TR

BANDIRMA ONYEDİ EYLÜL UNIVERSITY

INSTITUTE OF SOCIAL SCIENCES

DEPARTMENT OF ECONOMICS

Master's Thesis

RELATIONSHIP BETWEEN GROSS DOMESTIC PRODUCT, FOREIGN DIRECT INVESTMENT AND NET MIGRATION: AN EMPIRICAL ANALYSIS OF GUINEA

Oumou Koulssoumy BARRY

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Supervisor:

Assoc. Prof. HALE KIRER SILVALECUNA

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APPROVAL OF MASTER THESIS

The thesis entitled as "**Relationship Between Gross Domestic Product, Foreign Direct Investment and Net Migration: An Empirical Analysis of Guinea.**" submitted by master degree student Oumou Koulssoumy BARRY under the supervision of Assoc. Prof. HALE KIRER SILVALECUNA to Institute of Social Sciences to fulfil Master's program in Economics at the Department of Economics at Bandırma Onyedi Eylül University has been approved unanimously by the majority as a Master Thesis by the examining committee during the thesis defense on 18/04/2025.

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ETHICAL STATEMENT

TO

BANDIRMA ONYEDİ EYLÜL UNIVERSITY

INSTITUTE OF SOCIAL SCIENCES

I hereby declare that all the information is gathered and presented following academic rules and ethical principles in this dissertation. As stated by these rules and principles, I also declare that all data, opinions, and results that are not my own are given reference to and cited accordingly. (18/04/2025)

Oumou Koulssoumy BARRY

ABSTRACT

THE RELATIONSHIP BETWEEN GROSS DOMESTIC PRODUCT, FOREIGN DIRECT INVESTMENT AND NET MIGRATION: EMPIRICAL ANALYSIS IN GUINEA

Oumou Koulssoumy BARRY

This study examines the effect of Foreign Direct Investment (FDI), and net migration in Guinea on Gross Domestic Product (GDP), within the framework of an Autoregressive Distributed Lag (ARDL) model. Utilizing annual data for the period from 1986 to 2022, the analysis evaluates both the short-term dynamics and the long-term equilibrium relationships among these variables. The findings highlight the crucial role of FDI in driving economic growth in Guinea, emphasizing its potential to stimulate development. However, the study also highlights the limitations of FDI in addressing critical structural challenges, such as widespread unemployment and regional disparities, owing to its significant concentration within the extractive industries sector. A descriptive statistical study from 1986 to 2022 demonstrates some clear trends. With some variation, the average GDP growth rate was 4.35%. At 2.26% of GDP, foreign direct investment (FDI) made up a quite small share; net migration showed a negative trend, meaning an unfavorable migration balance. With an average trade openness of 59.57%, the distribution shown here seems to be somewhat unusual. With an R^2 of 0.83, a modest standard error of 1.34, and a substantial F-statistic of 4.40 ($p = 0.003$), the Autoregressive Distributed Lag (ARDL) model shows strong explanatory ability. These results underline the important roles of FDI, migration, and trade dynamics in clarifying economic development in Guinea and confirm the strength of the projected model.

Keywords: Foreign Direct Investment (FDI), Net Migration, Trade, Economic Growth, ARDL Analysis

ÖZET

GAYRİ SAFİ YURT İÇİ HASILA, DOĞRUDAN YABANCI YATIRIM VE NET GÖÇ ARASINDAKİ İLİŞKİ: GINE ÜZERİNE AMPİRİK BİR ANALİZ

Oumou Koulssoumy BARRY

Bu çalışma, Doğrudan Yabancı Yatırımların (DYY) ve net göçün Gine'de Gayri Safi Yurtiçi Hasıla (GSYH) üzerindeki etkisini Otoregresif Dağıtılmış Gecikme (ARDL) modeli çerçevesinde incelemektedir. 1986-2022 dönemine ait yıllık veriler kullanılarak gerçekleştirilen analiz, bu değişkenler arasındaki kısa vadeli dinamikleri ve uzun vadeli denge ilişkilerini değerlendirmektedir. Bulgular, DYY'nin Gine'deki ekonomik büyümeyi desteklemedeki önemli rolünü vurgularken, aynı zamanda bu yatırımların yaygın işsizlik ve bölgesel eşitsizlikler gibi temel yapısal sorunları çözmedeki sınırlılıklarını da göstermektedir. Bu durum, DYY'nin büyük ölçüde maden sektörüne yoğunlaşmasından kaynaklanmaktadır. Net göç, işgücü piyasasındaki değişimlere ve döviz transferlerine katkı sağlasa da, analiz, net göçün GSYH büyümesi üzerinde istatistiksel olarak anlamlı bir doğrudan etkisi olmadığını ortaya koymaktadır. Bu çalışmada, 1986'dan 2022'ye kadar yapılan tanımlayıcı istatistiksel analiz, çeşitli eğilimleri göstermektedir. Gayri Safi Yurt İçi Hasıla (GSYH), gözlemlenen dalgalanmalara rağmen ortalama olarak %4,35 büyüdü. GSYH içindeki doğrudan yabancı yatırım payı (DYY) %2,26 ile önemli ölçüde düşüktür. Bunun yanı sıra net göç verileri olumsuz bir eğilim gösteriyor, bu da göç dengesinin olumsuz olduğunu gösteriyor. incelenen dağılımın bazı yönlerinin sıra dışı özellikler taşıdığını gösteren ortalama %59,57'lik bir ticari açıklık oranı vardır. Otogresif Dağıtılmış Gecikme (ARDL) modeli, %0,83 R^2 değeri, 1,34 standart hata ve 4,40 anlamlı F-istatistiği (p = 0,003) ile güçlü bir açıklayıcı kapasiteye sahiptir. Bu sonuçlar, önerilen modelin geçerliliğini destekler ve DYY, göç ve ticaret dinamiklerinin GSYH'nın açıklanmasında önemli bir rol oynadığını göstermektedir.

