

UNIVERSITÉ ABDERRAHMANE MIRA DE BÉJAIA



جامعة بجاية
Tasdawit n Bgayet
Université de Béjaïa

Faculté des Sciences Économiques, Commerciales et des Sciences de Gestion

Département des Sciences Commerciales

MÉMOIRE

En vue de l'obtention du diplôme de

MASTER EN SCIENCES COMMERCIALES

Option : FINANCE ET COMMERCE INTERNATIONAL

L'INTITULÉ DU MÉMOIRE :

FOREIGN DIRECT INVESTMENT AND ITS ECONOMIC
IMPLICATIONS: CASE STUDY OF UGANDA

Préparé par :

Mr. OCHIENG DERRICK

Dirigé par :

Dr. ALILAT AMEL

Date de Soutenance : 23rd June 2025

Jury :

Président : Dr. TOUATI KARIMA

Examineur : Dr. OUARET SAMIRA

Rapporteur : Dr. ALILAT AMEL

Année universitaire : 2024/2025

DEDICATIONS

With love and gratitude, I dedicate this dissertation to my parents Mr. Bogere Moses Nicholas and Mrs. Apio Juliet for their unwavering support along my entire academic journey. I also dedicate this dissertation to all my siblings for their support in my academic endeavours and in a special way to my brother Othieno Brian and sister Nyafwono Sarah for his guidance and financial support.

ACKNOWLEDGEMENTS

This milestone would not have been possible without the invaluable support and contributions of several individuals and institutions. I extend my deepest gratitude to all those who generously shared their time, expertise, and resources to facilitate this significant step in my academic journey.

First and foremost, I express my sincere appreciation to my supervisor, Dr. AMEL ALILAT, for her exceptional guidance, support, and insightful feedback throughout the research process. Her mentorship has been instrumental in shaping this dissertation.

I am also deeply grateful to the Faculty SEGC at the University of Béjaïa for providing me with the opportunity to pursue this master's degree in Economic Sciences. The enriching academic environment and the knowledge I gained have been invaluable.

I would like to extend my heartfelt appreciation to Kiprop Emmanuel, Mkombola Agatha Wakio and Njagi Kennedy for his invaluable guidance and support whenever needed mostly in running the data and technical assistance.

Finally, I express my heartfelt gratitude to my brothers and sisters from the Ugandan and Kenyan community here in Bejaia in this academic endeavour: Your camaraderie, mutual support, and shared commitment to learning have made this journey both enriching and memorable.

LIST OF ABBREVIATIONS

ADF: Augmented Dicky-Fuller (test)

AIC: Akaike Information Criterion

ARDL: Autoregressive Distributed Lag (model)

CUSUM: Cumulative Sum (of recursive residuals test)

CUSUMSQ: Cumulative Sum of Squares (of recursive residuals test)

DINV: Domestic Investment

ECM: Error Correlation Model

FDI: Foreign Direct Investment

GDP: Gross Domestic Product

GNP: Gross National Product

INF: Inflation

ICT : Information and Communication Technology

IDE: Investissement Direct Étranger

MNC: Multinational Corporation

MNE: Multinational Enterprise

OLI: Ownership, Location, and Internalisation

PCI: Per Capita Income

SDG: Sustainable Development Goal

UBO: Uganda Bureau of Statistics

UIA: Uganda Investment Income

UN: United Nations

UNCTAD: United Nations Conference on Trade and Development

VECM: Vector Error Correction Model

SUMMARY

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GENERAL INTRODUCTION

GENERAL INTRODUCTION

Foreign Direct Investment (FDI) has long been recognized as a critical driver of economic growth and development, particularly in developing economies. By providing capital, technology, and managerial expertise, FDI can stimulate industrialization, create employment, and enhance infrastructure development. For countries like Uganda, which face significant challenges such as limited domestic investment, inadequate infrastructure, and high unemployment rates, FDI represents a vital tool for achieving sustainable economic growth. However, the benefits of FDI are not automatic; they depend on the host country's ability to attract, manage, and leverage foreign investments effectively. This thesis explores the role of FDI in Uganda's economic development, examining its trends, sectoral distribution, and economic implications. First, this introductory chapter establishes the background of the study by analysing Uganda's economic journey, tracing its growth patterns and identifying key factors that have influenced its trajectory. Understanding this historical context is crucial for comprehending the all the implications of FDI on the economy of Uganda.

Background of the Study

Uganda, a landlocked country in East Africa with a population of over 45 million, has made significant strides in attracting FDI over the past two decades. The discovery of oil reserves in the Albertine Graben, coupled with reforms in the investment climate, has positioned Uganda as an attractive destination for foreign investors. Key sectors such as oil and gas, agriculture, telecommunications, and energy have attracted substantial FDI, contributing to GDP growth, job creation, and infrastructure development. However, despite these positive developments, Uganda continues to face challenges such as bureaucratic inefficiencies, corruption, and inadequate infrastructure, which hinder the full realization of FDI's potential benefits.

Uganda, like many other developing countries, has been actively promoting Foreign Direct Investment (FDI) as a strategy for achieving economic development and poverty reduction (Louis A. Kasekende & Michael Atingi-Ego, 2008).

According to the Uganda Investment Authority (UIA), the country has experienced a significant increase in FDI inflows over the past two decades, from \$15 million in 1990 to \$1.3 billion in 2020 (UIA, 2020). The majority of FDI in Uganda has been concentrated in the oil and gas sector, followed by the manufacturing and agriculture sectors (UBOS, 2020).

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Problem Statement

Uganda's economy is increasingly reliant on Foreign Direct Investment (FDI), particularly in the oil and gas sector. While FDI can drive economic growth, its impact on sustainable and inclusive development is complex. Recent FDI surges, mainly in pre-oil sector investments, raise concerns about economic diversification and resilience to commodity price fluctuations. Uganda is one of the countries attracting the most FDI in East Africa. According to UNCTAD'S World Investment Report 2023, FDI increased by 39% to USD 1.5 billion in 2022. TotalEnergies from France announced two significant greenfield projects: the development of the Lake Albert oil field in collaboration with China National Offshore Oil Corporation and Uganda National Oil Company for USD 6.5 billion, and the construction of the 1,440-kilometre East African Crude Oil Pipeline in a USD 3.5 billion joint venture involving Uganda National Oil Company, Petroleum Development Corporation from the United Republic of Tanzania, and China National Offshore Oil Corporation. In 2022, the Netherlands remained the primary source of foreign direct investment (FDI) inflows, accounting for 38% of the total, closely followed by the United Kingdom, which contributed 37%. Other significant source countries included Mauritius (7%), Kenya (5%), and Switzerland (3% - data Bank of Uganda). At the end of 2022, the total stock of FDI was estimated at USD 18 billion, around 37% of the country's GDP. FDI is concentrated in the mining, transportation, finance, manufacturing, and ICT sectors.

Research question

Our research question is *“What has been the economic effects of FDI on Uganda's economic growth?”* And our research objective is *to analyse the effects of FDI on the economic growth of Uganda between 1994 and 2023*. By addressing these critical issues, this study seeks to provide a comprehensive and nuanced understanding of the economic implications of FDI in Uganda, contributing to informed policymaking and sustainable development outcomes.

Research hypotheses

H1: There is a long run relationship between FDI and economic growth in Uganda.

H2: There is a positive and statistically significant relationship between FDI and economic growth in Uganda.

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Methodology of the research

This study employs a quantitative approach to investigate the relationship between FDI and Uganda's economic growth from 1994 to 2023. The analysis utilises time series data specifically from the World Bank. The core methodological framework is grounded in the Autoregressive Distributed Lag (ARDL) model, a powerful econometric tool suitable for analysing the long-run and short-run dynamics of relationships between variables that might be integrated of different orders. The study further employs unit root testing, cointegration analysis, and a battery of diagnostic tests to ensure the validity and reliability of the findings.

Work plan

This research explores Foreign Direct Investment (FDI) in Uganda in three chapters as follows; Chapter 1 reviews existing FDI literature, Chapter 2 analyses FDI trends, patterns, and economic implications in Uganda, and Chapter 3 outlines the methodology using the Autoregressive Distributed Lag (ARDL) model to investigate FDI's impact on Uganda's economy. And these are broadly discussed below.

CHAPTER ONE LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

CHAPTER ONE: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Introduction

A foreign direct investment (FDI) is a controlling ownership in a business in one country by an entity based in another country. Krugman & Obstfeld (2008) highlighted FDI as transnational flow of capital where a parent company in one economy initiates its subsidiary in another economy. UNCTAD (2016), defined FDI as an investment by entity which belongs to one country which aim to undertake business investment in another country for more than a year. FDI is a crucial mechanism to foster economic development of the growing economies as it boosts exports and trade balance (Hailu, 2010). Broadly, foreign direct investment includes "mergers and acquisitions, building new facilities, reinvesting profits earned from overseas operations and intra company loans". As a part of the national accounts of a country, and in regard to the Gross Domestic Product (GDP) equation $Y=C+I+G+(X-M)$ [Consumption + gross Investment + Government spending +(exports - imports)], where I is domestic investment plus foreign investment, FDI is defined as the net inflows of investment (inflow minus outflow) to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. FDI is the sum of equity capital, other long-term capital, and short term capital as shown the balance of payments. FDI necessarily involves a control over the management. It would be in the form of joint-venture, transfer of technology and expertise. Stock of FDI is the net (i.e., inward FDI minus outward FDI) cumulative FDI for any given period. FDI is one example of international factor movements. The theoretical and empirical investigations are reviewed in this chapter.

1.1 THEORETICAL FRAMEWORK AND THEORIES OF FDI

Here we going to look at the theoretical background of FDI and some few theories put up by the scholars.

1.1.1 The theoretical background

According to Grazia letto-Gillies, prior to Stephen Hymer's theory, neoclassical economics explained Foreign Direct Investment (FDI) using macroeconomic principles and

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comparative trade theory. However, Hymer shifted the focus to a firm-specific perspective, questioning why firms go abroad. He argued that neoclassical theories, which emphasized interest rate differentials, couldn't explain international production. Hymer observed that FDI patterns didn't follow the expected distribution if interest rates were the main motive. Instead, he identified various factors driving FDI, including firm-specific advantages. Hymer's theory successfully explained different FDI patterns emerging from the USA, Japan, and Europe, highlighting the complexity of international investment decisions. By moving beyond interest rate differentials, Hymer's work provided a more nuanced understanding of FDI and multinational enterprises (letto-Gillies, 2012).

