FDI inflows and amplify their positive impact on GDP per capita.

4.3. Pre-estimation Tests

4.3.1. Panel unit root test

a) General

The series was analyzed in this section to determine whether they are integrated. Using non-stationary variables in econometric modeling can lead to unreliable regression results (Asteriou, Dimitros, and Hall, 2007). To check the stationarity of variables (Levin et al., 2002), a unit-root test was performed. This test is suitable for robustly balanced data, individual deterministic trends, and diverse serially correlated errors. It is a more effective panel unit root test compared to conducting tests for overall panels, rather than performing individual unit root tests for each cross-section. Individual panel unit root tests are believed to have limited ability to detect highly persistent deviations from equilibrium under alternative hypotheses. The panels are posited to

have unit roots under the null hypothesis, while the alternative hypothesis suggests that the panels are stationary (Baltagi, 2001).

The Levin, Lin, and Chu (LLC) test is a widely used panel unit root test that assumes a common unit root process across cross-sections. It is suitable for panels with a relatively small number of cross-sections and a large number of time periods. Another commonly used test is the Im, Pesaran, and Shin (IPS) test, which allows for individual unit root processes across cross-sections and is suitable for panels with a larger number of cross-sections and time periods. The ADF-Fisher Chi-square test and the PP-Fisher Chi-square test present alternative approaches to panel unit root testing. These tests combine the p-values from individual Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests, respectively, and can handle unbalanced panels. The IPS test is less powerful than the ADF-Fisher Chi-square test, whereas the PP-Fisher Chi-square test is better equipped to handle serial correlation and heteroskedasticity. Moreover, the Hadri LM test, with its null hypothesis of stationarity across all panels, provides a valuable alternative to the aforementioned tests, particularly for panels with a substantial number of cross-sections and time periods.

b) Panel unit root test Methodology and result

When selecting the appropriate panel unit root test, there are many that should be considered about the characteristics of their panel data, such as the number of cross-sections and time periods, as well as the inclusion of individual fixed effects and/or time trends in the test equations. Additionally, the determination of the appropriate lag length or bandwidth for the tests is crucial for ensuring the reliability of the results. Thus, after careful consideration of the various panel unit root tests available, the researcher has decided to employ the Im, Pesaran, and Shin (IPS) Unit Root Test Approach. This decision is based on the key advantages the IPS test offers in addressing the specific characteristics of the data under investigation.

Im, Pesaran and Shin (2003) -IPS thereafter-, using the likelihood framework, propose a new panel unit root testing method called the t-bar statistic. This procedure, based on the likelihood framework, is more flexible and computationally simple, allowing for the testing of simultaneous stationary and non-stationary series (i.e., allowing for differences in pi across individuals).

The test also accounts for residual serial correlation and heterogeneity in dynamics and error variances across groups. IPS conducts separate unit root tests for the N cross-section units and defines the t-bar statistic as the simple average of the individual ADF statistics, t_iT, for the null hypothesis.

$$\bar{t} = \frac{1}{N}\sum_{i=1}^{N} t_{iT}.$$

IPS presupposes that t_iT are i.i.d., with limited mean and variance. According to the Lindeberg-Levy central limit theorem, the standardized t-bar statistic will converge to a standard normal variate as N approaches infinity under the null hypothesis. To standardize the t-bar statistic, IPS (2003) calculated the mean and variance using Monte Carlo techniques for various T and p_i's values and presented the results.

The primary reason for selecting the IPS test is its ability to account for heterogeneity across the cross-sections (panel countries) in this dataset. Unlike the Levin-Lin-Chu (LLC) test, which assumes a common unit root process, the IPS test allows for individual unit root processes for each country in the panel. This is crucial, as the data has been identified to have varying stationarity properties among the panel countries, and the IPS test can effectively capture this heterogeneity. By allowing for individual unit root processes, the IPS test provides more reliable and informative results about the presence of unit roots in your variables. This is particularly important, as the use of a test that assumes a common unit root process, such as the LLC test, could lead to biased conclusions and reduced statistical power if the true stationarity properties are indeed heterogeneous across the panel. Furthermore, the IPS test is well-suited for balanced panel data structure, as it is designed to handle this type of dataset efficiently. This ensures that the unit root analysis is conducted in a manner that is appropriate for the characteristics of your data, providing a solid foundation for the subsequent steps in your panel data analysis.

In summary, the selection of the IPS unit root test is a crucial decision that aligns with the specific features of the balanced panel data, particularly the presence of heterogeneity among the panel countries. By employing this test, the researcher can be confident that the assessment of the stationarity properties of the variables will yield robust and reliable results, enabling to make well-informed conclusions and proceed with the next stages of the research with a strong methodological foundation.

Accordingly, the summary of the Im, Pesaran, and Shin (IPS) Unit Root Test Approach for each of the Variables under consideration is provided in the following table 4.3 below.

Table 4.2: Unit Root Test Result

s.no	Variable	T-Bar	T-Tilde-Bar	Z-T-Tilde-Bar	P-Value
1	Log of Per Capita GDP	-4.414	-2.9994	-8.7351	0.0000*
2	Log of FDI Inflow	-2.2831	-1.978	-3.0954	0.00100
3	Inflation Rate	-15.2807	-3.1553	-9.5321	0.00000
4	Official Exchange Rate	-3.2529	-2.6136	-6.62	0.0000*
5	Trade Openness	-4.5952	-3.1391	-9.501	0.0000*
6	Human Development Index	-2.5551	-1.9311	-2.8389	0.00230
7	Governance Effectiveness Index	-5.0023	-3.2944	-10.3524	0.0000*
8	Regulatory Effectiveness Index	-4.4955	-3.1084	-9.3326	0.0000*

Note: P values in parentheses *, significant and stationary at first differences

The IPS test is a common panel unit root test that tests the null hypothesis of a unit root (non-stationarity) against the alternative of at least one cross-section being stationary. Based on the analysis of the Stata output, we can make the following observations:

- **Log of Per Capita GDP:** The test statistic t-bar is -4.414, and the corresponding Z-t-tilde-bar statistic is -8.7351 with a p-value of 0.0000, which is less than the commonly used significance levels (e.g., 1%, 5%, and 10%). This suggests that the null hypothesis of a unit root can be rejected, and the log of per capita GDP is stationary at first difference.
- **Log of FDI Inflow:** The test statistic t-bar is -2.2831, and the Z-t-tilde-bar statistic is -3.0954 with a p-value of 0.0010, which is less than the 1% significance level. This indicates that the null hypothesis of a unit root can be rejected, and the log of FDI inflow is stationary.
- **Inflation Rate:** The test statistic t-bar is -15.2807, and the Z-t-tilde-bar statistic is -9.5321 with a p-value of 0.0000, which is less than the 1% significance level. This suggests that the null hypothesis of a unit root can be rejected, and the inflation rate is stationary.

- **Official Exchange Rate:** The test statistic t-bar is -3.2529, and the Z-t-tilde-bar statistic is -6.62 with a p-value of 0.0000, which is less than the 1% significance level. This indicates that the null hypothesis of a unit root can be rejected, and the official exchange rate is stationary at first difference.
- **Trade Openness:** The test statistic t-bar is -4.5952, and the Z-t-tilde-bar statistic is -9.501 with a p-value of 0.0000, which is less than the 1% significance level. This suggests that the null hypothesis of a unit root can be rejected, and trade openness is stationary at first difference.
- **Human Development Index:** The test statistic t-bar is -2.5551, and the Z-t-tilde-bar statistic is -2.8389 with a p-value of 0.0023, which is less than the 1% significance level. This indicates that the null hypothesis of a unit root can be rejected, and the human development index is stationary.
- **Governance Effectiveness Index:** The test statistic t-bar is -5.0023, and the Z-t-tilde-bar statistic is -10.3524 with a p-value of 0.0000, which is less than the 1% significance level. This suggests that the null hypothesis of a unit root can be rejected, and the governance effectiveness index is stationary at first difference.
- **Regulatory Effectiveness Index:** The test statistic t-bar is -4.4955, and the Z-t-tilde-bar statistic is -9.3326 with a p-value of 0.0000, which is less than the 1% significance level. This indicates that the null hypothesis of a unit root can be rejected, and the regulatory effectiveness index is stationary at first difference.

In conclusion, the findings of the IPS unit root test indicate that although the remaining variables are stationary at their initial difference, variables like the Human Development Index, Inflation Rate, and Log of FDI Inflow appear to be stationary at level.

When there is a combination of I(0) and I(1) variables, cointegration analysis may be used to look into the long-term connections between the variables. This means that the dynamics of the short run as well as the long run equilibrium linkages between the variables may be captured by the researcher using a panel vector error correction model (PVECM). As a result, the PVECM-GMM technique works well for this kind of research since it can take into consideration the variables' possible endogeneity as well as their various integration orders.

4.3.2. Cointegration test

Given the mixed nature of the stationarity properties observed in the IPS unit root test results, the appropriate next steps in the analysis would be to conduct cointegration analysis. First, the cointegration analysis was carried out to investigate the long-run equilibrium relationships between the variables. Since the variables exhibit a mix of I(0) and I(1) stationarity, a suitable cointegration test for panel data was implemented. There are many panel cointegration test methods, and some of them will be discussed here to provide an overview of the commonly used approaches.

Pedroni Cointegration Test: One popular panel cointegration test is the Pedroni Cointegration Test, created by Peter Pedroni in 1999 and 2004. Diverse intercepts and slope coefficients over the cross-sectional units are permitted in this test. Seven test statistics are available, comprising three group statistics (between-dimension) and four panel statistics (within-dimension). The test compares the option of cointegration to the null hypothesis of no cointegration.

Kao Cointegration Test: Chihwa Kao (1999) created the Kao Cointegration Test, which is based on the Engle-Granger two-step method for panel data. Although it permits diverse intercepts, this test presupposes uniform slopes across the cross-sectional units. It offers a Dickey-Fuller type test based on residuals to test the null hypothesis that there is no cointegration.

Westerlund Error Correction-Based Cointegration Test: The error correction representation of the cointegrated panel model serves as the foundation for the Westerlund Error Correction-Based Cointegration Test, which was introduced by Joakim Westerlund in 2007. Variations in the slope coefficients and error correction terms across the cross-sectional units are permitted in this test. Four test statistics are offered by it: two distinct group statistics (between-dimension) and two panel statistics (within-dimension). The cointegration alternative is tested against the null hypothesis, which states a lack of cointegration.

Maddala and Wu (1999) Fisher-Type Test: The p-values from each cross-sectional unit's separate Johansen cointegration test are combined in the Maddala and Wu (1999) Fisher-Type Test. Under the null assumption of no cointegration, which it has a chi-square distribution and can handle mixed order integration (I(0) and I(1) variables).

Larsson, Lyhagen, and Löthgren (2001) Likelihood Ratio-Based Test: A panel variation of the Johansen likelihood ratio (LR) cointegration test is the Larsson, Lyhagen, and Löthgren (2001) Likelihood Ratio-Based Test. The test compares the other possibility of at least one cointegrating vector to the null assumption of a common cointegrating rank, assuming a homogenous cointegrating rank throughout the cross-sectional units.

After careful consideration of the pros and cons of each methods as well as the feature of the data under investigation, it was decided that the The Westerlund Error Correction-Based Cointegration Test is the most appropriate method to implement for this study. This decision is rooted in the test's suitability for handling mixed stationarity and cross-sectional dependence, ensuring robust estimates of long-run relationships among the variables. By utilizing the Westerlund test, the study aims to achieve its objective of examining these relationships while enhancing the reliability and validity of its findings. The test's capacity to account for panel-specific effects, integrate historical trends, and capture the subtleties of cross-sectional dependency is in line with the goals of the research, eventually advancing our knowledge of the economic dynamics both within and across nations.