Anahtar Sözcükler: Doğrudan Yabancı Yatırım (DYY), Net Göç, Ticaret, Ekonomik Büyüme, ARDL Analizi

DEDICATION

First and most importantly, I would like to thank Almighty Allah for having given me life, health, and the will to reach this important turning point in my scholastic path. Completing this work would not have been feasible without His direction and charity.

After many years of commitment and endurance, this thesis—the result—is mostly for my parents. The fundamental foundations around which I have built my hopes and followed my goals have been their relentless love, constant support, and passionate prayers. Their loving presence at all phases of my path has been a great source of inspiration and confidence.

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TABLE OF CONTENTS

LISTE OF TABLES

LISTE OF FIGURES

LIST OF ABBREVIATIONS

ADF : Augmented Dickey-Fuller

APIP : Agence de Promotion des Investissement Privés (Private Investment Promotion Agency)

ARCH : Autoregressive Conditional Heteroskedasticity

ARDL : Autoregressive Distributed Lag

COVID-19 : Coronavirus Disease 2019

CUSUM : Cumulative Sum

ECOWAS : Economic Community of West African States

FDI : Foreign Direct Investment

FG : Franc Guinéen (Guinean Franc)

GDP : Gross Domestic Product

IMF : International Monetary Fund

OLI : Ownership, Location, and Internalization

PP : Phillips-Perron

PPP : Purchasing Power Parity

U.S. : United States

USSR : Union of Soviet Socialist Republics.

UN : United Nations

UNCTAD : United Nations Conference on Trade and Development

UNDP : United Nations Development Program

UNESCO : United Nations Educational, Scientific and Cultural Organization

UNSTAT **:** United Nations Statistics Division

USD **:** United States Dollar

GRG : Gouvernement de la République de Guinée

R&D : Research and Development

INTRODUCTION

The critical factors that influence GDP growth in the Republic of Guinea include government policies, access to natural resources, and private investments. This includes the Guinean government's role, through the mining zones allocated to foreign investors, management of state-owned enterprises, and elaboration of macroeconomic policies; availability of natural resources, investment inflow, and demography have contributed to changes in economic performance. Guinea is rich in natural resources, with key reserves including aluminum, gold, diamonds, and iron ore, all of which are being developed mainly through foreign investments. Foreign investment is vital in providing capital and technology to the generation of local employment, thus raising output levels and economic prosperity. Population increase stimulates demand for goods and services and, simultaneously, raises labor supplies. It thus follows that another stimulant for economic growth is population growth (Mijiyawa, 2017a). However, with these apparent advantages, there is also a problem of translating this into economic growth in Guinea This points to a paradox between natural resource wealth and low levels of human development.

Since achieving independence in 1958, the country recorded its highest economic growth rate of 6.3% in 1988. However, since the 1990s, it has experienced relative economic stagnation compared to other nations within the Economic Community of West African States (ECOWAS) subregion. Between 2006 and 2007, FDI saw a substantial increase, rising from $125 million to $385.9 million, with significant investments directed toward the mining, telecommunications, and banking sectors (Mohamed Lamine & Yang, 2010). Notably, companies such as Rio Tinto have made considerable investments in the mining sector, particularly in the Boké region. Nonetheless, these investments have encountered challenges, including the revocation of Rio Tinto's concession in 2008.

The relationship between FDI and economic growth is a subject of considerable debate among researchers and policymakers, particularly within the framework of

economic theories (Keita & Baorong, 2021). According to Solow growth model (Feldstein & Horioka, 1990), FDI assists recipient countries in overcoming local savings constraints by promoting higher levels of investment. Furthermore, growth theory (Schilirò, 2019) posits that FDI can facilitate sustained economic growth through positive externalities and spillover effects. However, the advantages of FDI are not uniformly distributed across sectors. For example, in extractive industries such as those in Guinea, the benefits associated with technology transfer and human capital development are comparatively more restricted than in the manufacturing sector (Doku et al., 2017).