- **Firm-specific advantages:** When home countries investment opportunities are exhausted, an MNC could exploit its advantages linked to market imperfections. Further studies showed how such firms could monetize these advantages in the form of licenses. The firm specific advantages (FSA) were present in MNC'S in the form of better management and technology (letto-Gillies, 2012).
- **Removal of conflicts:** When a firm operating in foreign market expands its operations within the same market, conflict arises. The MNC forms a collusive market sharing agreement with the rivals. Hence they acquire a direct control of production. However, this leads to market imperfections (letto-Gillies, 2012).
- **Propensity to formulate an internationalization strategy to mitigate risk:** Firms are characterized with 3 levels of decision making: the day to day supervision, management decision coordination and long term strategy planning and decision making. The extent to which a company can mitigate risk depends on how well a firm can formulate an internationalization strategy taking these levels of decision into account. Hymer's role in the field of Foreign Direct Investment has been due to his contribution in the areas of Multinational Enterprises (MNE). His view goes beyond macroeconomic principles, latter theories in International Business, such as the OLI (Ownership, Location and Internationalization) theory by John Dunning and Christos Pitelis focus more on transaction costs. (letto-Gillies, 2012). And later, developments in FDI theory have been resource based and evolutionary.

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1.1.2 The Theories of Foreign Direct Investment

These theories are briefly explained below;

The Neo-classic Theory

Stephen Hymer is considered the father of International Business due to his pioneering work on Multinational Enterprises (MNEs) and Foreign Direct Investment (FDI). His 1960 doctoral thesis challenged conventional views, distinguishing FDI from financial investments and highlighting its role in granting firms control over host country businesses. Hymer argued that FDI succeeds due to market imperfections, which MNEs can exploit to eliminate conflicts and stimulate business. He identified firm-specific advantages, such as skilled labor and technology, as drivers of FDI. Hymer's work influenced the OLI paradigm and continues to shape our understanding of MNEs and FDI, providing valuable insights into global business operations (Cantwell, 2024).

Monopolistic advantage theory

The monopolistic advantage theory is an approach which explains why firms go abroad and compete with indigenous competitors. Hymer was puzzled by shortcomings of neo-classical theories of international trade and international finance (portfolio capital investment) to explain the foreign activities of firms. According to neo-classical theory, international specialization takes place according to factor abundance. Given tariff or non-tariff barriers, these countries may export capital as a partial substitute to goods thus reaping the benefits from higher interest rates in developing countries where capital is scarce and labour abundant. The trends in trade show that flows of capital are now mainly occurring between industrialized countries with similar factor endowment. Hymer's approach was to emphasize a microeconomic approach based on the individual firm as main determinant of international flows of goods and capital. Hymer's theory of FDI extended the portfolio investment approach by emphasizing that an element of control over the acquired assets (Cantwell, 2024).

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The eclectic paradigm

The eclectic paradigm is a theory known as the OLI-Model or OLI-Framework. It is an extension of the internalization theory by John H. Dunning in 1979. Internalization theory itself is based on the transaction cost theory. It is said that the production process is internalized if the transaction costs on the free market are higher than the internal costs. This process is called internalization. For Dunning, not only the structure of organization is important but he added 3 more factors to the theory:

- Ownership advantages (trademark, production technique, entrepreneurial skills, returns to scale) Ownership specific advantages refer to the competitive advantages of the enterprises seeking to engage in Foreign direct investment (FDI). If MNC's have such competitive advantages they are likely to engage in their foreign production.

- Location advantages (existence of raw materials, low wages, special taxes or tariffs) refer to the alternative countries or regions, for undertaking the value adding activities of MNEs. The more the immobile, natural or created resources, which firms need to use jointly with their own competitive advantages, favour a presence in a foreign location, the more firms will choose to augment or exploit their 'O' specific advantages by engaging in FDI.

- Internalization advantages (advantages by own production rather than producing through a partnership arrangement such as licensing or a joint venture). MNC's indulge in exploitation of their core competencies. The net benefits of internalizing cross border intermediate product markets lead to engagement in foreign production itself rather than license. The idea behind the Eclectic Paradigm is to merge several isolated theories of international economics in one approach. Three basic forms of international activities of companies can be distinguished: Export, FDI and Licensing. The so-called OLI-factors are three categories of advantages, namely the ownership advantages, locational advantages and internalization advantages. A precondition for international activities of a company are the availability of net ownership advantages (Dunning, 1988).

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1.2 DETERMINANTS OF FDI IN DEVELOPING ECONOMIES

In this part, we are going to cover the factors that attract FDI in developing economies where Uganda is part. And it will also help us determine the variables that we shall later use in the methodology part later in the third chapter of this thesis. These factors or determinants are discussed below;

Several factors influence Foreign Direct Investment (FDI) inflows into Uganda, reflecting the country's appeal to foreign investors and the conducive environment for investment. Recent empirical research by Tukundane and Kibuuka identifies key determinants shaping FDI in Uganda, including political stability, macroeconomic stability, market size, and natural resource endowments (Tukundane & Kibuuka, 2020). Their study highlights the importance of political stability in attracting FDI, as investors seek assurance of a secure and predictable business environment.

Additionally, Uganda's macroeconomic stability, characterized by low inflation and prudent fiscal management, enhances investor confidence and encourages long-term investment commitments. Moreover, institutional factors play a significant role in determining FDI inflows into Uganda. According to a study by Nantaze and Katamba, the effectiveness of regulatory frameworks, ease of doing business, and governance standards influence investment decisions by foreign firms. Uganda's efforts to streamline bureaucratic processes, enhance transparency, and strengthen property rights have contributed to improving the investment climate and attracting FDI (Nantaze & Katamba, 2023).

1.2.1 Types of FDI

FDI is generally alienated in two major categories and one minor category: horizontal FDI and vertical FDI and thirdly conglomerate FDI. And they are explained below;

Horizontal/ Platform: Foreign direct investment from a source country into a destination country for the purpose of exporting to a third country. FDI allows MNCs to expand their production abroad such that producing equivalent products to domestically available ones in the FDI receiving country. Lim (2001) highlights that Horizontal FDI seeks

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to penetrate a new market; however, it may be affected by various factors, including openness to trade and GDP growth rate. Horizontal FDI takes a large part in global FDI (Nauro F. Campos & Yuko Kinoshita, 2003).

In Vertical FDI, takes place when a firm through FDI moves upstream or downstream in different value chains i.e., when firms perform value-adding activities stage by stage in a vertical fashion in a host country. MNCs takes advantages of geographical position and low costs to launch production process in receiving state and to produce for both the domestic and international markets. Vertical FDI is sometimes mentioned as the resource seeking FDI as investors tend to seek the low cost and efficient resources in the foreign country compared to the home country (Nauro F. Campos & Yuko Kinoshita, 2003). In Backward FDI, the established enterprises in foreign country provide inputs to the parent enterprise while in Forward FDI, which is less popular, enterprises in the host country sells products from parent enterprises.

And lastly, in conglomerate FDI, a company invests in a foreign business that is unrelated to its core business. Because the investing company has no prior experience in the foreign company's area of expertise, this often takes the form of a joint venture.

Moreover, FDI can be classified into target, direction and motive as means for FDI to effect growth of the host nation (Glauco de Vita & Khine Kyaw, 2009). Target effect ways include investment, horizontal and vertical FDI, and mergers and acquisitions. The direction effect can be divided into inward and outward FDI, whereas market seeking, resource seeking, strategic asset and efficient seeking are means of motive effect.

1.2.2 Channels of FDI

Foreign direct investment (FDI) typically flows through two distinct channels: ***greenfield investments***, where companies build new facilities from scratch, and ***brownfield investments***, where they purchase or lease existing ones. Here we break down the ways in which FDI is achieved in the host country basing on the types and channels mentioned above

- **Creation of a wholly owned subsidiary;** A wholly owned subsidiary allows a company to take full control and risk of operations in a foreign country. This direct investment

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contributes to resource optimization, employment generation, and economic growth in the host country. The parent company retains control through technology, expertise, and intellectual property, enabling exports to other countries and maximizing global reach and profitability (Horst Raff, 2009).

- **Mergers and acquisitions;** involve a company merging with or acquiring a foreign company, gaining control and ownership. This entry mode provides a competitive edge, strengthens international manufacturing and marketing, and saves time on setup and regulatory approvals (Horst Raff, 2009).
- **Joint-venture;** is a collaborative effort between two or more companies to create a new business entity. This partnership allows companies to share financial risk and expertise, particularly in industries requiring substantial investment. By combining resources and market knowledge, companies can benefit mutually (Horst Raff, 2009).
- **Licensing;** is business arrangement in which one company gives another company permission to manufacture its product for a specified payment. It's through patents, trademarks, copyrights, designs and other intellectual exchange for a fee. (Horst Raff, 2009).
- **Franchising;** is a popular business model for industries like fast-food, retail, and hospitality, where brand identity and standardized customer experience are crucial. The franchisor grants franchisees the right to operate under its brand and model, enabling rapid expansion with low capital investment (Horst Raff, 2009).

Conclusion

To conclude, FDI plays a crucial role in economic development by providing capital, technology transfer, job creation, and access to global markets. Key determinants of FDI include market size and growth, trade openness, economic stability, labour costs and availability, natural resources, regulatory environment, investment incentives, political stability, infrastructure, and financial sector development. And understanding these determinants is crucial for policymakers to formulate targeted strategies aimed at further promoting FDI and fostering sustainable economic growth

CHAPTER TWO: TRENDS, PATTERNS AND ECONOMIC IMPLICATIONS OF FDI IN UGANDA

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Introduction

In this chapter, we going to look at the trends, patterns and economic implications of FDI in Uganda where shall cover evolution of FDI over the years in Uganda and look at how it has shaped Uganda's economy economically through economic growth as we answer our research question.