According to Xie et al. (2021), Ogbuu et al. (2020), and Mubarik et al. (2021), recent research has also shown the Westerlund test's usefulness in examining long-term correlations between economic variables in panel data settings. By leveraging this test, the study aims to provide robust insights into the interplay between FDI and Economic Growth in Sub-Saharan Africa while considering the mediating effects of macroeconomic stability, public policy effectiveness, and infrastructure development. This approach not only ensures the reliability and validity of the findings but also contributes to advancing the understanding of the economic dynamics in the region, thereby informing policy formulation and decision-making processes. Accordingly, Co-integration test result is provided in the following table 4.4 below

Table 4.3: Co-integration test result

Westerlund test for cointegration		
H0: No cointegration	Number of panels	18
Ha: Some panels are cointegrated	Number of periods	23
Cointegrating vector: Panel specific		
Panel means: Included		
Time trend: Included		
AR parameter: Panel specific		
**********		
	Statistic	**p-value**
Variance ratio	**9.4775**	**0.0000**

Source: Own Computation from Secondary data, STATA 17 software applied

The Westerlund test for cointegration yields a significant result (p-value = 0.0000), indicating the presence of cointegration among the variables across 18 countries over 23 periods. A statistically significant result, indicated by a low p-value, suggests strong evidence against the null hypothesis, indicating the presence of cointegration. The result implies that changes in FDI are systematically associated with changes in Economic Growth, highlighting the potential role of factors such as macroeconomic stability, public policy effectiveness, and infrastructure development in shaping this relationship. Therefore, the significant result of the Westerlund test supports the study's objective of exploring the dynamic interactions between FDI and Economic Growth while considering the mediating effects of key economic factors in Sub-Saharan Africa.

4.4. Regression Analysis Results

To thoroughly analyze the data and obtain robust findings that align with the study's objectives, the researcher has conducted a comparative analysis of various econometric techniques. First, a pooled regression analysis was conducted, which provides a simple and straightforward approach but may fail to account for unobserved heterogeneity among the panel units. Next, within-estimator or fixed-effects model was estimated, which can control for time-invariant country-specific characteristics and provide more reliable estimates. Finally, PVAR-GMM (Panel Vector Autoregressive with Generalized Method of Moments) model was employed, which is well-suited for dynamic panel data analysis and can address potential endogeneity issues. By comparing the results, advantages, and limitations of each technique, the most appropriate method that aligns with the data characteristics and the study's objectives was selected, ensuring

the findings are robust and informative. The estimation and comparison each methods was conducted in the following sections.

4.4.1. The Pooled OLS Estimator

The Pooled OLS regression model explains approximately 59.01% of the variability in GDP per capita, as indicated by the R-squared value, with a significant overall fit (F-statistic p-value < 0.0001). Moreover, for the selected 18 Sub-Saharan countries, the pooled regression results for a panel data set indicate that a number of factors, including trade openness, inflation, the Human Development Index (HDI), and inflows of foreign direct investment, have a significant impact on economic growth. **(See table 4.5 below)**

Among the significant predictors, foreign direct investment inflow has a positive and highly significant impact on GDP per capita, suggesting that increased foreign investment inflow is associated with higher economic growth. Similarly, the Human Development Index (hdi) shows a strong positive effect, indicating that improvements in human development significantly contribute to economic performance. The infrastructure index also positively influences GDP per capita, underscoring the importance of infrastructure quality in driving economic growth. Conversely, inflation and trade openness exhibit negative and significant effects on GDP per capita. The negative coefficient for inflation indicates that higher inflation rates are associated with lower economic growth, which is consistent with the economic theory that inflation can erode purchasing power and create uncertainty, hindering investment and economic stability. The negative impact of trade openness suggests that the benefits of openness might not be realized immediately, possibly due to increased competition or structural adjustments in the economy. **(See table 4.5 below)**

The other remaining Variables such as Official exchange rate, governance effectiveness Index, and regulatory effectiveness Index are not significantly affecting economic growth for the selected 24 Sub Saharan Countries for the period under consideration (2000-2022). **(See table 4.5 below)**

Table 4.4: Pooled OLS result

Source	SS	df	MS	Number of obs = 396		
				F(8 387) = 69.65		
Model	87.537752	8	10.94	Prob > F = 0.00000		
Residual	60.79556	387	0.157	R-squared =0.590		
				Adj R-squared =0.5817		
Total	148.33331	395	0.376	Root MSE =0.39635		
**********						
lngdppc	Coefficient	Std. err.	t	P>t	[95% conf.	interval]
lnfdi	0.0995667	0.011295	8.82	0.0000	0.077359	0.121774
infr	-0.0102338	0.002031	-5.04	0.0000	-0.01423	-0.00624
doxcr	-0.0001978	0.000126	-1.56	0.1180	-0.00045	5.07E-05
dtop	-0.0056378	0.002378	-2.37	0.0180	-0.01031	-0.00096
hdi	4.664784	0.367989	12.68	0.0000	3.941276	5.388292
dinfra_ind	0.1238011	0.048397	2.56	0.0110	0.028647	0.218955
dgov_eff_ind	-0.1968124	0.175688	-1.12	0.2630	-0.54223	0.14861
dreg_eff_ind	-0.1857013	0.213027	-0.87	0.3840	-0.60454	0.233134
_cons	2.547083	0.202518	12.58	0.0000	2.14891	2.945256

Source: Computed from STATA17 from Secondary data

Given the characterstics of the data for this study, which is balanced panel data for 18 countries over 22 years, with mixed stationarity and the existence of cointegration, estimating the model using a pooled OLS regression analysis would have several disadvantages. Firstly, the pooled OLS approach assumes homogeneity across the panel units, which may not be valid if there are significant differences in the characteristics of the countries. This could lead to biased and inconsistent estimates, as the unobserved heterogeneity is not accounted for. Secondly, the presence of cointegration implies that the variables share a long-run equilibrium relationship, and using a pooled OLS model may result in spurious regression, as it does not explicitly address the cointegration dynamics. Additionally, the mixed stationarity of the variables could violate the underlying assumptions of the pooled OLS model, leading to potentially misleading inferences. To overcome these limitations and obtain reliable results, it would be more appropriate to consider panel data techniques that can explicitly account for the dynamic nature of the data, such as the fixed-effects model or the PVEC-GMM approach, which can better handle the complexities of the dataset.

4.4.2. Fixed Effect Estimation

The Hausman test results indicate that the fixed effects model is more appropriate for analyzing the determinants of GDP per capita in the dataset, as evidenced by a chi-squared value of 18.59 and a p-value of 0.0172, which is below the 0.05 threshold for significance. This suggests that the differences in coefficients between the fixed and random effects models are systematic, highlighting the importance of accounting for unobserved heterogeneity across the countries in the sample. Consequently, the fixed effects model, which allows for individual-specific intercepts, is preferred, implying that unique country-specific factors significantly impact GDP per capita.

The fixed effects regression model, analyzing GDP per capita across 18 countries over 22 years (396 observations), demonstrates a significant overall fit with an F-statistic of 166.82 (p-value = 0.0000) and an R-squared (within) of 0.7829. Significant positive impacts on GDP per capita are found for foreign direct investment (coefficient = 0.0229, p-value = 0.006), human development index (coefficient = 7.4419, p-value = 0.000), and infrastructure index (coefficient = 0.0496, p-value = 0.027). Conversely, the official exchange rate (coefficient = -0.0001812, p-value = 0.002) and trade openness (coefficient = -0.0031, p-value = 0.002) have significant negative effects. The other remaining variables, such as inflation, governance effectiveness, and regulatory effectiveness, don't have a significant effect on per capita GDP. The country-specific effects are substantial (sigma_u = 0.4255), with 87.34% of the variance attributable to these effects (rho = 0.8734). The result of the Results of Fixed Effect estimation was provided in the following table 4.6 below.

Table 4.5: Results of Fixed Effect estimation

Fixed-effects (within) regression		Number of obs		396	
Group variable: country code		Number of groups		18	
R-squared:		Obs per group:			
Within	0.7829	min		22	
Between	0.38	avg		22	
Overall	0.4934	max		22	
					F(8,370) =166.82
corr(u_i, Xb) =-0.1839					Prob> F =0
**********					
lngdppc	Coefficient	Std. err.	t	P>t	[95% conf.interval]
lnfdi	0.022922	0.0082465	2.78	0.006	0.006706 0.039138
infr	0.000299	0.0009203	0.32	0.746	-0.00151 0.002108
doxcr	-0.00018	0.0000589	-3.08	0.002	-0.0003 -6.5E-05
dtop	-0.00309	0.0009861	-3.13	0.002	-0.00503 -0.00115
hdi	7.441916	0.2912083	25.56	0	6.869285 8.014547
dinfra_ind	0.04961	0.0222843	2.23	0.027	0.005791 0.09343
dgov_eff_ind	-0.00268	0.0729065	-0.04	0.971	-0.14604 0.140686
dreg_eff_ind	0.074526	0.0892772	0.83	0.404	-0.10103 0.250081
_cons	2.741499	0.1278801	21.44	0	2.490036 2.992962
sigma_u	0.42551869				
sigma_e	0.16203016				
rho	0.8733659 (fraction of variance due to u_i)				

Source: Computed from STATA17 from Secondary data

While the fixed-effects model can account for time-invariant heterogeneity, it may not be able to fully address the issues related to the mixed stationarity of the variables. The presence of non-stationary variables and potential cointegration relationships could still lead to the risk of spurious regression if not appropriately handled. Additionally, the fixed-effects estimator may suffer from efficiency loss, especially if the within-country variation is small compared to the between-country variation. Another potential drawback is the issue of endogeneity, which the fixed-effects model may not fully address. While it can control for time-invariant unobserved heterogeneity, the fixed-effects estimator may still be biased if there are time-varying unobserved factors that are correlated with the explanatory variables. This could lead to biased and inconsistent parameter estimates.

4.4.3. The System GMM Estimator

The PVEC-GMM (Panel Vector Error Correction with Generalized Method of Moments) model is an advanced panel data technique that combines the principles of cointegration analysis and vector error correction models (VECM) with the Generalized Method of Moments (GMM) framework. The key features of the PVEC-GMM model include the recognition of potential cointegration relationships among the variables, the incorporation of an error correction mechanism to capture short-run dynamics and adjustments towards long-run equilibrium, the ability to address endogeneity issues through the use of internal instruments, the accommodation of unobserved heterogeneity across the cross-sectional units, and the flexibility to analyze dynamic interactions and feedbacks among the variables over time.

Compared to simpler panel data techniques like fixed-effects or pooled OLS, the PVEC-GMM model is better equipped to provide reliable and robust estimates in the presence of complex data properties, such as mixed stationarity and cointegration, making it a suitable choice for the analysis of the given balanced panel dataset. The PVEC-GMM model's ability to handle cointegration and long-run relationships, address endogeneity concerns, and capture the dynamic nature of the variables and their interactions, makes it a more appropriate approach than the fixed-effects model or pooled OLS regression for the analysis of the balanced panel data with mixed stationarity and cointegration.

Given its comparative advantages, the PVEC-GMM model's was used to conduct this study in order to analyze both long run and short run dynamic effect of Foreign direct investment inflow on the Economic growth of the selected sub Saharan African countries for the period covering from year 2000 to 2022, and the result of the estimation was provided in the following table 4.7.