In Guinea, a significant proportion of Foreign Direct Investment (FDI) is concentrated in the natural resources sector, which does not generate adequate local employment opportunities. Interactions with local suppliers are limited, further diminishing the potential for job creation. Given that FDI primarily targets the mining sector, it is imperative to evaluate its effects on economic growth and the well-being of the citizens. According to Keita & Baorong, (2022) posits that the Guinean government should prioritize investments that are market- and efficiency-driven while limiting those that are solely extractive without contributing local value. Such an approach could facilitate economic diversification and promote more inclusive and sustainable growth.

In our increasingly interconnected world, the relationships among Gross Domestic Product (GDP), FDI, and net migration are subject to heightened examination, especially in developing nations. Guinea, endowed with abundant natural resources yet confronting significant socio-economic challenges, serves as a relevant case study. GDP, a critical indicator of economic performance, is influenced by migration flows and FDI. The latter provides capital, technology, and skills, while migration affects labor markets and productivity (Borensztein et al., 1998a). In Guinea, where the economy is predominantly driven by mining, the impact of FDI, despite its presence, is comparatively limited when juxtaposed with other West African countries. This phenomenon can often be attributed to FDI's tendency to substitute rather than complement domestic investments (Asiedu, 2002).

Guinea possesses considerable natural resource potential, particularly in the sectors of mining, agriculture, and hydropower. The country is home to substantial global

bauxite reserves and has an estimated hydroelectric capacity of 6,000 megawatts. However, several challenges persist, including limited market access, susceptibility to external economic shocks, and insufficient economic diversification. This study seeks to empirically analyze the interactions among Gross Domestic Product (GDP), foreign direct investment (FDI), and net migration through various methodological approaches over an extended period. The objective is to formulate recommendations that promote inclusive development, thereby maximizing the impact of FDI on economic growth and poverty alleviation, as suggested by Sachs and al., (1995). Furthermore, while migration is frequently perceived as a form of brain drain, it can also yield benefits for origin countries through remittances and FDI; this dynamic remains underexplored in the context of sub-Saharan Africa (Docquier & Rapoport, 2012). To fully capitalize on the advantages of FDI in Guinea, it is imperative to enhance human capital and develop the private sector. The study will additionally propose strategies for long-term economic growth by evaluating the necessary investments and their implications for poverty reduction (WORLD BANK, 2014).

The study highlights the significant role of FDI in driving the country's economic development, particularly in stimulating growth, creating employment opportunities, and enhancing infrastructure. The role of FDI in fostering economic growth may be constrained by the quality of human capital. To optimize its beneficial effects, it is imperative to improve infrastructure, maintain macroeconomic stability, and advance the development of human capital (Adegbite & Ayadi, 2011). The study also underscores the necessity for the Guinean government to adopt a targeted strategy aimed at maximizing the benefits of FDI while mitigating potential drawbacks, such as an over-reliance on foreign investors and the unequal distribution of economic gains (B. Mamoudou, 2017). Furthermore, net migration is examined for its potential influence on FDI flows and its impact on Guinea's economy, which is contingent upon the prevailing migration policies. Consequently, the study emphasizes the importance of implementing effective public policies to manage FDI flows and net migration in a balanced manner, thereby fostering inclusive and sustainable economic development in Guinea.

CHAPTER ONE

NET MIGRATION, FOREIGN DIRECT INVESTMENT, AND GROSS DOMESTIC PRODUCT

The first part of this study project starts with an extensive assessment of the literature analyzing several relevant studies related to the variables under investigation. The main goal of this chapter is to develop a strong awareness of the behavior of these variables in many settings while considering geographical and temporal changes.

1. ECONOMIC GROWTH

This section will conduct an analysis of GDP per capita, a critical indicator of economic performance and standards of living. This metric is essential for comparing economic well-being across nations and for understanding the underlying factors that contribute to its variations. Ultimately, this analysis aims to yield insights into the economic health and prosperity of different countries.

The concept of economic growth was first addressed theoretically and systematically by classical economists, notably Adam Smith, who is regarded as the father of modern economics. However, the modern idea of economic growth, as we understand it today, was further developed in the 20th century with neoclassical models, particularly that of (Zhao, 2018), as well as the work of Joseph Schumpeter on innovation and technical progress. In recent decades, economic growth has become one of the most debated topics in economics. A concept traditionally proposed by (imon, (1995) suggests that inequalities increase in the early stages of economic development before decreasing as growth stabilizes. Although this concept has been widely studied, the results often remain contradictory.

According to the (World Bank Group, 2024a), global economic growth is currently in a phase of stabilization, but at a level lower than recent historical trends. In 2024, it is expected to reach 2.6%, before slightly increasing to 2.7% in 2025. However, this growth remains below the 3.1% average observed prior to the COVID-19 pandemic.