2.1 TRENDS AND PATTERNS OF FDI IN UGANDA OVER THE YEARS

Foreign Direct Investments in Uganda has shown both growth and fluctuations over the years, influenced by global economic conditions, domestic policies, and regional dynamics.

FDI was an important part of the economic policy in Uganda since the early liberalization policies in the 1990s. Over the last three decades, the trends and patterns of FDI have kept changing due to not only global economic changes but also various fluctuations in domestic policy. In the 1990s, when the Ugandan government was implementing means of creating an enabling investment environment, FDI inflows into the country increased significantly. These included setting up the Uganda Investment Authority in 1991, which streamlined investment procedures and gave a host of incentives to foreign investors (Mugenyi, 2000).

Starting in the 2000s, FDI patterns in Uganda began to diversify with the beginning of more substantial inflows towards the services sector, mainly in telecommunications, financial services, and tourism. This was partly driven by technological changes and regulatory reforms which opened up these sectors to increased foreign participation (Louis A. Kasekende & Michael Atingi-Ego, 2008).

The 2010s saw the beginning of a new phase in Uganda's FDI pattern changes, which increasingly targeted investments in the energy and infrastructure sectors. This is partly a result of the discovery of oil reserves in the Albertine Graben region, which attracted much foreign interest, especially from multinational oil companies (Walusimbi, 2014).

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It is against this trend that the COVID-19 pandemic in 2020 really dented Uganda's FDI inflows. According to the 2021 UNCTAD World Investment Report, Uganda has recorded a decline in FDI by 35% in 2020 from the previous year, mirroring trends in the rest of the world disrupted by the pandemic on economic activities and investor confidence.

The Ugandan government initiated a number of recovery measures that included fiscal incentives and policy adjustment meant to revive investor interest in the economy. The long-term effects of the pandemic on FDI patterns, however, constitute a critical area of study, especially in understanding how investor confidence is rebuilt and sustainable investments are attracted in the post-pandemic world (Mugisha, 2024).

2.1.2 Review of Empirical Studies on FDI and Economic Growth

Numerous researches have attempted to establish the link between FDI and macroeconomic performances including GDP, however, the results are rather mixed. Many papers have mentioned that FDI influence growth in various ways, others have portrayed the negative influence of FDI to economic growth and others showed insignificant results.

Balasubramanyam, Salisu and Sapsford (1996) argued that FDI can speed up growth of the receiving countries through improving foreign trade and ensuring stability of macroeconomic variables (Balasubramanyam & Sapsford, 1996). Further, they concluded that FDI inflows can effectively boost economic growth than local investments in developing economies which implement export promotion policies. For nations with high institutional competence, FDI has a significant beneficial influence on their growth (Olofsdotter, 1998).

Sadik and Bolbol (2001) examined that FDI inflows had affected positively the GDP growth and local investment in six Arab countries from 1978 to 1998 (Sadik, 2001). Furthermore, Akiri, Vehe and Ijuo (2016) used VECM and determined positive impact of inward FDI to Nigeria's GDP growth during from 1981 to 2014 (Akiri Sunday Edesiri, 2016).

Other papers have indicated the presence of both benefits and costs of FDI to the economy. For instance, Langley (1968) portrayed that FDI could boost the GDP growth rate of Nigeria; however, he was worried that it could also narrow down the balance of payment (Akinlo, 2004).

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2.2 ECONOMIC IMPLICATIONS OF FDI ON UGANDA'S ECONOMY

Some of the effects of FDI are increased capital, output and tax revenues in the host country. Host countries often try to channel FDI investment into new infrastructure and other projects to boost development. Competition from new MNC's lead to gains in efficiency in the host country. It is also expected that domestic subsidiary may improve corporate governance standards. Other kinds of spillover effects from MNC to the domestic economy are transfer of soft skills through training and job creation. And these have an impact on an economy mostly the economic growth which is among the 17 sustainable development objectives set forth by the UN, sustainable economic growth is Sustainable Development Goal 8 (SDG8) (Nistor P., 2014).

2.2.1 Economic growth theory

Economic growth is a criterion to measure the economic development of a country. It can be measured as an increase in gross domestic product (GDP) and gross domestic product per capita based on purchasing power parity or the size of national output per capita (PCI) or gross national product (GNP) in each period (Lewis, 2003). Economic growth describes the quantitative change in a country's economy. GDP is one of the leading indicators to assess the overall growth rate of the economy as well as the level of development of a country. Most countries use some of their GDP or GNP to measure their economic growth. Economic growth reflects very clearly the actual status of a country's output or product in the economy and each economic region, based on which countries will make applicable policies for economic development. Enterprises also rely on it to make more accurate decisions. (Nistor P., 2014) proves that FDI has a positive effect on economic development because FDI has a role in increasing domestic investment. As FDI increases, it increases export activities, promotes the transfer of goods and services, or increases access to technology, increasing GDP

2.2.2 FDI Impacts on Uganda's Economic Growth

Foreign Direct Investment (FDI) plays a crucial role in driving economic growth in Uganda, exerting significant positive effects on various dimensions of the economy.

Recent empirical studies shed light on the multifaceted impact of FDI on Uganda's economic growth trajectory. According to research by Mugisha and Kamugisha, FDI inflows

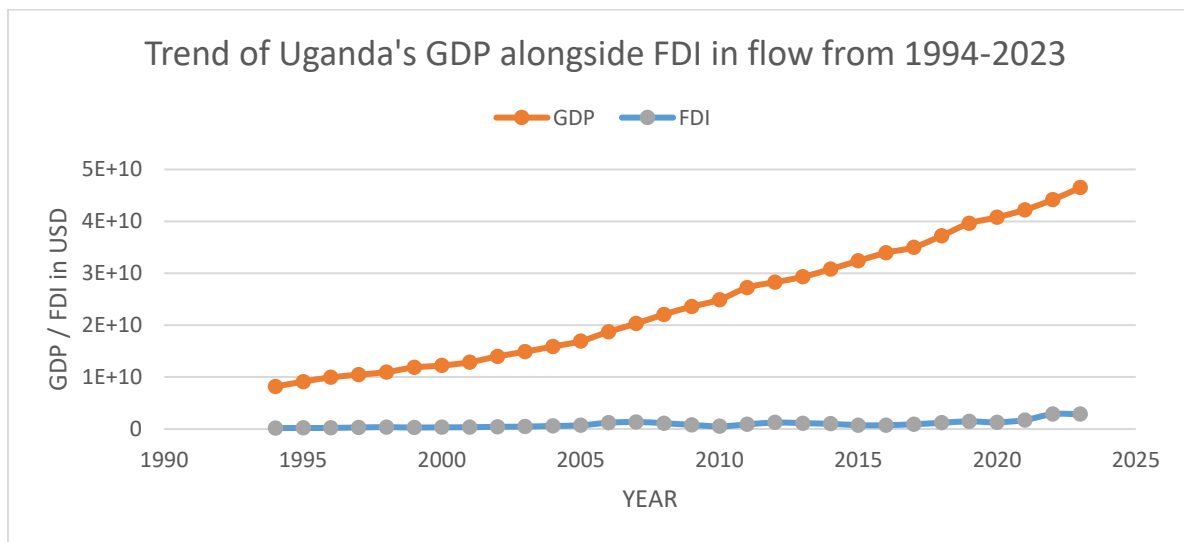
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stimulate economic growth by fostering capital accumulation, technology transfer, and productivity enhancements. Their study underscores the role of FDI in spurring investments in critical sectors such as infrastructure and manufacturing, thus contributing to overall economic expansion (Mugisha, 2024).

Furthermore, Nanteza and Katamba highlight the positive relationship between FDI and Uganda's GDP growth rate, indicating that increased FDI inflows lead to higher levels of economic output and development. Their analysis suggests that FDI inflows contribute to job creation, income generation, and improvements in living standards, thereby fuelling sustained economic growth over the long term (Nantaze & Katamba, 2023).

And below is the graph showing Uganda's foreign direct investment (FDI) inflow in relation to economic growth (GDP) between from 1994 to 2023

Figure 1: Trend of Uganda's GDP alongside FDI in flow from 1994-2023



Source: Author using data from World Bank

2.2.3 Challenges and Constraints Facing FDI in Uganda

Despite the significant inflow of Foreign Direct Investment (FDI) into Uganda, the country faces various challenges and constraints that may hinder the attraction and retention of foreign

CHAPTER TWO: TRENDS, PATTERNS AND ECONOMIC IMPLICATIONS OF FDI IN UGANDA

investors. Recent research highlights key issues that impede FDI inflows and pose challenges to Uganda's investment climate.

One significant challenge facing FDI in Uganda is inadequate infrastructure. Poor road networks, limited access to electricity, and deficient telecommunications infrastructure hinder business operations and increase operating costs for foreign investors (Uganda Investment Authority, 2024).

Additionally, regulatory hurdles and bureaucratic inefficiencies pose significant barriers to investment. Cumbersome administrative processes, ambiguous regulations, and inconsistent enforcement of laws create uncertainties and deter foreign investors from committing to long-term investments (Mugisha, 2024).

Political instability and security concerns remain persistent challenges for FDI in Uganda. Political tensions, civil unrest, and security risks undermine investor confidence and disrupt business operations, particularly in regions prone to conflict (Nantaze & Katamba, 2023).

These challenges highlight the importance of addressing governance issues, enhancing regulatory frameworks, and improving infrastructure to create a conducive environment for FDI in Uganda. Addressing the challenges and constraints facing FDI in Uganda requires concerted efforts from policymakers to improve infrastructure, streamline regulatory processes, and enhance political stability and security. By addressing these issues, Uganda can unlock its full potential to attract and retain foreign investment, thereby driving economic growth and development [76-77].

Conclusion

So we can conclude that the impact of FDI on economic growth in Uganda is substantial, with evidence pointing to its role in driving capital formation, technology diffusion, and overall productivity improvements. Understanding these dynamics is essential for policymakers to leverage FDI as a catalyst for sustainable economic development.