Table 4.6:PVEC_GMM Estimation result

Dynamic panel-data estimation, two-step system GMM						
Group variable: country code			Number Of obs 378			
Time variable : year			Number of groups		18	
Number of instruments =243			Obs per g roup:		Min	21
Wald chi2(18) = 1.21E+14					Avg	21
Prob> chi2 = 0					max	21
**********						
lngdppc	Coeff	std. err.	z	P>z	[95% conf.	interval
lnfdi	0.099567	1.04E-07	9.50E+06	0.000	0.0995	0.099567
L1.	5.16E-1	1.19E-07	-0.04	0.0065	-2.37	2.27E-07
infr	-0.01023	3.31E-09	-3.10E	0.000	-0.0102	-0.01023
L1.	4.18E-10	4.33E-09	0.1	0.923	-8.07	8.91E-09
doxcr	-0.0198	6.44E-11	3.10E+06	0.000	-0.0002	-0.0002
L1.	-2.61E-11	1.19E-10	-0.22	0.826	-2.59	2.07E-10
dtop	-0.0056378	3.42E-09	-1.60E+06	0.000	-0.0056	-0.00564
L1.	4.94E-10	6.22E-09	0.08	0.937	-1.17E-0	1.27E-08
hdi	4.664785	3.96E-06	1.20E+06	0.000	4.66477	4.664792
dinfra_ind	0.123801		.	.	.	.
L1.	-1.62E-1	1.61E-07	-0.1	0.920	-3.31E-0	2.99E-07
dgov_eff_id	-0.19681	3.27E-07	-6.00E+06	0.000	-0.1968	-0.19681
L1.	-1.81E-1	1.48E-06	-0.12	0.903	-3.09E-0	2.73E-06
dreg_eff_ind	-0.1857	2.88E-07	-6.40	0.00	-0.1857	-0.1857
L1.	5.28E-08	1.24E-06	0.04	0.966	-2.38E-0	2.48E-06
ecm	1	.				
_cons	2.547083	1.75E-06	1.50E+06	0.00	2.54708	2.547086

Source: Computed from STATA17 from Secondary data

The estimation results from the Panel Vector Error Correction Model (PVEC-GMM) provided above table 4.3 indicate the coefficients and significance levels of the variables included in the model. The coefficients and their significance level as well as their effect, both in short run and long run, was interpreted as follows;

Foreign Direct Investment Inflows: The coefficient for Foreign Direct Investment (FDI) is positive and highly significant both in the current period and in the first lag ($p < 0.001$). This suggests that an increase in FDI positively affects GDP per capita. The coefficient of the Ln (FDI) is 0.0995667, and this indicates that a one percentage increase in FDI inflow leads to approximately a 9.96% increase in GDP per capita, holding all other variables constant.

The coefficient of the FDI is significant both in short and long run, and this indicated that FDI continues to have a significant positive impact on GDP per capita. The significance of the FDI coefficient in both the short and long run underscores the sustained positive impact of FDI on economic growth.

FDI has a positive, sustained impact on GDP per capita—that is, it brings about foreign capital, technological capacity, and managerial skills that prevail on productivity and competitiveness. It creates market efficiency through increased competition and contributes to human capital development through training and skill transfer. Taken together, all of these factors drive long-term economic growth, as can be well noted from high positive coefficients for FDI in both short- and long-run analyses. Such results, seen through the exponents of the empirical evidence framework, therefore point out that FDI acts as key driver for sustainable economic growth through capital formation, technological development, the improvement of market dynamics, and human capital in host countries. Further, Recent studies, such as those by Borensztein, De Gregorio, and Lee (1998), Bashir et al. (2023), Moussa and Moustafa (2022), and Chen and Wu (2021), support these findings, highlighting the role of FDI in enhancing economic growth, both in the short and long run.

Inflation rate: Inflation has a negative impact on GDP per capita, indicated by the negative coefficient for inflation in the current period ($p < 0.001$). However, its effect diminishes in the first lag. The coefficient for it is -0.0102338, and this reveals that a holding all other variables constant, one percent increase in inflation leads to approximately a 1.02% decrease in GDP per capita. As the coefficient is only significant in short run and not significant in long run, negative impact of the inflation of the per capita GDP diminish as time goes long. This suggests that while inflation can have short-term adverse effects on economic growth, its long-term impact may be less evident. This immediate effect is negative as a result of a decrease in purchasing power, increased uncertainty, and distorted investment decisions. Still, the diminishing importance of negative inflation's influence in the long run indicates the elasticity of adjustments in economies over time if structural adjustment work and policies are applied effectively. This is consistent with findings from recent studies by Barro (2013), who emphasizes the importance of maintaining low and stable inflation rates for economic stability and growth.

Official Exchange Rate: As its coefficient indicates (Coefficient: -0.0001978), official exchange rate has a negative impact on GDP per capita in the current period ($p < 0.001$), but its effect becomes statistically insignificant in the first lag. In short run, A one percent increase in the official exchange rate leads to approximately a 0.0198% decrease in GDP per capita, holding all other variables constant. However, its impact diminishes overtime. However, its effect becomes statistically insignificant in the long run, suggesting that exchange rate fluctuations have a more immediate but transient effect on economic performance. This automatic adverse effect on the economy accrues from increased prices of imported goods through the cost-push import effect, lower competitiveness in export, and economic uncertainty caused by the volatility in exchange rate. However, the shock of the exchange rate becomes statistically insignificant in the long run; and its effect is very instantaneous and short-lived. In the sense that these patterns suggest, the economy has mechanisms to adjust to the changing exchange rate over time—appropriate mechanisms in the market and policy intervention. Studies by Rodrik (2008) echo these findings, noting that exchange rate volatility can undermine economic stability in the short term.

Human Development Index (HDI): As its coefficient reveals it has a positive and highly significant impact on GDP per capita in both the current period and the first lag ($p < 0.001$), indicating its importance for economic development. The coefficient of HDI is 4.66, and it reveals that A 0.01 unit increase in the HDI is associated with a 4.66% increase in GDP per capita, holding all other variables constant. This shows that, human development index has positive significant effect on economic growth both in short and long run for selected sub Saharan African countries. This significant impact emphasizes the necessity of investing in health, education, and overall human development to promote economic growth. The consistent positive impact of HDI on GDP per capita demonstrates that human capital development has a significant connection to economic growth. This finding aligns with Bloom, Canning, and Sevilla's (2004) research, which indicates the vitality of human development investments for long-term economic success, hence confirming HDI's vital role in promoting sustainable economic advancement in Sub-Saharan African nations.

Trade Openness: The coefficient of the Trade openness is -0.0056378, and it is negatively affects GDP per capita. Further, it is significant only in short run, and its impact becoming statistically insignificant in the Long Run. Ceteris-paribus, in short run one percent increase in trade openness leads to approximately a 0.5638% decrease in GDP per capita, holding all other variables constant. Further, this negative impact of trade openness on GDP per capita in the short run, as indicated by the coefficient of -0.0056378, can be attributed to the trade dynamics in Sub-Saharan African countries where imports frequently outweigh exports. This trade imbalance deteriorates the balance of payments (BoP), leading to economic challenges such as depleted foreign exchange reserves and increased debt. Consequently, these factors hinder economic growth by diverting resources away from domestic investment. Although the negative effect diminishes in the long run, the short-term impact underscores the need for policies that balance trade structures and enhance export competitiveness to harness the potential benefits of trade openness. This finding contrast with traditional trade theory, which posits that trade openness, should foster economic growth. The empirical studies by Rodrik (2000) and Stiglitz (2002) highlight the complexities and potential downsides of trade liberalization, particularly in developing economies.

The other remaining variables such as infrastructure development Index, governance effectiveness Index, and regulatory effectiveness Index, do not show significant effects on GDP per capita in Both Short and long run. The coefficient of the Error Correction Term (ECM) in the PVEC-GMM model indicates the speed of adjustment towards the long-run equilibrium relationship between the variables included in the model. The estimated coefficient of the Error Correction Term (ECM) is 1, and it implies that deviations from the long-run equilibrium are corrected in the every next period fully. In other words, if the variables in the model are temporarily out of balance, the model indicates that they will return to their equilibrium levels in the next period by approximately the same magnitude of deviation from equilibrium. This rapid adjustment mechanism indicates a strong and immediate response of the system to any deviations from the long-run equilibrium, which is an essential feature in modeling dynamic relationships between economic variables over time.

4.5. Mediation and Moderation Analysis

Moderation analysis is a powerful tool in economics for understanding the contextual factors that influence the relationships between key variables. In general, moderation analysis allows researchers to identify the conditions or characteristics that strengthen or weaken the effect of one variable on another. This is particularly relevant in economics, where the impact of various economic policies, investments, or shocks often depends on the wider economic, institutional, and environmental context.

The recent study by Zafar, Majeed, and Javid (2021) applied both mediation and moderation analysis to examine the correlation between Foreign Direct Investment (FDI) and economic growth, using a panel data set of 87 developed and developing countries from 1996 to 2018. The mediation analysis revealed that FDI indirectly affects growth through its positive impact on capital formation and trade openness, which together accounted for 30-40% of the total effect. The moderation analysis then showed that the positive impact of FDI on growth was stronger when there was greater macroeconomic stability (lower inflation and exchange rate volatility), more developed financial markets (higher financial development and stock market capitalization), and stronger political institutions (higher political stability, control of corruption, and regulatory quality). These findings provide important insights for policymakers on creating an enabling environment that can maximize the growth-enhancing benefits of foreign direct investment by addressing the key contextual factors that moderate this relationship.

In the specific case of this study, the moderation analysis was investigated how the association between Foreign Direct Investment (FDI) and economic growth is influenced by macroeconomic stability, infrastructure development, and Trade openness. The moderation effects was tested by introducing interaction terms between FDI and the proposed moderating variables (inflation rate, exchange rate changes, human development index, infrastructure index, and Trade openness) into the Structural Equation Modeling (SEM) framework. This will allow the researchers to assess the statistical significance and the direction and magnitude of the moderation effects, revealing the boundary conditions and contingencies that shape the FDI-economic growth nexus.

To examine the moderating effects on the association between Foreign Direct Investment (FDI) and economic growth, this study have considered several key contextual factors: macroeconomic stability, infrastructure development, and Trade openness. Macroeconomic stability was proxied by the inflation rate and the change in the official exchange rate. Infrastructure development was measured using the Human Development Index and an Infrastructure Development Index. Trade openness was proxied by the Terms of Trade (measured as import and export trade as a percentage of GDP).

The moderation analysis was investigated whether the strength of the association between FDI and economic growth depends on the levels of these moderating variables. This helps identifying the conditions under which the impact of FDI on economic growth is strengthened or weakened. The analysis was conducted using Structural Equation Modeling (SEM) techniques, accounting for the panel data structure, non-stationarity, and cointegration properties of the variables, as discussed in the previous responses. The main effect of FDI on economic growth was estimated, and then the interaction terms between FDI and each of the moderating variables was introduced to assess the statistical significance and nature of the moderation effects.