Advanced economies, such as the United States and certain European nations, are experiencing uneven performances, while emerging economies continue to play a driving role, despite the slowdown in countries like China. It is important to note that economic growth is not a mechanical and simple phenomenon. Indeed, between the year 1000 and 1800, growth in the Western world remained close to zero, before taking off in the 19th century and reaching peaks in the 20th century (Alain, 2014).

The economic growth of a country is characterized by a sustained increase in its capacity to provide a growing variety of goods, primarily through technological advancements, and requires institutional and ideological adjustments. Each element of this definition is crucial, with the continuous growth of supply being at the heart of the process. Even small nations can improve their income by exploiting specific resources, such as natural wealth or a geostrategic position. Economists study growth disparities to understand their causes, enrich economic theory, and develop innovative methods for analyzing income dynamics (Steven N. & Danny T., 1998)

1.2. Components of GDP

The whole monetary worth of all products and services produced within a nation during a certain period is known as GDP. By combining all final expenditures in the economy, it provides a complete indication of economic activity and hence fairly reflects output levels (Oglesby et al., 2014). One may examine the development of GDP by means of its many elements: net exports, gross capital creation, and final consumer expenditure. Moreover, GDP may be investigated from other angles (Thomas Boustead, 1998), providing understanding of the newly produced wealth yearly by the efficient system and enabling worldwide comparisons.

Gross National Income (GNI) and a nation's finance capability or needs define the main macroeconomic aggregates connected to Gross Domestic Product (GDP). These aggregates include demand-side elements like consumption, investment, and exports (Wu et al., 2018) in addition to supply-side elements including GDP and imports. Moreover, they include the gross value generated by different institutional sectors as well as the allocation of production elements, including labor, throughout many spheres.

With three primary sectors: Primary, Secondary, and Tertiary Sectors, the Republic of Guinea's GDP is mostly made of the Agricultural Sector, Industry and Construction Sector, Public Administration, Mining Sector, and Services and Trade. GDP is presented in volume at chained prices from past years as well as at current prices. Its price index shows the price fluctuations of all its components; its volume evolution monitors economic development.

The key approaches to measuring GDP include:

Especially by means of the contributions of many sectors and types of economic players, the production method provides insightful analysis of the sources of wealth generating. This approach calculates Gross Domestic Product (GDP) by aggregating the value generated by public and private economic organizations.

The income method emphasizes how workers, the government, and businesses divide created riches. Gross Domestic Product (GDP) is expressed in this paradigm by employee salaries, government taxes paid on imports and output, and running surpluses generated by companies.

The expenditure method stresses the distribution of created wealth covering consumption, investment, stock creation, and overseas monetization. Short-term economic policy is modeled and informed by this technique rather often.

1.3. Economic Growth Theories

Following Three basic economic ideas are examined in the next parts to help to enable a thorough debate. The classical model is first thoroughly examined, then an outline of the ideas of neoclassical economic theory. Finally, the details of endogenous growth theory are investigated to provide complex viewpoints on the general knowledge of economic dynamics.

1.3.1. Classical Growth Theories

Classical economists are frequently perceived as exhibiting a pessimistic outlook regarding the potential for economic growth (Harris, 2007). Rooted on ideas expressed in the late 18th century, the classical economy originated in Adam Smith's foundational book, An Inquiry into Nature and Causes of the Wealth of Nations. Economists like

David Ricardo and Thomas Malthus then improved and enlarged this paradigm. John Maynard Keynes, however, provided a significant challenge to this paradigm in the 20th century by challenging basic ideas of classical economics, especially those about the ability of the markets to attain full employment and to self-regulate successfully.

Adam Smith's Theory of Absolute Advantage

Adam Smith's thoughts on economic growth highlight the idea that internal economic events rather than outside forces mostly shape such development. Smith said that this process depends much on the quality of work, which includes judgment, dexterity, and skill set. Among Smith's major achievements is the division of labor theory he developed as a basic component in improving output. Moreover, he noted that workers' experience helps to generate technology by itself. From Smith's vantage point, personal decisions—especially those about consumption and savings—cause economic development.

David Ricardo's Theory of Comparative Advantage

Renowned classical economist David Ricardo offered a different understanding of capital accumulation from Adam Smith's ideas. According to him, the declining returns linked with the limited amount of land would always cause earnings to drop as capital rises. This theory emphasizes Ricardo's special insight of the link between land availability, capital accumulation, and economic expansion (Kurz & Salvadori, 2008).

Malthusian Theory of Population and Economic Growth

Seeking to alert society about the risks of fast population increase in England, Thomas R. Malthus, whose main book An Essay on the Principle of Population substantially affected economic theory, attempted Malthus said that the law of diminishing returns suggests that as the population rises, the per capita food consumption usually declines. He noted two basic points: first, certain elements of production, including agricultural land, are fixed and so have declining returns while other elements of production rise; second, better living standards inspire more population expansion. This concept holds that the population would self-regulate in the lack of technical advancements or extension of agricultural areas. According to the Malthusian hypothesis, food production rises linearly while the population expands exponentially, thus producing a scenario wherein limited resources are inadequate, hence causing famines, epidemics,

and other disasters. Critics of this view, however, contend that sustainable population growth is made possible by technical developments, therefore negating certain restrictions (Weir, 1991).