CHAPTER THREE: METHODOLOGY OF THE STUDY

CHAPTER THREE: METHODOLOGY OF THE STUDY

Introduction

This chapter presents the analytical tool of our empirical study. For this purpose, our methodology is based on time series econometrics. First we present the sources of our annual data for each variable. Second the specification of the econometric model. Then, thirdly, analysis by time series.

3.1 DATA COLLECTION AND DESCRIPTION

The data used in our empirical study came from World Bank database. And they are as follows; gross domestic product (GDP) in constant dollars (2015) as our dependent variable and the independent variables are foreign direct investment (FDI) represented by net inflows in constant dollars (2015), and inflation rate (INF). The availability of data for each year allowed us to cover a study period of 1994 to 2023. The database is represented in appendix No.1

3.1.2 Specification of the econometric model

In the context of econometrics, we can consider a model to consist of a formalized presentation of a phenomenon in the form of equations whose variables are economic quantities. The objective of the model is to represent the most striking features of a reality it seeks to stylize. The model is therefore the tool that the modeller uses when seeking to understand and explain the phenomena.

Our model is Autoregressive Distributed Lag(ARDL). In this model, the selected variables all have the same status; all variables are endogenous, and there is no need to determine the exogenous variables. Thus, the value of a variable depends on its own past values and the past values of other variables that make up the model. This model is useful for analysing short- and long-run effects of FDI on Uganda's economy, works well with small sample sizes and also handles mixed orders of integration ($I(0)$ and $I(0)$ variables which is common in macroeconomic data

3.1.3 Empirical estimation

This section outlines the econometric approach employed to assess the relationship between FDI and Uganda's economic growth. The analysis is conducted using EViews10 software, a widely recognised econometric package specifically designed for time series analysis. EViews offers

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robust features for unit root testing, model estimation, diagnostic testing, and result presentation, making it a suitable choice for this research. To explore the relationship between economic growth and the selected variables, a general functional form for the model is established. This function represents Uganda's Gross Domestic Product per capita at time t ($GD Pt$) as a function of the independent variables:

General Functional Form:

$$GD Pt = f(FDI t, INF t) \dots\dots\dots (1)$$

Where; $GD Pt$ is Gross Domestic Product per capita of Uganda at time t , $FDI t$ is Foreign Direct Investment inflow in Uganda at time, and $INF t$ is Inflation rate in Uganda at time t .

The general functional form is then expanded into a linear regression equation, using the natural logarithms of GDP, FDI, and INF to stabilise variance and improve the interpretation of coefficients

Linear Regression Equation:

$$\ln GD Pt = \beta_0 + \beta_1 \ln FDI + \beta_2 \ln INF t + \varepsilon t \dots\dots\dots (2)$$

Here:

β_0 : The constant term β_i ($i = 1$ to 2):

Represent the coefficients of the respective independent variables

εt : Represents the error term

3.1.4 Unit Root Tests.

To determine the order of integration of the variables ($\ln GDP$, $\ln FDI$, and $\ln INF$) the Augmented Dickey-Fuller (ADF) unit root test was employed. The ADF test, developed by Dickey and Fuller (1979, 1981), is a widely used test for stationarity in time series data. It helps determine whether a time series has a unit root, implying non-stationarity, or not.

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The general forms of the ADF test equations are:

With trend and intercept:

$$\Delta Y_t = \alpha + \beta t + \delta Y_{t-1} + \sum \gamma_i \Delta Y_{t-i} + \varepsilon_t \dots\dots\dots (3)$$

With intercept:

$$\Delta Y_t = \alpha + \delta Y_{t-1} + \sum \gamma_i \Delta Y_{t-i} + \varepsilon_t \dots\dots\dots (4)$$

With none:

$$\Delta Y_t = \delta Y_{t-1} + \sum \gamma_i \Delta Y_{t-i} + \varepsilon_t \dots\dots\dots (5)$$

where:

ΔY_t : The first difference of the variable Y at time t (i.e., $Y_t - Y_{t-i}$)

α : The constant term β

t : The time trend term (included in some specifications)

δ : The coefficient of the lagged dependent variable (Y_{t-1})

γ_i : The coefficients of additional lagged difference terms (ΔY_{t-i})

ε_t : The error term at time t

i : The number of lagged difference terms (determined by model selection criteria, such as the Akaike Information Criterion or Bayesian Information Criterion)

3.1.5 Bounds Test for Cointegration

A bounds test was conducted to assess the presence of cointegration between the variables. The bounds test, developed by Pesaran et al. (2001), uses the Wald test (F-statistic) to compare the estimated coefficients of the lagged levels of the variables. The computed F-statistic was then compared with critical values provided by Pesaran et al. (2001), which account for the number of variables and the sample size. Null Hypothesis (H0): No cointegration exists between the variables.

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Alternative Hypothesis (H1): Cointegration exists between the variables. If the calculated F-statistic exceeds the upper bound critical value, the null hypothesis of no cointegration is rejected, providing evidence of a long-run relationship between the variables (Pesaran, 2015).

3.1.6 ARDL Model Specification

Once cointegration was established, the ARDL model was specified. The general form of the ARDL (p, q, r,) model, where p, q, and r represent the lag lengths for *GDP*, *FDI*, and *INF* respectively, is:

$$\Delta GDP_t = \alpha_0 + \sum \beta_i \Delta GDP_{t-i} + \sum \gamma_i \Delta FDI_{t-j} + \sum \varepsilon_l \Delta INF_{t-k} + \omega_1 \ln GDP_{t-1} + \omega_2 \ln FDI_{t-1} + \omega_3 \ln INF_{t-1} + \varepsilon_t \dots \dots \dots (6)$$

where:

Δ : Represents the first difference operator (e.g., $\Delta \ln GDP_t = \ln GDP_t - \ln GDP_{t-1}$)

α_0 : The constant term

$\beta_i, \gamma_i, \delta_k, \mu_m$: The coefficients of the lagged difference terms for the respective variables $\omega_1, \omega_2,$

ω_3 : The long-run coefficients of the variables in levels

ε_t : The error term at time t

The optimal lag lengths (p, q, r) were selected using the Akaike Information Criterion (AIC)

3.1.7 Error Correction Model (ECM)

The ARDL model can also be expressed as an Error Correction Model (ECM), which highlights the short-run dynamics and the adjustment towards the long-run equilibrium:

$$\Delta \ln GDP_t = \alpha_0 + \sum \beta_i \Delta \ln GDP_{t-i} + \sum \gamma_j \Delta \ln FDI_{t-j} + \sum \varepsilon_k \Delta \ln INF_{t-k} + \lambda ECT_{t-1} + \varepsilon_t \dots \dots \dots (7)$$

where:

ECT_{t-1} : The lagged error correction term, derived from the long-run relationship between the variables. It captures the speed of adjustment from short-run deviations back to the long-run equilibrium.

λ : The coefficient of the error correction term, representing the speed of adjustment.

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3.1.8 Diagnostic Tests and Model Validation

After estimating the ARDL model, a series of diagnostic tests were performed to evaluate the model's validity and ensure the reliability of the findings. These tests assess the key assumptions of the ARDL model and identify potential issues that could affect the results. The following diagnostic tests were conducted:

- **Normality of Residuals:** The Jarque-Bera test was employed to assess the normality of the residuals. This test evaluates both the skewness and kurtosis of the residuals, checking for deviations from a normal distribution.

- **Serial correlation:** The Breusch-Godfrey Lagrange Multiplier (LM) test was used to detect the presence of autocorrelation (serial correlation) in the residuals. Autocorrelation violates the assumption of independent errors, which can lead to biased and inefficient coefficient estimates.

- **Heteroscedasticity:** The Breusch-Pagan-Godfrey test was performed to assess the presence of heteroscedasticity – unequal variances in the residuals. Heteroscedasticity can also affect the efficiency of the coefficient estimates and lead to incorrect standard errors.

- **Model Stability:** The cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) tests were applied to examine the stability of the ARDL model over time. These tests help identify structural breaks or shifts in the model's parameters, which could affect the reliability of the long-run relationship. The results of these diagnostic tests are presented in the next chapter. By carefully conducting and reporting the results of these diagnostic tests, the validity and reliability of the ARDL model are ensured, providing a strong foundation for the analysis of the relationship between FDI and Uganda's economic growth.

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3.2 EMPIRICAL DATA ANALYSIS

This part moves from theory to practice, employing statistical analysis to understand the connection between foreign direct investment (FDI) and Uganda's economic growth from 1994 to 2023. Using EViews10 software, this chapter examines the collected data to uncover the real impact of FDI on Uganda's economy. The core of this chapter lies in using the Autoregressive Distributed Lag (ARDL) model as explained in the theoretical part above. This model helps in understanding both the immediate and long-term effects of FDI on Uganda's economic growth, considering a factor like inflation. This detailed data analysis aims to definitively answer the question: What has been the impact of FDI on Uganda's economic growth from 1994 to 2023? By providing clear and concrete evidence, this part offers valuable insights for policymakers and stakeholders to develop effective strategies for Ugandan FDI sector and the country's overall economic well-being.

3.2.1 Descriptive summary of the data

A descriptive summary of data in the table below provides a concise overview of its characteristics.

Table 1: Descriptive summary of the data

	LN_GDP	LN_FDI	LN_INF
Mean	23.77663	20.36575	1.790661
Median	23.85024	20.45283	1.687891
Maximum	24.56279	21.77446	4.446799
Minimum	22.82448	19.01243	0.877808
Std. Dev.	0.535436	0.758288	0.673341
Skewness	-0.187870	-0.126739	1.987361
Kurtosis	1.708944	2.213336	9.205495
Jarque-Bera	2.260008	0.853865	67.88322
Probability	0.323032	0.652508	0.000000
Sum	713.2988	610.9725	53.71982
Sum Sq. Dev.	8.314064	16.67501	13.14824
Observations	30	30	30

Source: Author Using Eviews10

LN_GDP (Log of GDP) Mean/Median: ~23.78, indicating the central tendency of logged GDP values. Range: Narrow (22.82 to 24.56), suggesting stable GDP values. Skewness/Kurtosis: Slight left skew (-0.19) and low kurtosis (1.71), implying a relatively symmetric and light-tailed distribution. Jarque-Bera: Statistic (2.26) with $p=0.32$ fails to reject normality.