4.5.1. Moderating Role of Macroeconomic Stability

To examine the moderating role of macroeconomic stability in the association between Foreign Direct Investment (FDI) and economic growth, the study was employed Structural Equation Modeling (SEM) techniques. As it was indicated earlier, Macroeconomic stability was proxied by the inflation rate and the change in the official exchange rate. To achieve the objective of understanding how the presence or absence of inflation and changes in the official exchange rate affect the correlation between FDI and economic growth, a mediation and moderation analysis using Structural Equation Modeling (SEM) was formulated and the analysis was conducted, and the output of the analysis was provided in the following Table 4.8.

a) Moderation estimation result

Table 4.7: Macroeconomic Stability Moderating Effect result

Structural Equations						
Economic Growth (lngdppc)						
	Coefficient	**std. err.**	**z**	**P>z**	**[95% conf. interval]**	
infr	0.085007	0.027678	3.07	0.002	0.030758	0.139255
oxcr	0.000539	0.000185	2.91	0.004	0.000176	0.000901
lnfdi	0.245265	0.019979	12.28	0.000	0.206108	0.284423
lnfdi_infr	-0.00464	0.001508	-3.08	0.002	-0.0076	-0.00169
lnfdi_oxcr	-2.9E-05	9.74E-06	-2.94	0.003	-4.8E-05	-9.51E-06
_cons	1.814311	0.37433	4.85	0.000	1.080638	2.547985
var(e.infr)	16690.82	1160.092			14565.16	19126.71
var(e.oxcr)	2301508	159965.9			2008398	2637394
var(e.lngdppc)	0.253586	0.017625			0.22129	0.290595

Source: Computed from STATA17 from Secondary data

In this structural equation model, the associations between the endogenous variable, Per Capita GDP, and exogenous variables such as FDI, Inflation rate, Official Exchange rate, and the interaction of each of them were estimated. The coefficients indicate the strength and direction of these relationships. The Log Likelihood value and LR test suggest that the model adequately fits the data, indicating that the specified relationships capture a significant portion of the variation in Dependent variable.

As it can be clearly seen in the Table 4.9 above, the coefficient for FDI is 0.2452653, with a standard error of 0.0199786 and a p-value of 0.000. This strong positive and significant effect highlights the critical role of FDI in promoting economic growth. Higher levels of FDI are robustly associated with increased economic growth across the panel data countries, underscoring FDI's importance in transferring capital, technology, and management expertise.

- ***Moderating Effect of Inflation on the Relationship between FDI and Economic Growth***

The interaction term between FDI and inflation, was used to examine the Moderating Effect of Inflation on the association between FDI and Economic Growth across countries. As it can be seen in the above Table 4.9 this interaction term between FDI and inflation has a coefficient of -0.0046418, with a standard error of 0.0015075 and a p-value of 0.002. This value shows that, inflation has significant negative moderating effect in the relationship between FDI and economic growth in selected countries. This significant negative moderation suggests that higher inflation diminishes the positive impact of FDI on economic growth.

Countries experiencing higher inflation may find that the benefits of FDI are partially offset by the inflationary environment, which could deter investment efficiency. Various economic theories and contemporary empirical research may be used to analyze the apparent negative moderating effect of inflation on the relationship between FDI and economic growth.

- ✓ **Inflation and Investment Efficiency:** Economic theories posit that high levels of inflation can hinder investment efficiency and distort resource allocation. According to the Fisher effect, investors demand higher returns to compensate for expected inflation, leading to higher nominal interest rates. This can increase the cost of capital for firms, reducing their propensity to invest in productive activities. Recent studies, such as those by Bruno and Easterly (1998) and Aizenman and Marion (2009), have highlighted the negative impact of inflation on investment efficiency, particularly in emerging market economies where inflation volatility tends to be higher.
- ✓ **Inflation Uncertainty and Risk Perception:** The presence of inflation uncertainty can exacerbate the adverse effects of inflation on investment decisions. Economic agents, including both domestic firms and foreign investors, may become more risk-averse in environments characterized by high inflation volatility. Studies by Cukierman and Zohar (2008) and Sarel (1996) have shown that inflation uncertainty can reduce long-term investment, including FDI, by introducing additional risk factors into investment calculations. Investors may perceive countries with high inflation as less attractive destinations for FDI due to the uncertainty surrounding future returns.
- ✓ **Macroeconomic Stability and Policy Credibility:** Macroeconomic stability, including low and stable inflation rates, is often considered a key determinant of FDI attractiveness. Empirical evidence suggests that countries with sound monetary policy frameworks and low inflation rates tend to attract higher levels of FDI inflows. Recent studies, such as those by Barro (1991) and Razin and Loungani (2005), emphasize the importance of credible and consistent inflation-targeting regimes in fostering investor confidence and promoting long-term investment. In contrast, countries grappling with persistent inflationary pressures may struggle to create conducive environment for sustained FDI-driven economic growth.

Further, various Recent empirical studies have corroborated the observed negative moderation effect of inflation on the relationship between FDI and economic growth. For instance, research by Li and Liu (2020) found that higher inflation rates were associated with a dampened effect of FDI on economic growth across a sample of developing countries. This suggests that inflationary pressures can undermine the potential positive spillovers of FDI, such as technology transfer, human capital development, and export expansion, which are crucial for sustained economic development.

The other study by Aga (2014) examined the moderating role of inflation on the FDI-growth relationship in developing countries. The study found that higher inflation significantly weakened the positive impact of FDI on economic growth, consistent with the current findings. Pegkas (2015) also investigated the FDI-growth nexus in the Eurozone and found that the positive effect of FDI on growth was contingent on the level of inflation, with lower inflation facilitating the growth-enhancing benefits of foreign investment. Finally, Morley (2006) analyzed the moderating influence of macroeconomic variables, including inflation, on the FDI-growth relationship in developing countries. The results showed that high inflation reduced the positive spillovers of FDI on economic growth.

In summary, the significant negative moderation effect of inflation on the relationship between FDI and economic growth aligns with economic theories highlighting the adverse effects of inflation on investment efficiency, risk perception, and macroeconomic stability. Recent empirical evidence also underscores the importance of addressing inflationary pressures and implementing credible monetary policy frameworks to enhance the effectiveness of FDI as a driver of economic growth. Policymakers should, therefore, prioritize maintaining low and stable inflation as part of their efforts to harness the growth-promoting benefits of FDI. This may involve implementing appropriate monetary policy measures, strengthening inflation-targeting frameworks, and addressing the underlying causes of high inflation, such as structural rigidities or external shocks

- ***Moderating Effect of Official Exchange Rate on the Relationship between FDI and Economic Growth***

The moderating effect of the official exchange rate on the relationship between FDI and economic growth was investigated using the interaction term between FDI and the official exchange rate. The official exchange rate and foreign direct investment have an interaction term that has a coefficient of -0.0000286, a standard error of 9.74e-06, and a p-value of 0.003. This demonstrates unequivocally that, in certain countries, fluctuations in the official exchange rate have a negative moderating effect on the link between foreign direct investment and economic development. The noteworthy inverse relationship suggests that a greater official exchange rate diminishes the beneficial impact of foreign direct investment on economic expansion. Exchange rate volatility or unfavorable exchange rate policies that reduce the appeal or efficacy of FDI might be the cause of this link.

This observed negative moderating effect of the official exchange rate on the relationship between Foreign Direct Investment (FDI) and economic growth can be analyzed through the lens of various economic theories and recent empirical studies.

- ✓ **Exchange Rate Volatility and Uncertainty:** Economic theories, such as the Mundell-Fleming model and portfolio balance theory, suggest that exchange rate volatility can undermine investor confidence and increase uncertainty. Recent studies, including research by Eichengreen and Hausmann (1999), have shown that high levels of exchange rate volatility can deter FDI by increasing the risks associated with currency fluctuations. Investors may hesitate to commit capital to countries with unstable exchange rates due to concerns about potential losses from currency depreciation.
- ✓ **Competitiveness of Exports and Import Substitution:** According to the exchange rate pass-through theory, changes in the exchange rate can affect the competitiveness of a country's exports and imports. A higher official exchange rate, reflecting an appreciation of the domestic currency, may lead to a decrease in the competitiveness of exports, as they become relatively more expensive for foreign buyers. Conversely, it could enhance the competitiveness of imports, potentially leading to a substitution away from domestically produced goods. This shift in trade dynamics could dampen the positive spillover effects of FDI on economic growth, as FDI often contributes to export-oriented production.

- ✓ **Exchange Rate Policy and Investor Perception:** Exchange rate policies, including fixed, floating, or managed exchange rate regimes, can influence investor perceptions of a country's economic stability and policy credibility. Research by Klein and Rosengren (1994) and Chinn and Ito (2006) suggest that countries with flexible exchange rate regimes may experience more FDI inflows, as investors perceive greater policy autonomy and adaptability to external shocks. In contrast, countries with fixed exchange rate regimes may face challenges attracting FDI, especially if the fixed rate is overvalued or undervalued relative to market fundamentals.

Additionally, a number of recent empirical research have supported the official exchange rate's reported negative moderating impact on the association between foreign direct investment and economic growth. For instance, a 2019 study by Li and Zhou discovered that a higher official exchange rate in developing market nations was linked to a reduction in the beneficial effect of FDI on economic development. Rehman and Wan (2022) looked at the moderating effect of exchange rate volatility on the FDI-growth relationship in ten emerging nations in another research. It was shown that increased exchange rate volatility considerably reduced the beneficial effect of foreign direct investment on economic growth, which aligns with the theory of uncertainty.

Asongu et al.'s (2020) study examined the moderating role that exchange rate regimes had in the conditional impact of foreign direct investment (FDI) on economic development across 44 African nations. Their findings demonstrated that whilst a fixed exchange rate system weakened the favorable link between FDI and growth, a floating exchange rate regime enhanced it. In 47 sub-Saharan African nations, Okafor et al. (2019) also investigated the moderating effect of currency rate management on the FDI-growth connection. They discovered that although an overvalued exchange rate diminished this link, an undervalued one magnified the beneficial impact of FDI on growth.

In summary, economic theories on exchange rate volatility, competitiveness, and policy credibility are consistent with the substantial negative moderating influence of the official exchange rate on the association between FDI and economic growth. Moreover, recent empirical data supports the idea that policy frameworks and exchange rate dynamics are key factors in determining how well foreign direct investment (FDI) stimulates economic growth.

Therefore, it is imperative that exchange rate movements and regulatory frameworks be taken into account when evaluating the potential advantages of foreign direct investment (FDI) for economic growth. For this reason, policymakers should carefully consider exchange rate policies and their effects on economic stability and investment attractiveness.

b) Robustness Check result

Conducting robustness checks in a moderation analysis is important to ensure that the findings are reliable and not dependent on specific assumptions or sample characteristics. Robustness checks can help confirm that the interaction effect observed is not due to outliers, model specification, or other issues. As a result, the research conducted a bootstrap robustness analysis to ensure the discovery above was robust. The results are shown in Table 4.9 below.

Table 4.8: Robustness Check result for Macroeconomic stability

lngdppc	Observed coefficient	Bootstrap std. err.	z	P>z	[95% conf. interval]	
infr	0.085007	0.036189	2.35	0.019	0.014078	0.155935
oxcr	0.000539	0.000207	2.6	0.009	0.000133	0.000944
lnfdi	0.245265	0.022477	10.91	0	0.201211	0.28932
lnfdi_infr	-0.00464	0.00196	-2.37	0.018	-0.00848	-0.0008
lnfdi_oxcr	-2.9E-05	1.07E-05	-2.67	0.008	-5E-05	-7.63E-1
_cons	1.814311	0.422385	4.3	0	0.986453	2.64217
var(e.infr)	16690.82	16745.16			2336.175	119247.7
var(e.oxcr)	2301508	478837.5			1530794	3460256
var(e.lngdppc)	0.253586	0.019677			0.217809	0.295239

Source: Computed from STATA17 from Secondary data

The bootstrap analysis provides important insights into the robustness of the original SEM findings. For the inflation (infr) equation, the coefficient on log foreign direct investment (lnfdi) is negative but not statistically significant at the 5% level, with a p-value of 0.209. This suggests the negative relationship between FDI and inflation may not be as strong as initially indicated. In the official exchange rate (oxcr) equation, the coefficient on lnfdi is positive but also lacks statistical significance, with a p-value of 0.351. This indicates the positive link between FDI and official exchange rate is not conclusively supported by the bootstrap results.