1.3.2. Neoclassical Growth Theory

Examining the interplay of three main factors including labor, capital, and technology, the neoclassical growth theory offers an economic framework for comprehending how to attain steady economic development. In 1956, Robert Solow and Trevor Swan created mentioned long-term growth models.

In his foundational work, Solow presents a neoclassical growth model stressing the exogenous nature of technological development and declining returns to capital. This approach holds that two outside variables affect an economy's long-term growth rate: the pace of technical development and the savings (or investment) rate. Assuming a production function marked by constant returns to scale, the model indicates that the output will also double if both labor and capital are doubled.

The Solow model makes one of the major contributions by analyzing steady-state equilibrium, a point at which capital per worker stays constant and generates stable economic development. The interaction of the exogenous pace of technical development with declining returns to capital produces this equilibrium (Solow, 1956).

Within this theoretical paradigm, only technical development can maintain constant economic growth as declining returns cause the impacts of capital accumulation to be temporary. Applied to a closed economy, the neoclassical growth model fits this reality if capital is defined broadly to include human investments, therefore enabling declining returns to capital to show up gradually. Moreover, changes in public policy or savings preferences might affect equilibrium positions.

Another important addition of the Solow model is the idea of convergence. This theory holds that, if they keep the same rates of savings, depreciation, and population growth, nations with originally lower levels of capital per worker often enjoy stronger growth rates and, over time, converge into more advanced economies (Robert J. Barro et al., 1992).

The Role of Capital Accumulation and Technological Progress

New capital products now more and more reflect technological advancement. Gordon showed, for example, that after World War II, the relative price of capital has regularly and dramatically dropped in the United States and other countries. Moreover, (Greenwood & Seshadri, 2004) showed that the main engine of economic development is technological-embodied advancement in capital. According to their studies, investment directly accounted for almost 60% of the labor productivity increase in the United States during the postwar era.

As (Yorukoglu, 1998) emphasizes, information technology is a major example of this dynamic. Since newer capital products usually show better productivity levels, embodied technical improvement has a significant influence on the capital accumulation procedures of companies. Developing a model that separates capital stocks depending on their year of manufacturing would help one to properly understand the consequences of this feature. The process of building more physical capital, namely machinery and tools, to support economic development is known as capital accumulation. This procedure entails allocating some money for savings and then reinvested in the creation of products and services.

While human capital accumulation usually diminishes in reaction to increasing nominal interest rates, technological development is favorably connected with nominal interest rates. Thus, the combination of these two opposing factors determines the general influence on long-term economic development. The scope of innovations should be sufficiently significant. In that case nominal interest rates might have a favorable effect on economic development (Valli, 2018).

1.2.3. Endogenous Growth Theory

The theory of endogenous growth emerged as both a response to and a complement of the exogenous growth model, notably exemplified by the Solow model. In the 1950s, Robert Solow characterized technological progress as an exogenous factor, positing that it existed independently of the internal dynamics of the economic system (Solow, 1956). However, subsequent research underscored the necessity of a theoretical framework that integrates technological progress and its determinants within the growth model itself, thereby facilitating the advancement of endogenous growth theory.

This strategy is based on the theory that a nation's rate of technical development directly influences its economic activities, therefore affecting its economic growth rate. Within this theoretical framework, the dynamics of long-term development depend on variables like governmental policy, human capital development, and innovation very naturally.

Paul Romer who showed in the 1980s that steady economic growth is mostly driven by endogenous elements like knowledge accumulation, research and development (R&D), and human capital (Romer, 1986), is a major contribution to this idea. Unlike the Solow model, which characterizes the declining returns to physical capital, his approach emphasizes the need to raise returns linked with knowledge.

Romer argues that regardless of outside technological developments, investments in human capital and research and development can maintain a long-term growth rate. Building on this concept, Lucas developed the theoretical framework by stressing the vital relevance of human capital building. According to him, gained by education and experience, human capital is a basic driver of production and creativity, therefore advancing technical development within the economic system (Robert E. LUCAS, 1988).

Human Capital Development

A basic element in the conversion of resources into observable advantages for society is human capital. Economists have underlined how important it is for a country to develop and maximize human capital as an engine of economic progress. A lot of study has been done on this subject and its associated problems since human capital theory first surfaced in the 1960s. Modern growth theories, most famously those proposed by (Robert E. LUCAS, 1988; Romer, 1986), have underlined once again the importance of human capital for the process of economic development. These findings imply that, even in the absence of a proportionate increase in input, output per unit of input may keep rising over long terms. Lucas's theory emphasizes the need of investing in people as creative and efficient resources (Frederick Harbison, 1963).