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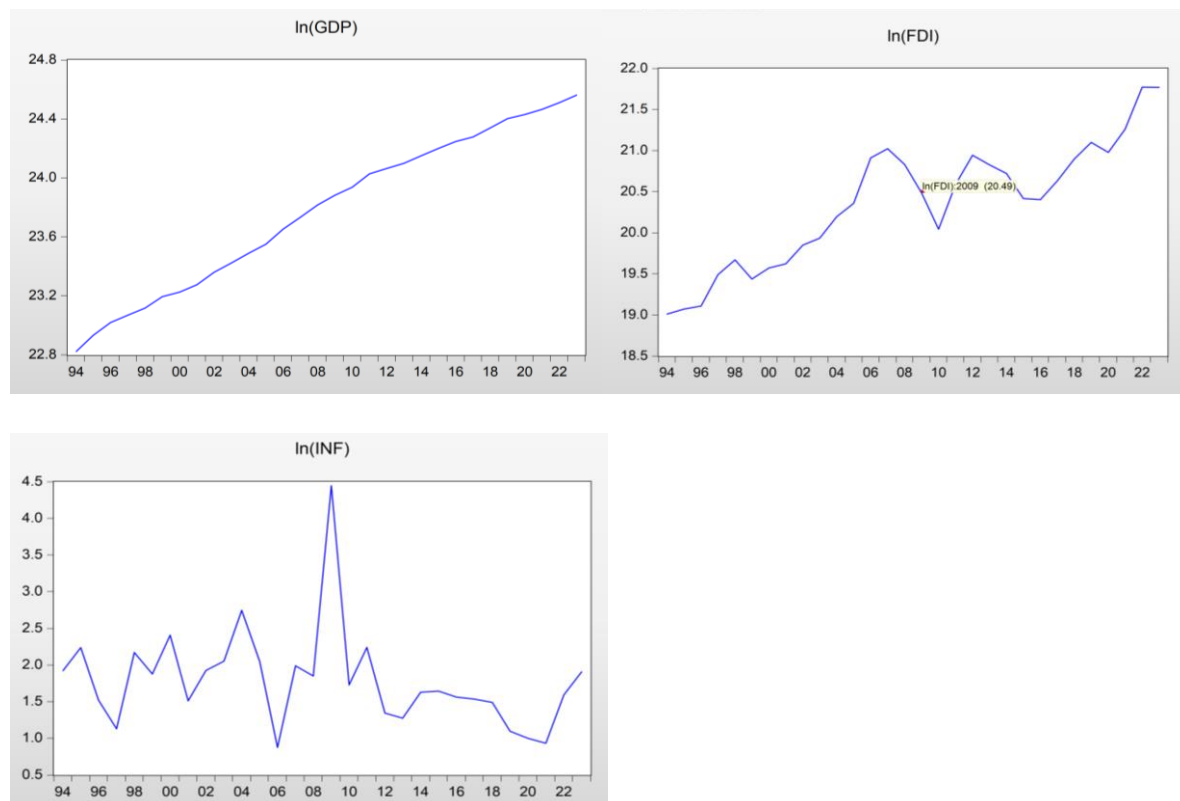
LN_FDI (Log of Foreign Direct Investment). Mean/Median: ~20.37, central logged FDI values. Range: Wider (19.01 to 21.77), indicating more variability than GDP. Skewness/Kurtosis: Mild left skew (-0.13) and near-normal kurtosis (2.21). Jarque-Bera: Statistic (0.85) with $p=0.65$ supports normality.

LN_INF (Log of Inflation). Mean/Median: ~1.79, but note the max (4.45) is much higher than the median, suggesting outliers. Std. Dev.: Low (0.88), but skewness (1.99) and high kurtosis (9.21) indicate right skew and heavy tails. Jarque-Bera: Statistic (67.88, $p=0.000$) strongly rejects normality, likely due to extreme values.

Whereas we note that LN_GDP and LN_FDI are relatively normally distributed. While LN_INF is non-normal with potential outliers, warranting transformations or non-parametric tests.

3.2.2 Visualisation of time trends of the variables

Figure 2: Graphs showing the time trends of the variables



Source: Author Using Eviews10

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The figures above show the trend of the variables used in this study for the period under study (1994- 2023). $\ln(\text{GDP})$ has a steadily shooting trend whereas other variables that is to say $\ln(\text{FDI})$ and $\ln(\text{INF})$ have fluctuating trends that signifying that they are easily affected by other factors.

3.2.3 Correlation of Variables

This section examines the correlations between the variables to understand the strength and direction of their linear relationships. The correlation matrix presented below provides insights into potential associations between GDP growth, FDI and inflation. Identifying strong correlations can help anticipate potential multicollinearity issues in later regression analysis and provide a preliminary understanding of the interconnectedness between these economic factors.

Table 2: Correlation of Variables

	$\ln(\text{GDP})$	$\ln(\text{FDI})$	$\ln(\text{INF})$
$\ln(\text{GDP})$	1.000000	0.904380	-0.261583
$\ln(\text{FDI})$	0.904380	1.000000	-0.228456
$\ln(\text{INF})$	-0.261583	-0.228456	1.000000

Source: Author Using Eviews10

The correlation matrix reveals key relationships between the logarithmic variables. $\ln(\text{GDP})$ shows a very strong positive relationship with $\ln(\text{FDI})$ (0.904), suggesting that foreign direct investment is closely tied to economic growth. Meanwhile, $\ln(\text{INF})$ (inflation) has weak negative correlations with all other variables (ranging from -0.228 to -0.262), implying that higher inflation may slightly dampen GDP and FDI though these relationships are not particularly strong. The strong interdependence between $\ln(\text{GDP})$ and $\ln(\text{FDI})$ highlight their collective role in economic activity, whereas inflation appears to have a marginal, inverse effect. These findings suggest that policies boosting foreign investment could significantly enhance GDP, while inflationary pressures, though mildly negative, are less influential in this context.

3.2.4 Results of the Unit Root Tests

The Augmented Dickey-Fuller (ADF) test helps determine whether a time series is stationary meaning its statistical properties like mean and variance remain constant over time or nonstationary. This is crucial for selecting the appropriate econometric model. The ADF test examines two hypotheses:

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- H0: The data has a unit root (non-stationary). This means the series is influenced by past values and shocks persist over time.

- H1: The data does not have a unit root (stationary). This implies a constant mean and variance, with shocks eventually disappearing.

The aim is to reject the null hypothesis (H0) to establish stationarity. A variable is considered stationary at levels (denoted I(0)) if the null hypothesis is rejected at its original form. If stationarity is achieved only after differencing the variable once (denoted I(1)), it indicates the presence of a trend that needed removal.

3.2.5 ADF test results at levels and first difference

The table below presents the AD test results at levels and at first difference, providing insights into the stationarity properties of each variable and guiding the model selection process.

Table 3: Test results at levels

Variables	Level						ADF Test	Difference Order of Integration
	t-statistics and tabulated value	model 3 Intercept and Trend		Model 2 Intercept		Model 1 None	Model 1 None	
		t-ADF	t-trend	t-ADF	t-cons	T ADF	T ADF	
lnGDP	t-statistics	-0.68	0.42	-2.92	3.28	-	-4.2*	I (1)
	tabulated value	-3.58	3.25	-2.96	2.97	-	-2.97	
lnFDI	t-statistics	-3.10	2.77	-4.50	1.90	1.94	-3.68	I (1)
	tabulated value	-3.58	3.25	-2.96	2.97	-1.95	-1.95	
lnInf	t-statistics	-4.82	-1.37	-4.55	4.26	-	-	I (0)
	tabulated value	-3.57	3.25	-2.96	2.97	-	-	

N.B: *The first difference is applied in the second model

Source: Author using Eviews10

The test evaluates whether these variables have a unit root (non-stationary) or not (stationary) at different levels, with three models considered: Model 3 (Intercept and Trend), Model 2 (Intercept only), and Model 1 (None). The t-statistics are compared against tabulated critical

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values to assess stationarity. The order of integration, indicated as $I(0)$ for stationary at level or $I(1)$ for stationary after first differencing, is also provided.

For $\ln GDP$, the t-statistics in Model 3 (-0.68) and Model 2 (-2.92) are less negative than their respective critical values (-3.58 and -2.96), suggesting non-stationarity at level. However, the t-statistic in Model 1 (-4.2*) is more negative than the critical value (-2.97), indicating stationarity after first differencing, hence $\ln GDP$ is $I(1)$. Similarly, $\ln FDI$ shows non-stationarity at level in Models 3 and 2, but becomes stationary after first differencing (t-statistic -3.68 vs. critical value -1.95), confirming it as $I(1)$. In contrast, $\ln Inf$ is stationary at level ($I(0)$) as its t-statistics in Model 3 (-4.82) and Model 2 (-4.55) are more negative than the critical values (-3.57 and -2.96), requiring no differencing.

The note clarifies that the first difference was applied in the second model, which aligns with the findings for $\ln GDP$ and $\ln FDI$. These results are crucial for further econometric analysis, such as cointegration or regression, as they ensure that the variables meet the stationarity requirements. The presence of mixed orders of integration ($I(0)$ and $I(1)$) may necessitate specific techniques, like autoregressive distributed lag (ARDL) models, to analyze long-run relationships without spurious results.