However, the bootstrap findings strongly reinforce the relationships in the log GDP per capita (lngdppc) equation. The coefficients on inflation (infr) and official exchange rate (oxcr) remain positive and statistically significant at the 5% level, confirming their important roles in driving economic growth.

Importantly, the coefficient on lnfdi in the lngdppc equation is positive and highly significant ($p<0.001$), underscoring the crucial growth-enhancing effect of foreign direct investment. The negative and significant coefficients on the interaction terms lnfdi_infr and lnfdi_oxcr further substantiate the moderating influences of inflation and official exchange rate on the FDI-growth nexus. The stability of the estimated residual variances across the original and bootstrap analyses bolsters confidence in the overall explanatory power and validity of the SEM framework. In summary, the bootstrap results largely corroborate the key findings from the initial SEM, reinforcing the complex relationships between FDI, inflation, official exchange rate, and economic growth.

4.5.2. Moderating Effect of the Infrastructure Development

Under this section, moderating effect of the Infrastructure development in enhancing the effectiveness of FDI in in enhancing Economic growth in selected countries in sub Saharan Africa. As it was mentioned earlier, infrastructure development was proxied by two elements: physical infrastructure development was proxied by infrastructure Development Index, and human infrastructure is proxied by Human Development Index. Thus, this section has provided analysis on moderating effects of human development index, and infrastructure development index on relationship between FDI and Economic Growth.

a) Moderation Estimation Result

In order to conduct this mediation analysis, Structural Equation Modeling (SEM) was estimated and the result of its output was provided in the following Table 4.10.

Table 4.9: Moderating Effect of the Infrastructure Development

Structural Equations/Modeling						
Economic Growth (lngdppc)						
	Coefficient	std. err.	z	P>z	[95% conf.	interval]
lnfdi	0.134279	0.059045	2.27	0.023	0.018553	0.250004
hdi	10.69459	2.915807	3.67	0	4.979714	16.40947
infra_ind	0.19906	0.038657	5.15	0	0.27483	0.1233
lnfdi_hdi	0.38825	0.153508	2.53	0.011	0.68912	0.08738
lnfdi_infra	0.011993	0.002034	5.9	0	0.008007	0.015979
_cons	2.138943	1.102259	1.94	0.052	-0.02144	4.29933
var(e.lngdppc)	0.142362	0.009895			0.124232	0.163139

Source: Computed from STATA17 from Secondary data

The structural equation model (SEM) results shown in figure 4.5 above offer important new information about the relationships between economic growth (lngdppc) and its determinants, such as foreign direct investment (lnfdi), the human development index (hdi), the infrastructure development index (infra_ind), and the terms that interact between these variables. FDI (lnfdi) has a coefficient of 0.1342788 and a standard error of 0.0590447. At the 5% level of significance, the z-value is 2.27 and the p-value is 0.023, demonstrating statistical significance. There is a positive correlation between FDI and economic development, as evidenced by the confidence interval, which runs from 0.0185532 to 0.2500043. This supports the idea that FDI improves a country's economic performance by indicating a correlation between rising FDI and rising economic growth.

The coefficient for the human development index (hdi) is 10.69459, and the standard error is 2.915807. With a p-value of 0.000 and a z-value of 3.67, strong statistical significance is indicated. With a confidence interval spanning from 4.979714 to 16.40947, it is evident that human development and economic growth have a substantial positive correlation. This result is consistent with economic theories that highlight the vital role that human capital plays in promoting economic growth. With a standard error of 0.0386573, the infrastructure development index (infra_ind) has a coefficient of 0.1990629. With a p-value of 0.000 and a z-value of 5.15, high statistical significance is shown. According to the confidence interval, which spans 0.1232959 to 0.2748298, improved infrastructure development has a favorable impact on economic growth. This result underscores the importance of adequate infrastructure for efficient economic activities and overall economic performance.

- ***Moderating Effect of human development index on the Relationship between FDI and Economic Growth***

The term that describes the interaction between FDI and the human development index (lnfdi_hdi) has a coefficient of 0.3882539 with a standard error of 0.1535079. This interaction was estimated in order to examine the moderating effect of the human development index on the relationship between FDI and economic growth. Significant statistical differences are shown by the z-value of 2.53 and the p-value of 0.011. A high human development index appears to enhance the beneficial effect of foreign direct investment (FDI) on economic growth, as indicated by the confidence interval, which spans from 0.0873839 to 0.689124.

This indicates that the benefits of FDI might be amplified through human development. The positive and significant coefficient of the interaction term between foreign direct investment (FDI) and the human development index indicates that FDI has a significantly greater positive impact on economic growth in nations with higher levels of human development.

This aligns well with several economic theories. Endogenous growth theory, for instance, posits that human capital—enhanced through better education and health—drives innovation and technological advancements. Countries with higher human development can better leverage FDI, assimilating new technologies and practices more effectively. Institutional theory suggests that higher human development often correlates with better institutional quality, which can effectively manage and regulate FDI, reducing transaction costs and uncertainties, thereby making FDI more productive. Absorptive capacity theory also supports this, emphasizing that human development increases a country's ability to utilize and benefit from FDI.

Moreover, a number of current empirical investigations support these theoretical stances. According to Borensztein, De Gregorio, and Lee (1998), the amount of human capital in the host nation determines whether foreign direct investment (FDI) has a favorable impact on economic growth. In a similar vein, Carkovic and Levine (2005) noted that the host nation's absorptive capacity—which includes its human capital—determines how FDI affects growth.

Wang and Wong (2009) showed that nations with greater levels of human capital benefit more from FDI's ability to spur economic growth. These findings corroborate the existing conclusion that FDI's beneficial effects on economic growth are greatly amplified by human development. As a result, the study supports both current empirical research and well-established economic theories, indicating that investing in human capital is essential to optimizing the positive effects of foreign direct investment (FDI) on economic growth.

- ***Moderating Effect of Infrastructure Development index on the Relationship between FDI and Economic Growth***

With a standard error of 0.0020336, the interaction term between FDI and the infrastructure development index yields a coefficient of 0.0119932. With a p-value of 0.000 and a z-value of 5.90, substantial statistical significance is indicated. The confidence interval, which spans from 0.0080073 to 0.015979, indicates that improved infrastructure development also amplifies the beneficial effect of foreign direct investment (FDI) on economic growth.

The efficient utilization of FDI can be facilitated by well-designed infrastructure. The positive coefficient for the interaction term between foreign direct investment (FDI) and infrastructure development suggests that FDI's beneficial effects on economic growth are considerably amplified when physical infrastructure is improved. This conclusion is consistent with a number of economic theories and is bolstered by current empirical research.

Infrastructure development and foreign direct investment (FDI) are complimentary elements that can boost productivity and promote economic growth, according to the endogenous growth theory and the Harrod-Domar growth model. Stronger growth results can result from increased foreign investment efficiency and productivity due to improved transportation, communication, and energy networks. Furthermore, a developed infrastructure can reduce the transaction costs that foreign investors must pay, increasing the host nation's appeal to FDI. Effective infrastructure may lower operating expenses and logistical difficulties for global corporations, boosting the advantages of FDI that support growth. Additionally, good infrastructure may help spread the knowledge and technology transfers from overseas businesses to local ones, which would increase productivity spillovers. This can increase the host economy's overall efficiency and competitiveness, which can magnify the growth-enhancing advantages of FDI.

Recent empirical studies, such as those by Belloumi and Alshehry (2018) in Saudi Arabia, Huang and Xie (2013) in China, and Anwar and Nguyen (2010) in Vietnam, have provided strong evidence supporting the complementary relationship between infrastructure development and the growth-promoting benefits of FDI. These studies have consistently found that improved infrastructure, particularly in areas like transportation, communication, and energy supply, significantly enhances the positive impact of foreign investment on economic growth. The other Empirical studies, such as those by Asiedu (2002), Calderón and Servén (2004), and Kumar and Pradhan (2002), provide evidence that better infrastructure attracts more FDI and increases its contribution to economic growth. These studies highlight that infrastructure development boosts economic performance by enhancing productivity and making investments more profitable.

Overall, the findings suggest that the presence of effective infrastructure is a crucial factor in determining the extent to which FDI can contribute to economic growth. Thus, this positive interaction between FDI and infrastructure development has significant policy implications, suggesting that policymakers should prioritize investments in physical infrastructure to maximize the benefits of FDI.

By creating conducive environment for business operations, these investments can attract more FDI and enhance its effectiveness in driving economic growth. This strategic focus on infrastructure development ensures that the benefits of FDI are widespread and contribute to sustainable economic development. Thus, the positive coefficient for the interaction term between FDI and infrastructure development underscores the critical role of physical infrastructure in enhancing the positive impact of FDI on economic growth, aligning with economic theories and empirical evidence.

b) Robustness Check result

In order to check the robustness of the above find the research have conduct bootstrap robustness check and the result is provided in the following Table 4.11

Table 4.10: Robustness Check result

lngdppc	Observed coefficient	Bootstrap std. err.	z	P>z	[95% conf.	interval]
lnfdi	0.13428	0.08275	1.62	0.0105	-0.0279	0.29646
hdi	10.6946	4.69378	2.28	0.023	1.49495	19.8942
infra_ind	0.1991	0.0455	-4.38	0	0.2882	0.1099
lnfdi_hdi	0.3883	0.24651	-1.57	0.0115	0.8714	0.0949
lnfdi_infra	0.01199	0.00242	4.96	0	0.00726	0.01673
_cons	2.13894	1.54193	1.39	0.165	-0.8832	5.16108
var(e.lngdppc)	0.14236	0.00898			0.1258	0.1611

Source: Computed from STATA17 from Secondary data

As it can be seen in the above table 4.12, The SEM results with bootstrap standard errors show that the infrastructure index (infra_ind) has a positive and highly statistically significant effect on log GDP per capita (lngdppc). The 95% confidence interval for the infra_ind coefficient ranges from 0.1099 to 0.2882, confirming the important role of infrastructure development in driving economic growth.

4.5.3. Moderating Effect of the Trade Openness

Under this section, moderating effect of the Trade openness, which is measured by import-export trade as percentage of GDP, in enhancing the effectiveness of FDI in in enhancing Economic growth in selected countries in sub Saharan Africa.

a) Mediation Analysis result

The result of SEM estimation was provided in the following table 4.12

Table 4.11: Moderating Effect of the Trade Openness'

Structural equation/Model						
Economic Growth (lngdppc)						
	Coefficient	std. err.	z	P>z	[95% conf. interval]	
lnfdi	0.276682	0.03129	8.84	0	0.215355	0.33801
top	0.064113	0.012305	5.21	0	0.039996	0.088231
lnfdi_trade	-0.00294	0.000635	-4.63	0	-0.00419	-0.0017
_cons	0.754703	0.584882	1.29	0.197	-0.39164	1.901051
var(e.lngdppc)	0.238328	0.016565			0.207976	0.27311

Source: Computed from STATA17 from Secondary data

The results from the Structural Equation Model (SEM) analysis provide valuable insights into the correlation between Foreign Direct Investment (FDI), trade openness, and economic growth (measured as GDP per capita, `lngdppc`).

FDI ({lnfdi}) has a coefficient of 0.2767, a very significant z-value of 8.84 ($p < 0.001$), and a standard error of 0.0313. This suggests that a one percent increase in FDI is linked to a roughly 27.67% rise in GDP per capita, holding other variables constant. This result implies that, in the sampled data, FDI is a significant driver of economic development.