Human capital is the set of talents and abilities that people have; its development relates to the increase of the population ready with the credentials, education, and experience necessary for the economic development of a country (Frederick Harbison,

1963). Human capital is clearly important for national economic growth; education is the main tool for improving it. Since no country can achieve sustained development without a trained workforce, it is generally agreed that the main engine of economic progress.

Innovation and Knowledge Spillovers

(Schumpeter, 1939) emphasized the idea of "creative destruction," according to which disruptive discoveries replace outmoded technology, therefore producing a dynamic of development. Entrepreneurship and innovation are under more and more focus by public authorities (Fumi Kitagawa, 2004). Economic development depends fundamentally on innovation as it helps information to be accumulated and shared among economic players.

This procedure boosts corporate competitiveness and, thus, the broader economy. Understanding the economic effect of innovation depends on information externalities, often known as "knowledge spills." Still, the spread of information does not happen free from challenges. In 1988, Lucas underlined the role human capital plays in information sharing. Often restricted by patents, intellectual property rights, or insufficient expertise, firms' appropriation of ideas is constrained.

(Audretsch et al., 2021) claim that the idea of entrepreneurial knowledge spillovers helps to clarify the processes by which non-commercialized information may be turned into new market goods. Through waves of innovative surveys, they exposed a great number of inequities in British corporations.

When particularly referring to technology management and innovation economics, the ideas "technological spillover" and/or "spillover" usually take front stage. Advancements in one industry or nation can depend on information gained from advancements in another industry or nation. This is the reason (Aghion & Jaravel, 2015) contend that mechanisms of technology transfer or diffusion are fundamental determinants of national convergence.

Emphasizing the process of voluntarism as a means of knowledge acquisition and economic expansion, (Gray, 2022) also supports the notion of endogenous growth based on innovation. Through their own breakthroughs, these spillovers help a nation to progress technologically.

1.4. Structural Change and Economic Growth

The contribution of structural change is measured by the variation in the efficiency index as a percentage of GDP variation. In this context, it is crucial to develop strong financial markets capable of directing investments toward sectors with the highest returns. Structural change is a central driver of economic development; its gradual slowdown could hinder a country's future growth while its dynamism could explain the increase in national savings rates.

This phase has been characterized in Guinea by a notable economic change from an economy mostly dependent on agriculture, the main source of employment, to one progressively focused on mining activities and extractive industries. High-income nations should be noted as sometimes showing lower measured savings rates than low-income nations depending on their level of development. Therefore, when technical development causes enough rise in per capita income, a nation's average inclination to save, compared to its national income and output, usually increases organically. Historical data indicates that national savings rates rose along with income growth after the Industrial Revolution (Laitner, 2000).

Guinea has a crucial role in the framework of structural dynamics of production analysis of economic development as it boasts the highest deposits of bauxite, the necessary resource for aluminum manufacture, estimated to be more than 40 billion tons. Located in the Simandou Mountains, the nation also has one of the biggest undiscovered iron ore reserves worldwide as well as significant amounts of gold, diamonds, uranium, and almost twenty other minerals (Mijiyawa, 2020).

A basic component of economic growth is adaptability to structural changes; new businesses actively contribute to this process. Particularly relevant for regional economic growth, entrepreneurial activity greatly helps to change sectoral structure. Although factor reallocations are clearly important for promoting development, the empirical research on growth mostly ignores the role entrepreneurs play in controlling these reallocations. This discrepancy emphasizes the importance of deepening the study of the processes by which entrepreneurship affects structural changes and, thus, economic success (Noseleit, 2011).

The Lewis Dual-Sector Model

Arthur Lewis's dual-sector model (W. ARTHU, 1954). Offers a theoretical framework for examining economic growth in certain emerging nations marked by an abundance of workers. Lewis argues that there are two separate components to a nation's economy: a contemporary industrial sector and a conventional agrarian sector. According to his paradigm, economic development is driven by workers moving from the agricultural sector—where marginal labor productivity is typically low or even zero—into the more profitable industrial sector.

The first sector, the agricultural sector, is distinguished by restricted supply of fertile land, contrasted with an abundance of manpower - a configuration that helps explain the peculiar economic structure of certain emerging nations (Barigbon, 2022). Conversely, in the industrial or capitalist sector, labor is employed until its marginal productivity matches the pay rate, hence optimizing the profit rate (Yoko, 2002). Rising capital accumulation results from the excess labor supply and consistent pay at the subsistence level. Profits are reinvested at the highest rate by capitalists, creating new jobs and thus growing surplus, so guaranteeing ongoing growth of capital and employment. While absorbing excess workers, this labor movement helps industrial growth and structural economic change, thus promoting long-term economic progress (Lorelle; Yuen & Kishore G., 2012).