3.2.6 Estimation of the ARDL Model

Having established the stationarity properties of the variables, the analysis now proceeds to estimate the Autoregressive Distributed Lag (ARDL) model to investigate the relationship between FDI and Uganda's economic growth. This process begins with the optimal lag length selection and then the bounds test for cointegration to determine whether a long-run equilibrium relationship exists between the variables. Following confirmation of cointegration, the ARDL model will be specified, the error correction model (ECM) will be derived, diagnostic testing will be conducted, and finally, a detailed interpretation of the model results will be provided within the context of the research question and existing economic literature

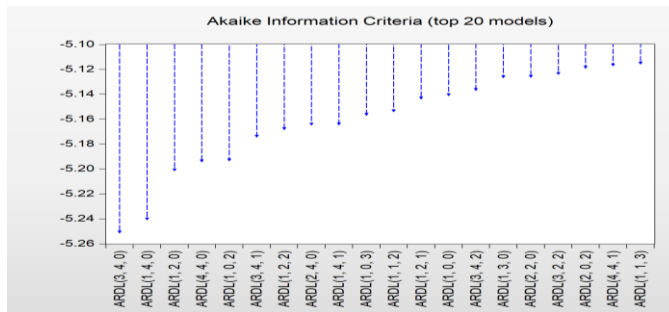
3.2.7 Selecting the optimal lag length

Determining the appropriate lag length for the ARDL model is crucial for ensuring accurate and reliable results. In this study, the Akaike Information Criterion (AIC) was employed to select

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the optimal lag structure. The AIC is a widely used statistical measure that balances model fit with model complexity, aiming to prevent overfitting. It is illustrated in the figure below;

Figure 3: Akaike Information Criteria



Source: Author Using Eviews10

According to the above figure, ARDL (1,1,3) emerges as the most suitable choice, exhibiting the lowest AIC value. This indicates that a lag length of 1 for $\ln(\text{GDP})$, 1 for $\ln(\text{FDI})$ and 3 for $\ln(\text{INF})$ provides the best balance between capturing the dynamics of the relationship and avoiding overfitting.

3.2.8 Bounds test for cointegration

As explained in the theoretical part of this chapter, before estimating the ARDL model, it is essential to determine whether a long-run equilibrium relationship exists between the variables under study. To test for cointegration, the bounds test approach developed by Pesaran et al. (2001) is employed. This method offers the advantage of testing for cointegration even when the variables are integrated of different orders, which is relevant in this analysis given the presence of both $I(0)$ and $I(1)$ variables. The bounds test will provide insights into whether a long-run relationship exists between FDI and Uganda's economic growth, considering the influence of inflation. This confirmation of cointegration will lay the foundation for a robust ARDL model capable of capturing both the short- and long-run dynamics within this multivariate framework.

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Table 4: F-Bounds Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.815050	10%	2.63	3.35
k	3	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Source: Author Using Eviews10

Here, the F-statistic (5.815) exceeds all upper bounds (e.g., 3.35 at 10%, 3.67 at 5%), strongly rejecting the null and indicating a significant long-run relationship between the variables. This suggests that $\ln GDP$ and $\ln FDI$ are cointegrated.

3.2.9 Long run estimations

Following confirmation of cointegration and the determination of the optimal lag structure, the analysis now focuses on the long-run estimations derived from the ARDL model. This section presents and interprets the long-run coefficients, revealing the magnitude and direction of the impact of FDI and other variables on Uganda's economic performance over the long term.

Table 5: Long run Regression

Variable	Coefficient	Std. Error	t-Statistics	Prob.
$\ln(FDI)$	0.665527	0.053091	12.53561	0.0000
$\ln(INF)$	-0.022261	0.051686	-0.430693	0.6724
C	11.03917	1.136875	9.710099	0.0000
$EC = \ln GDP - (0.6655 * \ln(FDI) - 0.0223 * \ln(INF) + 11.0392)$				

Source: Author Using Eviews10

The long run equation of the model is expressed as follows; $\ln GDP_t = 0.67 \ln FDI_t - 0.02 \ln INF_t + 11.04$ (8)

This suggests that FDI positively impacts Uganda's economic growth whereby 1% increase in FDI inflows, the GDP increases by 0.67% in the long run indicating the importance of FDI. Then inflation ($\ln INF$) affects the GDP negatively as noticed by a 1% increase of it, GDP slags back by 0.02% as observed in the table.

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3.1.10 Short run estimations

This is the short-run dynamics estimated from the ARDL model, revealing how deviations from the long-run equilibrium are corrected over time. Several lagged variables demonstrate statistical significance, highlighting the complex interplay between past changes and current economic growth in Uganda.

Table 6: ECM Regression

ECM Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob
D(LN_GDP(-1))	0.022322	0.171574	0.130101	0.8981
D(LN_GDP(-2))	-0.308860	0.164901	-1.873000	0.0795
D(LN_FDI)	0.032364	0.011444	2.828005	0.0121
D(LN_FDI(-1))	-0.061131	0.014329	-4.266339	0.0006
D(LN_FDI(-2))	-0.006890	0.014115	-0.488156	0.6321
D(LN_FDI(-3))	-0.038111	0.013814	-2.758775	0.0140
CointEq(-1)*	-0.105168	0.020011	-5.255615	0.0001
R-squared	0.621392	Mean	0.057410	
Adjusted R-squared	0.501831	S.D. dependent var	0.019772	
S.E. of regression	0.013955	Akaike info criterion	-5.481125	
Sum squared resid	0.003700	Schwarz criterion	-5.142407	
Log likelihood	78.25463	Hannan-Quinn criter.	-5.383587	
Durbin-Watson stat	1.819067			

Source: Author Using Eviews10

Our ARDL-ECM results indicate a short-term and long-term relationship between GDP and FDI. In the short term, the current period's FDI (D(LN_FDI)) has a positive and significant impact on GDP growth (coefficient = 0.032, $p = 0.012$), while the first and third lags of FDI (D(LN_FDI(-1)) and D(LN_FDI(-3))) have negative and significant effects (coefficients = -0.061 and -0.038, $p = 0.0006$ and 0.014 , respectively). The second lag of GDP (D(LN_GDP(-2))) also shows a negative and marginally significant influence (coefficient = -0.309, $p = 0.0795$). The error correction term (Coin(Eq(-1))) is significant and negative (-0.105, $p = 0.0001$), confirming a stable long-run equilibrium relationship, with about 10.5% of disequilibrium corrected in each period. The model explains approximately 62.1% of the variation in GDP (R-squared = 0.621), and the Durbin-Watson stat (1.819) suggests no severe autocorrelation. Overall, FDI plays a dynamic role in GDP adjustments, with both immediate and lagged effects.

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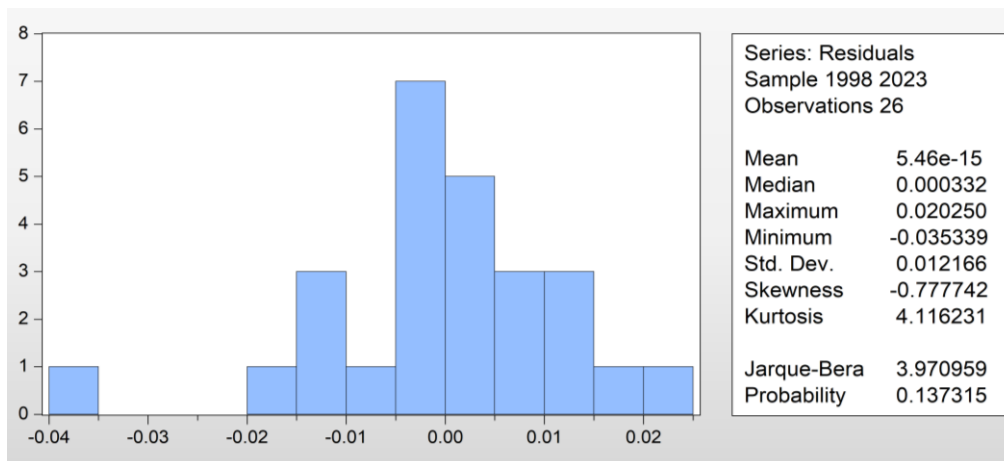
3.2.11 Diagnostic test results.

Following the estimation of the ARDL model and the analysis of its long-run and short-run dynamics, it is crucial to conduct diagnostic tests to evaluate the model's validity and ensure the reliability of the findings. This section presents the results of several diagnostic tests, including the Breusch-Godfrey serial correlation LM test, Jarque-Bera normality test, Breusch-Pagan-Godfrey heteroscedasticity test, and recursive stability tests. These tests assess the key assumptions of the ARDL model and provide insights into whether the model meets the necessary econometric properties for reliable inference from time series data.

3.2.12 Normality test for residuals

The ARDL model assumes normally distributed residuals for reliable statistical inference. To assess this assumption, the Jarque-Bera test is employed. This test compares the skewness and kurtosis of the model's residuals to those of a normal distribution. A statistically significant Jarque-Bera statistic would indicate a violation of the normality assumption, potentially impacting the reliability of p-values and confidence intervals associated with the ARDL model.

Figure 4: Jarque-Bera normality test



Source: Author Using Eviews10

The Jarque-Bera statistic is 3.97, with a corresponding probability value of 0.14. This high probability value indicates that we fail to reject the null hypothesis of normality. Visually, the histogram appears reasonably symmetrical and bell-shaped, further supporting the conclusion that

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the residuals are normally distributed. Therefore, this key assumption of the ARDL model is met, strengthening the validity of the model's results.

3.2.13 Serial correlation test for residuals

After conducting the normality test for the residuals, a serial correlation test was performed to assess the validity of a key assumption: that the error terms are independent. The presence of serial correlation, where error terms are correlated over time, would violate this assumption and could lead to biased and inefficient estimates. Table 10 presents the results of the Breusch-Godfrey Lagrange Multiplier (LM) test, which evaluates the presence of serial correlation in the residuals of the model. These results will help determine whether the model satisfies the assumption of independent errors, ensuring the reliability of the findings.

Table 7: Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test			
Null hypothesis: No Serial Correlation at up to 2 lags			
F-statistic	0.243946	Prob. F(2,14)	0.7868
Obs*R-squared	0.875573	Prob. Chi-Squared(2)	0.6455

Source: Author Using Eviews10

The Breusch-Godfrey Lagrange Multiplier (LM) test for serial correlation, as presented above, indicates that there is no evidence of serial correlation in the residuals of the estimated ARDL model. This conclusion is supported by both the F-statistic (0.24) with a p-value of 0.79 and the Obs*R-squared statistic (0.88) with a p-value of 0.65. As both p-values are significantly greater than the significance level of 0.05, we fail to reject the null hypothesis of no serial correlation. This suggests that the assumption of independent errors is met, strengthening the validity and reliability of the ARDL model.