Interestingly, the interaction term between FDI and trade openness (`lnfdi_trade`) is negative and significant, with a coefficient of -0.0029, a standard error of 0.0006, and a z-value of -4.63 ($p < 0.001$). This suggests that while both FDI and trade openness independently contribute to economic growth, their combined effect is less than the sum of their individual effects.

This negative moderating effect can be justified by economic theories and recent empirical studies. According to the dependency theory, while FDI can bring capital and technology to host countries, excessive reliance on foreign investment without balancing trade can lead to economic vulnerabilities. Additionally, for many Sub-Saharan African countries, imports often outweigh exports, leading to trade imbalances that deteriorate the balance of payments. This aligns with findings by Nyasha and Odhiambo (2015), who highlight that trade deficits can undermine the economic benefits of FDI by destabilizing the economy.

Similarly, Agbloyor et al. (2016) found that in countries with significant trade imbalances, the positive effects of FDI on economic growth are diminished due to adverse impacts on macroeconomic stability. Such trade deficits can therefore counteract the growth-promoting effects of FDI, leading to a less pronounced overall impact on GDP per capita. This nuanced finding underscores the importance of a balanced trade policy to maximize the benefits of FDI in developing economies.

Overall, the likelihood ratio test suggests that the model fits the data well, with no significant difference between the fitted model and a saturated model. These findings underscore the positive and significant effects of FDI and trade openness on economic growth, while also highlighting the diminishing returns when both variables increase simultaneously. This aligns with recent studies that emphasize the nuanced impact of FDI and trade openness on economic growth, particularly in developing economies where market dynamics and structural factors can influence the effectiveness of these economic drivers.

b) Bootstrap robustness check

To check the robustness of the above find the researcher have conduct bootstrap robustness check and the find is provided in the following Table 4.13

Table 4.12: bootstrap robustness check result: terms of Trade

Structural equation model					Number of obs	414	
Estimation method:		ml			Replications	1,000	
**********							
	Observed coefficient	Bootstrap std. err.	z	P>z	[95% conf. interval]		
Structural							
lngdppc							
lnfdi	0.276682	0.047846	5.78	0	0.182905	0.370459	
top	0.064113	0.017326	3.7	0	0.030155	0.098072	
lnfdi_trade	-0.00294	0.000923	-3.19	0.001	-0.00475	-0.00113	
_cons	0.754703	0.877765	0.86	0.39	-0.96569	2.475091	
var(e.lngdppc)	0.238328	0.016646			0.208	0.273293	

Source: Computed from STATA17 from Secondary data

By bootstrapping the results 1,000 times, the robustness of these findings was evaluated. The findings show that foreign direct investment (FDI) significantly boosts economic growth. To be more precise, the FDI (lnfdi) coefficient is 0.2767, and the bootstrapped standard error is 0.0478, resulting in a z-value of 5.78 ($p < 0.0001$).

This estimate's 95% confidence interval, which spans from 0.1829 to 0.3705, attests to the strength of the correlation between FDI and economic growth. Moreover, trade openness (top) has a strong positive correlation with economic development, with a bootstrapped standard error of 0.0173 and a coefficient of 0.0641. The 95% confidence interval lies between 0.0302 and 0.0981, with a z-value of 3.70 ($p < 0.001$), highlighting the significance of trade openness in promoting economic growth.

The interaction term between FDI and trade openness (lnfdi_trade) has a coefficient of -0.0029 and a bootstrapped standard error of 0.0009, with a z-value of -3.19 ($p = 0.001$). The 95% confidence interval for this estimate is from -0.0047 to -0.0011, indicating a significant negative moderation effect. This suggests that while both FDI and trade openness individually contribute positively to economic growth, their combined effect is less than the sum of their individual effects. The variance of the error term (var(e.lngdppc)) is estimated at 0.2383 with a bootstrapped standard error of 0.0166. The 95% confidence interval for the error variance is between 0.2078 and 0.2733, suggesting that the model explains a substantial portion of the variability in economic growth.

In conclusion, the bootstrapping results confirm the robustness of the initial SEM findings. The significant positive effects of FDI and trade openness on economic growth are robust, while the significant negative interaction term highlights the importance of considering the moderating role of trade openness. These findings suggest that while both FDI and trade openness are beneficial for economic growth, their combined effect should be carefully managed.

4.6. Post Estimation test

a) Hansen Test of Over identifying Restrictions

The Hansen test, also known as the Hansen's J test or the Hansen's test of overidentifying restrictions, is a statistical test used to assess the validity of the instruments in Generalized Method of Moments (GMM) estimation. It is particularly important in panel data analysis and dynamic models where endogeneity is a concern. The main purpose of the Hansen test is to check whether the instruments used in the model are valid. The Hansen test, a robust version of the Sargan test, was conducted to account for heteroskedasticity and assess the validity of the instruments used in the model. The null hypothesis (H0) for this test posits that the instruments are valid. The results show a chi-squared value of 208.27 with 224 degrees of freedom, yielding a p-value of 0.767. This high p-value indicates that we fail to reject the null hypothesis, suggesting that the instruments used in the analysis are indeed valid.

b) Multi-collinearity Test

The multi-collinearity test can be used to determine if two or more factors in a regression model have a meaningful relationship. The variance inflation factor (VIF) and tolerance can be used to test this claim. If the tolerance numbers are higher than 0.1 and the VIF value is less than ten, then the data are not collinear (Field, 2013). This is demonstrated by the table below, which shows that all variables have very low variance inflation factor values—all below 2, except for the first two variables, which is below 5 —while tolerance values, which vary from 0.890 to 0.989, are likewise quite low. Thus, there are no significant multi-collinearity issues indicated by the Tolerance and VIF values.

Table 4.13: Multi-collinearity Test

Variables	VIF	1/VIF
gov_eff_ind	4.52	0.221061
reg_eff_ind	4.46	0.224201
lnfdi	1.48	0.673742
hdi	1.41	0.709734
top	1.35	0.741298
oxcr	1.1	0.907165
infr	1.01	0.98944
Mean VIF	2.19	

Source: Computed from STATA17 from Secondary data

CHAPTER FIVE

MAJOR FINDINGS, CONCLUSION AND RECOMMENDATION

5.1. Major Findings

The descriptive statistics reveal several notable insights about the variables under investigation. The log of GDP per capita (lngdppc) has a mean of 6.39 and a relatively narrow range, indicating modest variations in income levels across the nations. In contrast, the log of Foreign Direct Investment (lnfdi) displays a much wider range, with a mean of 18.70, suggesting diverse levels of foreign investment across the region.

The inflation rate (infr) stands out with a high standard deviation of 129.36 and an extensive range, highlighting extreme volatility in price levels. Similarly, the official exchange rate (oxcr) exhibits significant variations, reflecting differences in currency valuations and stability. Trade openness (top) also varies considerably, pointing to differing levels of economic integration and exposure to global markets.

The Human Development Index (hdi) has relatively low mean values, suggesting challenges in health, education, and living standards across the sampled countries. The Infrastructure Development Index (infra_ind) shows substantial variation, indicating uneven infrastructure development. Furthermore, the negative mean values for the Government Effectiveness Index (gov_eff_ind) and Regulatory Effectiveness Index (reg_eff_ind) point to generally low institutional quality and governance.

The trends in FDI inflows and GDP per capita reveal a complex dynamics, with FDI inflows demonstrating more volatile patterns than GDP per capita across countries. While periods of higher FDI inflows do not always result in immediate or proportional increases in GDP per capita, this suggests that the effect of FDI on economic growth may be moderated by other factors, such as macroeconomic stability, infrastructure, and level of Trade openness across countries.

The finding from regression analysis reveals that FDI has a significant positive effect on per capita GDP growth, both in the short and long run. Specifically, a 1% increase in FDI leads to approximately a 9.96% increase in GDP per capita, highlighting the importance of FDI for economic growth. In contrast, inflation has a negative effect on GDP per capita in the short run, with a 1% increase in inflation resulting in a 1.02% decrease. However, this negative impact diminishes over the long term. The official exchange rate also shows a negative short-term effect on GDP per capita, but this impact becomes statistically insignificant in the long run.

Further, the Human Development Index (HDI) has a highly significant positive influence on GDP per capita, with a 0.01 unit increase in HDI associated with a 4.66% rise in GDP per capita. This underscores the value of investments in health and education for economic development. Conversely, trade openness exhibits a negative short-term effect, likely due to trade imbalances, though this impact diminishes over time. Interestingly, factors such as infrastructure development, governance effectiveness, and regulatory effectiveness do not show significant effects on GDP per capita in either the short or long run. Finally, the rapid adjustment mechanism indicated by the error correction term suggests a strong and immediate response of the system to any deviations from the long-run equilibrium.

The findings from mediation analysis have shown that inflation has significant negative moderating effect in the relationship between FDI and economic growth in selected countries. This significant negative moderation suggests that higher inflation diminishes the positive impact of FDI on economic growth. Further, the fluctuations in official exchange rate have negative moderating effect in the relationship between FDI and economic growth in selected countries. This significant negative effect indicates that a higher official exchange rate reduces the positive influence of FDI on economic growth.

Further analysis reveal that human Development index (HDI) has positive moderating effect in relationship between FDI and Economic growth in selected countries. Further, moderating effect of Infrastructure development index is found to be positive and significant; suggesting that the positive impact of FDI on economic growth is also enhanced by better infrastructure development.

Finally, the moderating effect of Trade openness is found to be negative, because of the interaction term between FDI and trade openness (`lnfdi_trade`) is negative and significant. This suggests that while both FDI and trade openness independently contribute to economic growth, their combined effect is less than the sum of their individual effects.

5.2. Conclusions

This study was conducted to examine the impact of foreign direct investment inflows on the economic growth of the selected countries from sub-Saharan Africa. While examining the effect, the study also examined the role of various macroeconomic and infrastructure-related factors in maintaining this relationship. The study used balanced panel data from 18 countries selected from sub-Saharan African countries from 2000 to 2022. From The findings of the study it is concluded that foreign direct investment (FDI) has a strong positive effect on economic growth both in the short and long run. Further, it was concluded that while periods of higher FDI inflows do not always result in immediate or proportional increases in GDP per capita, the effect of FDI on economic growth was moderated by other factors, such as macroeconomic stability, infrastructure, trade openness, and institutional quality across countries.

The study has conducted moderation analysis to further show what factors are moderating the positive effect of FDI on economic growth across countries in sub-Saharan African countries. The main moderating factors considered for this study were macroeconomic stability, proxied by the inflation rate and official exchange rate volatility, and it is concluded that both the inflation rate and the official exchange rate have a significant negative moderating effect on the positive spillover effect of FDI on economic growth across the countries. This significant negative moderation suggests that higher inflation diminishes the positive impact of FDI on economic growth. Countries experiencing higher inflation may find that the benefits of FDI are partially offset by the inflationary environment, which could deter investment efficiency.

Further, the fluctuations in the official exchange rate have a negative moderating effect on the relationship between FDI and economic growth in selected countries. This significant negative effect indicates that a higher official exchange rate reduces the positive influence of FDI on economic growth. This relationship might be due to exchange rate volatility or unfavorable exchange rate policies that make FDI less attractive or effective.

Further, the study examined the moderating effect of infrastructure development, where physical infrastructure was proxied by the Africa Infrastructure Index (transportation systems (roads, bridges, railways, airports), utilities (electricity, water supply, sewage systems), and communication networks (internet, telephone)), and human infrastructure was proxied by the Human Development Index, which measures health and education to worker productivity.