Kuznet Theory of Structural Transformation

Now one of the main instruments of current macroeconomics is the one-sector growth model. Its broad acceptance may be partially ascribed to its simplicity in capturing, in a minimalist sense, the fundamental core of contemporary economic development—which (Kuznets, 1973) characterized as a continuous rise in productivity and living standards. But given its simplistic framework, this model always ignores certain crucial elements of the process of economic development. Among them is structural change, that is, the reallocation of economic activity among the main sectors of industry, services, and agriculture. Among the six main characteristics of contemporary economic development, Kuznets personally found structural change to be Policy discussions in industrialized nations have also drawn a lot of interest for these phenomena

as many analysts have said that the sectoral reallocation of economic activity is ineffective and calls for government involvement (Herren Dorf et al., 2013).

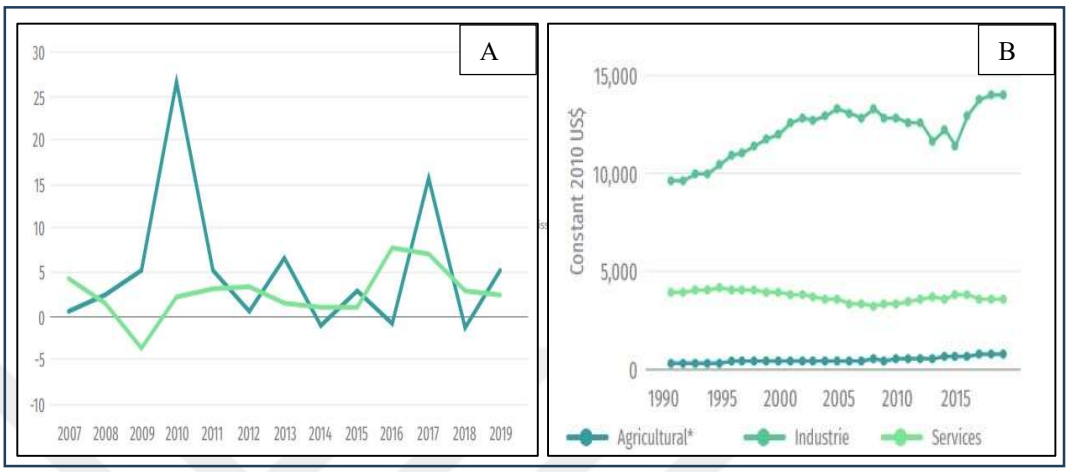

Figure 1: Structural change and economic growth in Guinea (Source: World Bank 2022)

In Guinea, this graphic (Figure 1) shows how structural change and economic development interact. Although the single-sector growth model offers some simplicity, it usually ignores important aspects of economic development, especially the idea of structural change. Recognized as a fundamental component of development, structural change—which is defined as the reallocation of economic activity among the agricultural, industry, and services sectors—is characterized (Ivan D. Trofimov, 2023) as though the services sector accounts for the highest part of gross domestic product (B), data from the World Bank (2022) show that the ratios of industry and agriculture have been quite constant. This stability suggests limited structural transformation, which might help to explain the modest economic development of the nation by pointing to a lack of major shift toward higher-productivity industries. Moreover, the significant variations in sectoral growth rates between 2007 and 2019 (A) highlight economic instability, a feature of less diversified economies.

Çınar Baymul & Kunal Sen, (2019) claims that three stylized realities of economic development—agriculture, industry, and services—basis systemic transition. These define the fundamental components of Kuznets' structural transformation theory.

Early on in their economic development, a sizable fraction of the population works in the agricultural sector, which is marked by quite low productivity and slow economic growth. Insufficient agricultural surpluses in this context fail to enable industrial growth or significant economic diversification (Kuznets, 2008).

With about 80% of the workforce involved in agricultural, this is still one of the key job areas in Guinea. Most agricultural employment have been concentrated in small and medium-sized farms, mostly in the unofficial sector, since the state-run production system was dismantled in the 1980s (Ismail et al., 2017).

Modernizing causes industry to grow and attracts agrarian workers to cities. Productivity, wages, and economic growth all rise out of this dynamic. The mining industry has been a main engine of Guinea's economic development thanks to industrialization. Along with this phenomenon is a movement of farm workers to metropolitan areas where industrial prospects are growing. Adoption of modern technology and economies of scale helps to enable the notable productivity increase resulting from this structural change.

At a developed level, economies move toward the service sector where innovation, technology, and service consumption take front stage in determining economic growth. From 2.5% between 2007 and 2015 to 1.3% between 2016 and 2023, Guinea's Economic Outlook Report examined by the World Bank in September 2024 shows a declining contribution to economic development by the service sector. Most subsectors have suffered from this downturn, and their share of GDP dropped generally from 44% to 33%. The sector stayed dominated by low-productivity unofficial operations during this period. Increasing demand for a variety of services, including financial, educational, healthcare, and recreational ones, also said that the fundamental engine of economic development.