3.2.14 Heteroscedasticity test for residuals

Following the assessment of normality and independence of the residuals, the analysis now focuses on another crucial assumption of the ARDL model: homoscedasticity. Homoscedasticity implies that the variance of the error terms remains constant across all observations. Violation of this assumption, termed heteroscedasticity, can lead to inefficient coefficient estimates and inaccurate standard errors, potentially affecting the reliability of hypothesis testing. The Breusch-Pagan-Godfrey test is employed to confirm this.

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Table 8: Heteroscedasticity Test: Breusch-Pagan-Godfrey

Heteroscedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Heteroscedasticity			
F-statistic	0.617607	Prob.F(9,16)	0.7657
Obs*R-squared	6.703632	Prob. Chi-Square(9)	0.6679
Scaled explained SS	3.955516	Prob. Chi-Square(9)	0.9143

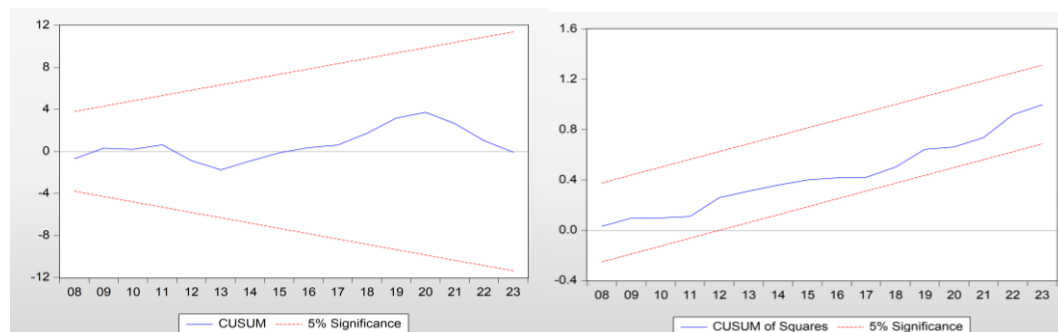
Source: Author Using Eviews10

The Breusch-Pagan-Godfrey test for heteroscedasticity, as presented above, indicates no evidence of heteroscedasticity in the residuals of the estimated ARDL model. This conclusion is based on the F-statistic (0.62) with a corresponding p-value of 0.77 and the ObsR-squared statistic (6.70) with a p-value of 0.67. Both p-values are considerably higher than the 0.05 significance level, leading to the failure to reject the null hypothesis of homoscedasticity. The consistency of the F-statistic and ObsR-squared results supports the conclusion of homoscedasticity. This suggests that the assumption of constant variance in the error terms holds true, further bolstering the validity and reliability of the ARDL model.

3.2.15 Stability tests of the model

To ensure the reliability of the ARDL model over time, recursive tests were conducted, visually examining the graphs of recursive parameter estimates as shown below.

Figure 5: CUSUM and CUSUM of squares tests



Source: Author Using Eviews10

The figure presents the results of the CUSUM and CUSUM of squares tests, which provide a visual assessment of the ARDL model's stability over time. Both graphs clearly demonstrate that the model is stable throughout the study period. This indicates an absence of structural breaks or parameter instability.

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3.3 DISCUSSION OF ARDL MODEL RESULTS

This section interprets the ARDL model results, connecting the empirical findings to the research objectives, hypotheses, and research questions laid out in the general introduction.

3.3.1 Addressing the Research Question

The primary research question guiding this study was: "What has been the effect of FDI on the economic growth of Uganda from 1994 to 2023?" The ARDL model results reveal a positive and statistically significant relationship between FDI and economic growth. The long run coefficient of 0.67 indicates that a 1% increase in FDI inflows lead to a 0.67% increase in GDP in the long run, on average. This suggests that FDI plays a crucial role in driving Uganda's long-term economic growth aligning with some of our points in the empirical review in chapter one.

Whereas a 1% increase in inflation leads to a 0.02% decrease on economic growth as observed in our analysis above.

3.3.2 Fulfilling the Research Objective

Our research objective is to analyze the economic effects of FDI on Uganda's economic growth between 1994 and 2023. And this objective has been fulfilled through the ARDL model estimation and interpretation. The analysis revealed a positive and statistically significant impact of FDI on Uganda's long term economic growth, alongside the influence of domestic investment and inflation.

Conclusion

This chapter embarked on an empirical investigation into the relationship between FDI and Uganda's economic growth from 1994 to 2023. Leveraging the Autoregressive Distributed Lag (ARDL) model, the analysis revealed a statistically significant positive impact of FDI on long-term economic growth. The findings confirm that a 1% increase in FDI inflows lead to a 0.67% increase in GDP in the long run, over scoring the vital role of the FDI in driving economic development and growth in Uganda. And the role of inflation in shaping Uganda's economic performance.

GENERAL CONCLUSION

GENERAL CONCLUSION

Summary of the Study

This study examined the relationship between FDI and Uganda's economic growth from 1994 to 2023. The general introduction established the historical context of Uganda's economic journey, highlighting FDI's role in shaping the nation's development trajectory and providing an overview of Uganda's FDI inflow, emphasising its significance for national development.

Chapter one delved into the literature review where we looked at the theoretical backgrounds and spoke about some FDI theories Hymer's neoclassic theory that gave birth to the OLI theory and later monopolistic theory. We went ahead discussed some of the empirical reviews of which some were later proved in our methodology chapter. We also tackled the types and channels of FDI.

Chapter two meticulously outlined the trends and patterns of FDI, then followed by the determinants of FDI in Uganda. In section two, the economic implications of FDI on economic growth of Uganda was tackled then concluded with the constraints faced by FDI in Uganda.

Chapter three presented meticulously outlined the research methodology, detailing the study's positivist philosophy, deductive and quantitative approach, and the selection of the Autoregressive Distributed Lag (ARDL) model for analysing the time series data and the empirical findings, demonstrating a statistically significant positive long-run impact of FDI on economic growth in Uganda. The estimated ARDL model revealed that a 1% increase in FDI inflow leads to a 0.67% increase in GDP in the long run. The analysis also identified inflation as significant factors influencing Uganda's economic performance though negatively.

Finally, the general conclusion provided a synthesis of the study's key findings, outlining policy recommendations to enhance the positive impact of FDI inflows on Uganda's economy. The chapter acknowledges data limitations inherent in researching developing economies and suggests areas for future research, particularly concerning investment condition change. Ultimately, this concluding chapter aims to provide stakeholders with valuable insights to foster a more sustainable and prosperous future for FDI sector.

GENERAL CONCLUSION

Policy Recommendations

Based on the empirical findings of this study, some policy recommendations emerge to enhance the positive contributions of FDI to Uganda's economic growth and foster sustainable development within the investment sector.

Firstly, targeted investment in infrastructure is crucial for supporting FDI inflows and facilitating economic growth. Studies emphasize the importance of infrastructure development in attracting foreign investors and improving the overall business environment.

Secondly, policy reforms to streamline regulatory processes and improve the ease of doing business are essential for attracting FDI. Research indicates that simplifying administrative procedures, reducing regulatory burdens, and enhancing transparency in regulatory frameworks can boost investor confidence and attract greater FDI inflows.

We can conclude with strengthening institutions responsible for investment promotion and facilitation is critical for attracting and retaining FDI. Studies highlight the importance of institutional capacity building and providing tailored support services to foreign investors.

Limitations of the study

This study acknowledges the inherent challenges of conducting empirical research in developing countries. The reliance on secondary data, while providing a valuable historical perspective, presented limitations regarding data availability and reliability. Data gaps and potential inconsistencies in reporting, common in developing economies, might have influenced the analysis. Despite these challenges, this research employed rigorous econometric techniques and robust diagnostic tests to ensure the validity and reliability of the findings within the available data constraints.

Areas of Future Research

FDI does not only affect the country's economic growth. There are other economic implications where future research should be made.

Firstly, finding the impact of FDI on employment and poverty reduction in Uganda. This will help assess the impact of FDI directly on the nationals of the country.

GENERAL CONCLUSION

And lastly, the impact of FDI on the domestic investments mostly the small medium enterprises. This will help the government determine whether FDI encourages domestic investment through the new technology brought in by foreign investors.

Conclusion

The empirical analysis conducted in this study has unequivocally established the significant and positive impact of FDI on Uganda's long-term economic growth. This finding strongly supports the validity of increased FDI inflows within the Ugandan context which the country's economic growth and development. However, to fully harness the potential of FDI, infrastructure should be put in place and inflation combated. By addressing these key areas, Uganda can leverage its position in increasing its FDI inflows in East Africa thus promoting more capital inflow and job creation. This research provides valuable empirical evidence and policy insights to guide stakeholders in navigating the complexities of the foreign investors and shaping a more resilient and prosperous future for Uganda's foreign direct investment.