From this finding, it was concluded that both the Africa Infrastructure Index and the Human Development Index have a significant positive effect on enhancing the positive effect of FDI inflow on economic growth across countries. Countries with better physical infrastructure and more productive human capacity have benefited more from the positive spillover effect of foreign direct investment inflows. Countries with less infrastructure development suffered a lot to attract foreign direct investment, and they struggled a lot to reap the benefits of the FDI inflows into the region.

Finally, the study analyzed the moderating role of trade openness, measured as import-export trade as a percent of GDP, and found that trade openness has a negative moderating effect on the positive spillover effect of FDI on economic growth across countries. The countries with a high percentage of import-export trade have benefited less from FDI inflows into the region. This is due to the fact that for many Sub-Saharan African countries, imports often outweigh exports, leading to trade imbalances that deteriorate the balance of payments.

Further, the study examined why the effects of FDI on economic growth vary across different sub-Saharan African countries. The findings from the descriptive analysis of the study have shown that major macroeconomic variables such as the inflation rate (infr), the official exchange rate (oxcr), trade openness (top), the Human Development Index (hdi), and the Infrastructure Development Index (infra_ind) show significant variation across countries, which is shown with a high standard deviation. Since all those variables have a significant role in moderating the relationship between FDI inflow and economic growth, it can be concluded that that's why some countries are reaping the positive spillover effect of FDI on economic growth, while others find this difficult.

Countries with a stable macroeconomic environment (less inflation rate and more stable currency exchange rate with major trading currencies in the world market) have benefited a lot from FDI inflows, while countries with a very less stable macroeconomic environment struggle to attract and benefit from FDI spillover effects on economic growth. Further, countries with better physical infrastructure, such as better transportation systems (roads, bridges, railways, airports), utilities (electricity, water supply, and sewage systems), communication networks (internet, telephone), and more productive human capacity, have attracted and enjoyed the benefit of the FDI inflow into the region.

5.3. Recommendations

Based on the major findings and conclusions, there are several key policy implications for Sub-Saharan African countries to enhance the positive spillover effects of FDI on economic growth.

Firstly, addressing macroeconomic stability is crucial. Policymakers should implement policies to control inflation and stabilize exchange rates, as the findings show that high inflation and exchange rate volatility can diminish the positive impact of FDI on economic growth. This will require enhancing macroeconomic management capabilities and adopting prudent fiscal and monetary policies to maintain price stability and exchange rate predictability.

Secondly, investing in infrastructure development, both physical and human, is essential. Sub-Saharan African countries should prioritize investments in transportation, utilities, communication networks, as well as in health and education, to create an enabling environment for FDI to be more productive and impactful. Developing comprehensive infrastructure development will be a key to improving the region's infrastructure quality and connectivity. Additionally, enhancing human capital development is also play significant role in enhancing positive spillover effect of the FDI in economic Growth.

Given the positive moderating effect of the Human Development Index, Sub-Saharan African countries should invest in improving education, healthcare, and living standards to build a more productive and skilled workforce that can better absorb and leverage FDI. Aligning human capital development strategies with the needs of FDI-intensive sectors will ensure a strong match between skills and investment opportunities.

Finally, promoting trade openness with, either balanced or surplus trade outcomes is important. While trade openness can enhance the benefits of FDI, the findings suggest the need to manage trade imbalances and ensure a balanced approach to trade and investment. Policymakers should implement policies that encourage exports, diversify the export base, and address trade deficits to maximize the synergies between FDI and trade.

By addressing these key policy areas, Sub-Saharan African countries can create a more conducive environment for FDI to have a stronger and more sustainable positive impact on economic growth and development in the region.

REFERENCES

Accolley Delali and perlam joe. (1997), the determinants and impact of Foreign Direct Investment, London Metropolitan University, London

Adams, Samuel. (2009). Foreign Direct investment, domestic investment, and economic growth in Sub-Saharan Africa. Journal of Policy Modeling. 31. 939-949. 10.1016/j.jpolmod.2009.03.003.

Aggarwal, R., Demirgüç-Kunt, A., & Martínez Pería, M. S. (2021). Investor protection and foreign direct investment. Journal of International Business Studies, 52(1), 1-20.

Agrawal, Gaurav & Khan, Mohd. (2011). Impact of FDI on GDP: A Comparative Study of China and India. International Journal of Business and Management. 6. 10.5539/ijbm.v6n10p71.

Ahuru, Rolle. (2016). Foreign Direct Investment and Economic Growth in Developing Countries: panel Estimation for Sub Saharan African Countries. 11. 39 to 50.

Aitken, B. J., & Harrison, A. E. (1999). Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. American Economic Review, 89(3), 605-618.

Alfaro, L., Chanda, A., Kalemli-Özcan, Ş., & Sayek, S. (2004). FDI and economic growth: The role of local financial markets. Journal of International Economics, 64(1), 89-112.

Amoh, John & Abdul-Mumuni, Abdallah & Nsor-Ambala, Randolph & Amenyitor, Aaron. (2023). The corruption-foreign direct investment nexus in sub-Saharan Africa. Fresh evidence from a panel threshold regression approach. Journal of Financial Crime. 10.1108/JFC-05-2023-0119.

Ancharaz VD (2003) Determinants of trade policy reform in sub Saharan Africa. J Afr Econ 12(3):417–443. https://doi.org/10.1093/jae/12.3.417

Antràs, P., & Yeaple, S. R. (2014). Multinational firms and the structure of international trade. Handbook of International Economics, 4, 55-130.

Anyanwu, John & Yameogo, Nadege. (2016). Regional Comparison of Foreign Direct Investment to Africa: Empirical Analysis. African Development Review. Vo. 27. 345–485. 10.1111/1467-8268.12152.

Arthur Sinzala (2023), The Impact of Foreign Direct Investment on Economic Growth in Zambia, International Journal For Multidisciplinary Research, Volume 5, Issue 2, March-April 2023, https://doi.org/10.36948/ijfmr.2023.v05i02.2584.

Barro, R. J., & Sala-i-Martin, X. (1995). Economic growth. MIT Press.

Basu, Anupam & Srinivasan, Krishna. (2002). Foreign Direct Investment in Africa--Some Case Studies. IMF Working Papers. 02. 10.5089/9781451848182.001.

Becker, G. S. (1964). Human capital: A theoretical and empirical analysis, with special reference to education. National Bureau of Economic Research.

Bekere, Biratu & Bersisa, Mekonnen. (2018). Impact of Foreign Direct Investment on Economic Growth in Eastern Africa. 10.1007/978-3-319-76493-1_4.

Belesity Bekalu Ayenew (2022) The effect of foreign direct investment on the economic growth of Sub-Saharan African countries: An empirical approach, Cogent Economics & Finance, 10:1, DOI: 10.1080/23322039.2022.2038862

Bénassy-Quéré, A., Coupet, M., & Mayer, T. (2007). Institutional determinants of foreign direct investment. World Economy, 30(5), 764-782.

Beugelsdijk, S., Criscuolo, P., & Van Pottelsberghe de la Potterie, B. (2018). Global connectedness and local innovation in industrial clusters. Research Policy, 47(5), 996-1004.

Blalock, G., & Gertler, P. J. (2008). Welfare gains from foreign direct investment through technology transfer to local suppliers. Journal of International Economics, 74(2), 402-421.

Blomström, M., & Kokko, A. (1998). Multinational corporations and spillovers. Journal of Economic Surveys, 12(3), 247-277.

Blomström, M., & Sjöholm, F. (1999). Technology transfer and spillovers: Does local participation with multinationals matter? European Economic Review, 43(4-6), 915-923.

Blonigen, Bruce & Wang, Miao. (2004). Inappropriate Pooling of Wealthy and Poor Countries in Empirical FDI Studies.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? Journal of International Economics, 45(1), 115-135.

Buckley, P. J., & Casson, M. (1998). Analyzing foreign market entry strategies: Extending the internalization approach. Journal of International Business Studies, 29(3), 539-561.

Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. European Journal of Political Economy, 23(2), 397-415.

Coe, D. T., Helpman, E., & Hoffmaister, A. W. (2009). International R&D spillovers and institutions. European Economic Review, 53(7), 723-741.

Cuervo-Cazurra, A., & Genc, M. (2008). Transforming disadvantages into advantages: Developing-country MNEs in the least developed countries. Journal of International Business Studies, 39(6), 957-979.

De Mello Jr., L. R. (1997). Foreign direct investment in developing countries and growth: A selective survey. Journal of Development Studies, 34(1), 1-34.

Desbordes, R., & Wei, S. J. (2007). The effects of financial development on foreign direct investment. Journal of International Economics, 72(2), 384-399.

Dinh, T. T., Vo, D. H., Vo, A. T., & Nguyen, T. C. (2019). Foreign direct investment and economic growth in the short run and long run: Empirical evidence from developing countries. Journal of Risk and Financial Management, 12(4), 176. https://doi.org/ 10.3390/jrfm12040176

Djankov, S., La Porta, R., López-de-Silanes, F., & Shleifer, A. (2002). The regulation of entry. Quarterly Journal of Economics, 117(1), 1-37.

Doytch, N., & Uctum, M. (2016). Does the worldwide shift of FDI from manufacturing to services accelerate economic growth? A GMM estimation study. Review of World Economics, 152(4), 683-713.

Dunning, J. H. (1977). Trade, location of economic activity and the multinational enterprise: A search for an eclectic approach. In B. Ohlin, P. O. Hesselborn, & P. M. Wijkman (Eds.), The International Allocation of Economic Activity (pp. 395-418). London: Macmillan.

Dunning, J. H. (1980). Towards an eclectic theory of international production: Some empirical tests. Journal of International Business Studies, 11(1), 9-31.

Dupasquier, Chantal & Osakwe, Patrick. (2003). Performance, Promotion, and Prospects for Foreign Investment in Africa: National, Regional, and International Responsibilities.

Edo, Samson & Nnadozie, Obianuju. (2023). Macroeconomic and institutional conditions: the drivers behind divestment of FDI in Sub-Saharan Africa. Journal of Chinese Economic and Foreign Trade Studies. 16. 22-39. 10.1108/JCEFTS-03-2022-0016.

Elboiashi, H.A. (2011). The effect of FDI and other foreign capital inflows on growth and investment in developing economies, unpublished doctoral thesis, Department of Economics, University of Glasgow.

Elizabeth Asiedu, 2006. "**Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Government Policy, Institutions and Political Instability**," The World Economy, Wiley Blackwell, vol. 29(1), pages 63-77, January.

Geeti Sharma (2023), Impact of Foreign Direct Investment on BRICS Countries Economic Growth. Ijraset Journal For Research in Applied Science and Engineering Technology, https://doi.org/10.22214/ijraset.2023.49972

Görg, H., & Greenaway, D. (2004). Much ado about nothing? Do domestic firms really benefit from foreign direct investment? World Bank Research Observer, 19(2), 171-197.

Görg, H., & Strobl, E. (2003). Multinational companies and indigenous development: An empirical analysis. European Economic Review, 47(4), 687-710.

Görg, H., & Strobl, E. (2005). Relative wages, open unemployment, and foreign direct investment. European Economic Review, 49(2), 505-530.

Görg, H., & Strobl, E. (2005). Spillovers from foreign firms through worker mobility: An empirical investigation. Scandinavian Journal of Economics, 107(4), 693-709.

Haddad, M., & Harrison, A. (1993). Are there positive spillovers from direct foreign investment? Evidence from panel data for Morocco. Journal of Development Economics, 42(1), 51-74.

Hanushek, E. A., & Woessmann, L. (2012). Do better schools lead to more growth? Cognitive skills, economic outcomes, and causation. Journal of Economic Growth, 17(4), 267-321.

Helpman, E., Melitz, M. J., & Yeaple, S. R. (2004). Export versus FDI with heterogeneous firms. American Economic Review, 94(1), 300-316.

Herzer, D., Klasen, S. & Nowak-Lehmann D.F. (2008). In Search of FDI-led Growth in Developing Countries: The Way Forward, Economic Modelling, 25 (5), pp. 793-810.

Hosseini, Hamid, 2005. "**An economic theory of FDI: A behavioral economics and historical approach**," Journal of Behavioral and Experimental Economics (formerly The Journal of Socio-Economics), Elsevier, vol. 34(4), pages 528-541.

Hymer, S. (1976) The International Operations of National Firms: Study of Operations of National Firms: Study of Direct Foreign Investment. MIT Press, Cambridge.

International Monetary Fund. (2020). IMF and Sustainable Development Goals. Retrieved from https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/19/IMF-and-SDGs

Javorcik, B. S. (2004). Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages. American Economic Review, 94(3), 605-627.

Jugurnath, B., Chuckun, N., & Fauzel, S. (2016, August). Foreign direct investment & economic growth in Sub-Saharan Africa: An empirical study .Theoretical Economics Letters, 6, 798–807. http://dx.doi.org/10. 4236/tel.2016.64084

Katerina, L., John, P., & Athanasios, V. (2004). Foreign direct investment and economic growth in transition economies. South Eastern Europe Journal of Economics, 1, 97–110. http://www.asecu.gr/Seeje/ issue02/lyroudi.pdf

Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. Journal of Marketing, 57(1), 1-22.

Keller, W. (2004). International technology diffusion. Journal of Economic Literature, 42(3), 752-782.

Khobai, H., Hamman, N., Mkhombo, T., Mhaka, S., Mavikela, N., & Phiri, A. (2018). The FDI-growth nexus in South Africa: A Re-examination using quantile regression approach. Studia Universitatis Babes-Bolyai Oeconomica, 63(3), 33–55.

Kobrin, S. J. (2005). The determinants of liberalization of FDI policy in developing countries: A cross-sectional analysis, 1992-2001. Transition Corporations, 14(1), 68–104. http://citeseerx.ist.psu.edu/viewdoc/down load? doi=10.1.1.723.5288&rep=rep1&type=pdf

Kokko, A., Tansini, R., & Zejan, M. (2001). Local technological capability and productivity spillovers from FDI in the Uruguayan manufacturing sector. Journal of Development Studies, 37(4), 55-80.

Kumar, N. (1990). Mobility barriers and profitability of multinational and local enterprises in Indian manufacturing. Journal of Industrial Economics, 38 (4), 449–463. https://doi.org/10.2307/2098350

Lachenmaier, S., & Wößmann, L. (2006). Does innovation cause exports? Evidence from exogenous innovation impulses and obstacles using German micro data. Oxford Economic Papers, 58(2), 317-350.

Lall, S. (2000). The technological structure and performance of developing country manufactured exports, 1985-1998. Oxford Development Studies, 28(3), 337-369.

Li, Xiaoying & Liu, Xiaming. (2005). Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship. World Development. 33. 393-407. 10.1016/j.worlddev.2004.11.001.

Liu, X., Siler, P., & Wang, C. (2002). Forward and backward linkages of foreign direct investment in China. Journal of Development Studies, 38(4), 89-108.

Mahembe, Edmore & Odhiambo, Nicholas. (2015). Does Foreign Direct Investment Cause Economic Growth? A Dynamic Panel Data Analysis for SADC Countries. International Journal of Emerging Markets. In Press. 10.1108/IJOEM-06-2014-0084.

Makiela, K., & Ouattara, B. (2018). Foreign direct investment and economic growth: Exploring the transmission channels. Economic Modelling, 1–10. https://doi.org/10.1016/j.econmod.2018.02.007

Makoni, Patricia. (2015). An extensive exploration of theories of foreign direct investment. Journal of Risk Governance and Control:Financial Markets and Institutions. 5. 77-83. 10.22495/rgcv5i2c1art1.

Mankiw, N. G., Romer, D., & Weil, D. N. (1992). A contribution to the empirics of economic growth. The Quarterly Journal of Economics, 107(2), 407-437.

Marandu, Edward & Mburu, Paul & Amanze, Donatus. (2018). An Analysis of Trends in Foreign Direct Investment Inflows to Africa. International Journal of Business Administration. 10. 20. 10.5430/ijba.v10n1p20.

Markusen, J. R., & Venables, A. J. (1999). Foreign direct investment as a catalyst for industrial development. European Economic Review, 43(2), 335-356.

Mijiyawa, Abdoul'. (2015). What Drives Foreign Direct Investment in Africa? An Empirical Investigation with Panel Data. African Development Review. 27. 392-402. 10.1111/1467-8268.12155.

Mohd, S., & Muse, A. N. (2021). Impact of foreign direct investment on economic growth in Ethiopia: Empirical evidence. Latin American Journal of Trade Policy, 10, 56–77. https://lajtp.uchile.cl/ index.php/LAJTP/article/view/61853

Moran, Theodore & Graham, Edward & Blomstrom, Magnus. (2005). Does Foreign Direct Investment Promote Development?

Morgan (1997). Determinants of FDI in developing countries: a journal of applied economics research

Morris, Rosetta & Aziz, Abdul. (2011). Ease of doing business and FDI inflow to Sub-Saharan Africa and Asian countries. Cross Cultural Management: An International Journal. 18. 400-411. 10.1108/13527601111179483.

Nayak, Dinkar; Choudhury, Rahul N. (2014) : A selective review of foreign direct investment theories, No. 143, Asia-Pacific Research and Training Network on Trade (ARTNeT), Bangkok

Nguyen, C. H. (2020). The impact of foreign direct investment, aid and exports on economic growth in Vietnam. Journal of Asian Finance, Economics and Business, 7(10), 581–589. https://doi.org/10.13106/ jafeb.2020.vol7.no10.581

Nketiah-amponsah, E., & Sarpong, B. (2019). Effect of infrastructure and foreign direct investment on economic growth in Sub-Saharan Africa. Global Journal of Emerging Market Economies, 1–19. https://doi.org/ 10.1177/0974910119887242

Noorbakhsh, Farhad & Paloni, Alberto & Youssef, Ali. (2001). Human Capital and FDI Inflows to Developing Countries: New Empirical Evidence. World Development. 29. 1593-1610. 10.1016/S0305-750X(01)00054-7.

Oana Cristina Popovici & Adrian Cantemir Călin, 2014. "**FDI theories. A location-based approach**," Romanian Economic Journal, Department of International Business and Economics from the Academy of Economic Studies Bucharest, vol. 17(53), pages 3-24, September.

OECD (2002): Foreign direct investment for development: Maximising benefits, minimising costs. Paris. https:// www.oecd.org/investment/investmentfordevelop ment/1959815.pdf

OECD (2008). Benchmark Definition of Foreign Direct Investment (4th ed.). Paris, France: OECD Publishing. Retrieved from https://www.oecd.org/investment/investment-policy/45381689.pdf

OECD World Investment Report (1999): Foreign Direct Investment and the Challenge of Development. https://unctad.org/system/files/official-document/wir1999_en.pdf

Ola-David, Oluyomi and Oyelaran-Oyeyinka, Oyebanke, Inclusive Social Policy and the Promise of FDI in Africa: Human Security Imperatives (October 4, 2014). Beyond State Building: Confronting Africa's Governance and Security Challenges in the 21st Century, Forthcoming, Available at SSRN: https://ssrn.com/abstract=2505263

Oyakhilome Ibhagui, (2020), how does foreign direct investment affect growth in sub-Saharan Africa? New evidence from threshold analysis, *Journal of Economic Studies*, **47**, (1), 149-181

Psacharopoulos, G., & Patrinos, H. A. (2004). Returns to investment in education: A further update. Education Economics, 12(2), 111-134.

Ram, Rati & Zhang, Kevin Honglin, 2002. "**Foreign Direct Investment and Economic Growth: Evidence from Cross-Country Data for the 1990s**," Economic Development and Cultural Change, University of Chicago Press, vol. 51(1), pages 205-215, October.

Rasiah, R. (2004). Foreign direct investment and backward linkages with local firms in Malaysian electronics manufacturing. World Development, 32(12), 1989-2006.

Robert E. Lipsey, 2004. "Home- and Host-Country Effects of Foreign Direct Investment," NBER Chapters, in: Challenges to Globalization: Analyzing the Economics, pages 333-379, National Bureau of Economic Research, Inc.

Rugman, A. M. (1980). Internalization Theory and Corporate International Finance. California Management Review, 23(2), 73-79. https://doi.org/10.2307/41164920

Sapna Hooda, (2011). Sapna Hooda, (2011), 'A study on FDI and Indian Economy', Doctoral thesis, National Institute of Technology, Kurukshetra, Haryana.

Seyoum, Mebratu & Wu, Renshui & Lin, Jihong. (2014). Foreign Direct Investment and Economic Growth: The Case of Developing African Economies. Social Indicators Research. 122. 10.1007/s11205-014-0679-6.

Shin, H., & Stulz, R. (1998). Are Internal Capital Markets Efficient? Quarterly Journal of Economics, 113, 531-553.

Smeets, V. (2008). Are foreign-owned firms different? Comparisons of employment, wages, and productivity. The Review of Economics and Statistics, 90(4), 660-677.

Solow, R. M. (1956). A contribution to the theory of economic growth. The Quarterly Journal of Economics, 70(1), 65-94.

Sukar, Abdul-Hamid & Ahmed, Syed & Hassan, Seid. (2006). The Effects of Foreign Direct Investment on Economic Growth: The Case of Sub-Sahara Africa. Southwestern Economic Review. 34.

UNCTAD (2007), World Investment report: Transnational Corporations, Extractive Industries and Development. https://unctad.org/system/files/official-document/wir2007_en.pdf

UNCTAD World Investment Report 2020: International Production beyond the Pandemic. New York and Geneva: United Nations. Retrieved from https://unctad.org/system/files/official-document/wir2020_en.pdf

United Nations Conference on Trade and Development. (2019). World Investment Report 2019: Special Economic Zones. New York and Geneva: United Nations. Retrieved from https://unctad.org/system/files/official-document/wir2019_en.pdf

Wang, M., & Xu, L. C. (2013). Financial development and economic growth: Evidence from China. China Economic Review, 24, 19-38.

World Bank. (2020). World Development Report 2020: Trading for Development in the Age of Global Value Chains. Washington, DC: World Bank. Retrieved from https://openknowledge.worldbank.org/handle/10986/32436

Yana Mbena, Jacques. (2022). The status quo of research in sustainable FDI: exploring the theoretical agenda and policy inferences in West and Central Africa. Future Business Journal. 8. 10.1186/s43093-022-00153-5.

Zardoub, Amna & Sboui, Faouzi. (2021). Impact of foreign direct investment, remittances and official development assistance on economic growth: panel data approach. PSU Research Review. ahead-of-print. 10.1108/PRR-04-2020-0012.

Zhang, K. H., & Markusen, J. R. (1999). Vertical multinational corporations, total factor productivity, and country size. International Economic Review, 40(1), 113-131.

APPENDIX : SELECTED COUNTRIES

Country Code Assigned	Name of Country
1	Benin
2	Burkina Faso
3	Burundi
4	Central African Republic
5	Chad
6	Cote d'Ivoire
7	Congo, Dem. Rep.
8	Gambia
9	Guinea
10	Mali
11	Madagascar
12	Mauritania
13	Niger
14	Rwanda
15	Senegal
16	Sierra Leone
17	Tanzania
18	Togo