APPENDICES

APPENDICES

1. Data

YEAR	GDP	FDI %GDP	FDI	INF
1994	8176083687	2.210288	180714985.7	6.848498
1995	9118233745	2.105695	192002208.6	9.376438
1996	9945450358	2.001792	199087187.7	4.572481
1997	10452668512	2.791365	291772170.7	3.095269
1998	10965399652	3.189155	349703618.2	8.785707
1999	11848547280	2.337226	276927367	-0.11313
2000	12220817656	2.594762	317101102.1	11.11731
2001	12854303430	2.593888	333426281.8	4.534476
2002	13976829356	2.988527	417701359.9	-3.16956
2003	14881585674	3.060332	455425928.4	7.806741
2004	15894609936	3.720851	591414708.7	15.58755
2005	16901146461	4.110826	694776741.7	-1.74119
2006	18723891905	6.457058	1209012564	2.40562
2007	20299025449	6.656597	1351224370	7.321247
2008	22066817214	5.047372	1113794332	6.364277
2009	23567695615	3.349162	789320200.1	85.35328
2010	24896350765	2.039005	507637764.9	5.637612
2011	27234530260	3.208606	873848781.4	9.391655
2012	28279643268	4.414386	1248372570	3.837456
2013	29294007440	3.790317	1110335772	3.586906
2014	30789849488	3.245896	999406532.8	5.106307
2015	32387183730	2.277605	737652140.2	5.18786
2016	33935615079	2.14253	727080899.7	4.781
2017	34998276802	2.610889	913766222.2	4.649051
2018	37204541497	3.205128	1192453216	4.443385
2019	39600047064	3.68619	1459732798	3.000012
2020	40768765796	3.168799	1291880142	2.721484
2021	42210585953	4.066737	1716593605	2.545119
2022	44147216890	6.480716	2861055904	4.922287
2023	46503341915	6.133369	2852221537	6.748015

Source: World Bank Data

APPENDICES

2.0 Unit Root Tests

2.1 lnGDP

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

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.201960	0.0029
Test critical values:	1% level -3.689194	
	5% level -2.971853	
	10% level -2.625121	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LN_GDP_2)
Method: Least Squares
Date: 06/06/25 Time: 16:16
Sample (adjusted): 1996 2023
Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_GDP_(-1))	-0.701968	0.167057	-4.201960	0.0003
C	0.040238	0.010691	3.763745	0.0009
R-squared	0.404441	Mean dependent var	-0.002038	
Adjusted R-squared	0.381535	S.D. dependent var	0.024327	
S.E. of regression	0.019131	Akaike info criterion	-5.006227	
Sum squared resid	0.009518	Schwarz criterion	-4.911069	
Log likelihood	72.08718	Hannan-Quinn criter.	-4.977136	
F-statistic	17.65646	Durbin-Watson stat	2.111459	
Prob(F-statistic)	0.000276			

2.2 lnFDI

Null Hypothesis: D(LN_FDI_) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.864655	0.0004
Test critical values:	1% level -2.650145	
	5% level -1.953381	
	10% level -1.609798	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LN_FDI_2)
Method: Least Squares
Date: 06/07/25 Time: 17:09
Sample (adjusted): 1996 2023
Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_FDI_(-1))	-0.711454	0.184093	-3.864655	0.0006
R-squared	0.356124	Mean dependent var	-0.002274	
Adjusted R-squared	0.356124	S.D. dependent var	0.335758	
S.E. of regression	0.269419	Akaike info criterion	0.249962	
Sum squared resid	1.959836	Schwarz criterion	0.297541	
Log likelihood	-2.499468	Hannan-Quinn criter.	0.264507	
Durbin-Watson stat	1.845420			

2.1 lnINF

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

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.557772	0.0011
Test critical values:	1% level -3.679322	
	5% level -2.967767	
	10% level -2.622989	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LN_INF_)
Method: Least Squares
Date: 06/07/25 Time: 17:12
Sample (adjusted): 1995 2023
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_INF_(-1)	-0.869514	0.190776	-4.557772	0.0001
C	1.552940	0.364214	4.263813	0.0002
R-squared	0.434831	Mean dependent var	-0.000510	
Adjusted R-squared	0.413898	S.D. dependent var	0.903090	
S.E. of regression	0.691381	Akaike info criterion	2.166221	
Sum squared resid	12.90622	Schwarz criterion	2.260518	
Log likelihood	-29.41021	Hannan-Quinn criter.	2.195754	
F-statistic	20.77328	Durbin-Watson stat	2.027009	
Prob(F-statistic)	0.000100			

3. ARDL Long Run and Bounds Test

ARDL Long Run Form and Bounds Test
Dependent Variable: D(LN_GDP)
Selected Model: ARDL(3, 4, 0)
Case 2: Restricted Constant and No Trend
Date: 07/01/25 Time: 12:18
Sample: 1994 2023
Included observations: 26

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.160966	0.298566	3.888472	0.0013
LN_GDP(-1)*	-0.105168	0.027346	-3.845840	0.0014
LN_FDI(-1)	0.069692	0.019913	3.514867	0.0029
LN_INF(-1)	-0.02341	0.005599	-0.418111	0.6814
D(LN_GDP(-1))	0.022322	0.194284	0.114894	0.9100
D(LN_GDP(-2))	-0.308860	0.183149	-1.686393	0.1111
D(LN_FDI)	0.032364	0.013617	2.376773	0.0303
D(LN_FDI(-1))	-0.061131	0.018213	-3.356470	0.0040
D(LN_FDI(-2))	-0.006890	0.016489	-0.417884	0.6816
D(LN_FDI(-3))	-0.038111	0.015626	-2.438891	0.0268

* p-value incompatible with t-Bounds distribution.

** Variable interpreted as $Z = Z(-1) + D(Z)$.

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_FDI	0.665527	0.053091	12.53561	0.0000
LN_INF	-0.022261	0.051686	-0.430693	0.6724
C	11.03917	1.136875	9.710099	0.0000

EC = LN_GDP - (0.6655*LN_FDI - 0.0223*LN_INF + 11.0392)

4. ECM Regression

ARDL Error Correction Regression
Dependent Variable: D(LN_GDP)
Selected Model: ARDL(3, 4, 0)
Case 2: Restricted Constant and No Trend
Date: 07/01/25 Time: 12:20
Sample: 1994 2023
Included observations: 26

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_GDP(-1))	0.022322	0.171574	0.130101	0.8981
D(LN_GDP(-2))	-0.308860	0.164901	-1.873000	0.0795
D(LN_FDI)	0.032364	0.011444	2.828005	0.0121
D(LN_FDI(-1))	-0.061131	0.014329	-4.266339	0.0006
D(LN_FDI(-2))	-0.006890	0.014115	-0.488156	0.6321
D(LN_FDI(-3))	-0.038111	0.013814	-2.758775	0.0140
CointEq(-1)*	-0.105168	0.020011	-5.255615	0.0001
R-squared	0.621392	Mean dependent var	0.057410	
Adjusted R-squared	0.501831	S.D. dependent var	0.019772	
S.E. of regression	0.013955	Akaike info criterion	-5.481125	
Sum squared resid	0.003700	Schwarz criterion	-5.142407	
Log likelihood	78.25463	Hannan-Quinn criter.	-5.383587	
Durbin-Watson stat	1.819057			

* p-value incompatible with t-Bounds distribution.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.815050	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

5. Correlogram of Residues

Date: 07/01/25 Time: 14:34

Sample: 1994 2023

Included observations: 26

Q-statistic probabilities adjusted for 3 dynamic regressors

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*
1	0.070	0.070	0.1411	0.707	
2	-0.081	-0.086	0.3411	0.843	
3	-0.124	-0.114	0.8313	0.842	
4	-0.066	-0.058	0.9754	0.913	
5	-0.119	-0.134	1.4699	0.917	
6	-0.350	-0.377	5.9294	0.431	
7	-0.099	-0.144	6.3078	0.504	
8	0.042	-0.095	6.3776	0.805	
9	0.049	-0.139	6.4791	0.691	
10	0.151	0.028	7.5186	0.676	
11	-0.059	-0.235	7.6866	0.741	
12	0.229	0.076	10.419	0.579	

*Probabilities may not be valid for this equation specification.

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ABSTRACT

This thesis investigates the impact of foreign direct investment on Uganda's economy particularly economic growth from 1994 to 2023. Grounded in the several theories and determinants, the study utilises time series data from World Bank, employing an Autoregressive Distributed Lag (ARDL) model to analyse the long-run relationship between FDI and GDP growth. The empirical analysis reveals a statistically significant positive impact of FDI on Uganda's economic growth. The study finds that a 1% increase in coffee export values leads to a 0.28% increase in GDP in the long run. The research also highlights the significant positive influence of domestic investment on economic growth, while revealing a complex interplay with inflation. Diagnostic tests confirm the validity and reliability of the ARDL model, strengthening the robustness of the findings. The study underscores the crucial role of FDI as one of the drivers of economic growth in Uganda, supporting its inflow increase over the years. Based on the empirical findings, this dissertation recommends policy interventions focused on enhancing trade openness, attracting more foreign direct investment inflows, managing inflation, and improving investment climate. These strategies can attract more FDI in Uganda, contributing significantly to the long-term economic development of Uganda. This research provides valuable empirical evidence and policy insights for policymakers, industry stakeholders, and development practitioners seeking to invest in Uganda. The findings have significant implications for shaping a more prosperous future for both foreign and local investors to improve the Ugandan economy.

RESUME (ABSTRACT FRENCH VERSION)

Ce mémoire examine l'impact de l'investissement direct étranger sur l'économie de l'Ouganda, en particulier sur la croissance économique, de 1994 à 2023. Fondée sur plusieurs théories et déterminants, l'étude utilise des données de séries chronologiques de la Banque mondiale et emploie un modèle autorégressif à retards distribués (ARDL) pour analyser la relation à long terme entre l'IDE et la croissance du PIB. L'analyse empirique révèle un impact positif statistiquement significatif de l'IDE sur la croissance économique de l'Ouganda. L'étude constate qu'une augmentation de 1 % de la valeur des exportations de café entraîne une augmentation de 0,28 % du PIB à long terme. La recherche souligne également l'influence positive significative de l'investissement intérieur sur la croissance économique, tout en révélant une interaction complexe avec l'inflation. Les tests diagnostiques confirment la validité et la fiabilité du modèle ARDL, renforçant la robustesse des résultats. L'étude souligne le rôle crucial de l'IDE comme l'un des moteurs de la croissance économique en Ouganda, soutenant l'augmentation de son afflux au fil des ans. Sur la base des résultats empiriques, cette dissertation recommande des interventions politiques axées sur l'amélioration de l'ouverture commerciale, l'attraction de davantage d'investissements directs étrangers, la gestion de l'inflation et l'amélioration du climat d'investissement. Ces stratégies peuvent attirer davantage d'IDE en Ouganda, contribuant de manière significative au développement économique à long terme du pays. Cette recherche fournit des preuves empiriques précieuses et des informations politiques pour les décideurs politiques, les acteurs industriels et les praticiens du développement cherchant à investir en Ouganda. Les résultats ont des implications significatives pour façonner un avenir plus prospère pour les investisseurs étrangers et locaux afin d'améliorer l'économie ougandaise.