1.3.5. Growth Theories in the Context of Developing Economies

Long a major concern in economic discussions, the economic growth of underdeveloped nations like Guinea has structural challenges that impede its development, just as many low-income countries do. Different economic theories have been created to examine these transformation processes and suggest suitable policies

include the Big Push theory, endogenous growth theory (Robert E. LUCAS, 1988), and dual-economy growth models (W. ARTHU, 1954). These strategies underline several important factors of development, including the need for massive and coordinated investments (P. N. Rosenstein, 1943), positive externalities and economies of scale (Murphy et al., 1988), as well as the need for a strong institutional framework to foster innovation and human capital accumulation (Acemoglu & Robinson, 2012).

Big Push Theory

The theory Introduced by (P. N. Rosenstein, 1943), hypothesis that to overcome the cyclical effect of underdevelopment, efficient development need for a simultaneous and large investment effort across several sectors. Given Guinea's abundance of natural resources—bauxite, gold, iron, etc.—this strategy is especially pertinent in that nation Although Guinea's economy mostly depends on resource exports, Kaba and Camara (2020) show that this riche has not driven significant economic diversification. According to the Big Push hypothesis, significant expenditures in infrastructure (roads, energy), education, and industrialization must be focused to ward infrastructure (roads, energy), education, and industrialization to generate productive interactions across sectors. This will help to start steady development.

Moreover, the endogenous growth models created by (Robert E. LUCAS, 1988; Romer, 1986) underline the basic importance of human capital, technical externalities, and creativity in economic progress. The low level of investment in education and vocational training is one of the main obstacles facing Guinea as it inhibits the development of a qualified workforce able to support varied industry.

Harrod-Domar Model of Growth

Emphasizing the need for investment and savings for economic development, the Harrod-Domar model is a theoretical instrument that also highlights the hazards of instability. To show economic flux, Harrod and Domar independently created a Keynesian model to extend the condition for balanced economic growth and the riste of balance. Quickly simplifying this model to a just supply-side growth model, mainstream economists eventually discounted it as unduly simplified and replaced Solow's neoclassical growth model. This approach resembled the narrowing down of the

macroeconomic paradigm to IS-LM analysis and subsequent replacement by an oversimplified framework (Van Den Berg, 2013).

Considering savings, investment, and capital productivity, using the Harrod-Domar model (1964) in the Guinean setting might provide an understanding of the possibilities and difficulties connected to the country's economic development. This model is well-known for its instability, however, even in the long term when economic equilibrium stays precarious. Lack of an inbuilt adjustment mechanism causes a little departure from the natural growth rate to result in either increasing unemployment or protracted inflation. Its restrictions have been hotly contested throughout time.

2. NET MIGRATION

This section examines Net migration and its diverse forms. Eventually, the possible outcomes it may is briefly discussed, and the discussion ends with some thoughts on the theoretical models that are currently accessible for this subject.

Net migration refers to the difference between the number of individuals entering a country (immigrants) and those departing (emigrants) within a specified time frame. International migration has emerged as a significant factor influencing demographic changes across numerous countries (Brunow et al., 2015). This phenomenon is particularly pronounced in nations experiencing low birth rates, where immigration serves to mitigate the repercussions of a birth rate that falls below the mortality rate. Between 2010 and 2020, 14 countries or regions are projected to experience a net inflow of over one million migrants, whereas 10 countries are expected to witness a comparable net outflow. In recent decades, migration patterns have become increasingly intricate, with a growing number of countries functioning as both sources and destinations for migrants (Castles et al., 2005).

This evolution underscores the escalating globalization of human, economic, and cultural exchanges, reflecting the increasing interdependence of nations within a rapidly transforming global landscape. Some of the most significant migratory flows are influenced by the demand for migrant labor, as well as by factors such as violence, insecurity, and armed conflict (Dorling, 2021). Over the forthcoming decade, countries including Belarus, Estonia, Germany, Hungary, Italy, Japan, the Russian Federation, Serbia, and Ukraine are projected to experience a net influx of migrants. This influx is anticipated to mitigate population declines resulting from a higher incidence of deaths compared to births.

2.1. The Benefits of Net Migration Policies

In this subsection, we examine the advantages of net migration policies, highlighting how unrestricted migration can boost both national and global economies. These policies address labor shortages linked to aging populations, foster innovation and entrepreneurship, and promote cultural diversity (Tony et al., 2021). They enrich the social fabric and enhance problem-solving capabilities by integrating diverse

perspectives. By facilitating a more responsive global labor market, unrestricted migration helps reduce economic disparities and strengthens long-term economic resilience. Net migration policies thus offer multiple benefits in economic, demographic, cultural, and social terms, both for host countries and for migrants themselves (Matt & Alex, 2012). They fill the demand for both skilled and unskilled labor, particularly in shortage sectors, which stimulates the national economy through increased consumption and enhanced productivity. By attracting workers, they also boost the international competitiveness of the concerned countries.

Immigration enriches the cultural and social fabric of host countries by introducing diverse perspectives, skills, and cultural practices. This diversity fosters innovation and societal openness, enabling businesses to better respond to the demands of a globalized market through the adoption of novel ideas (Remco et al., 2019). Furthermore, migrants frequently send remittances to their families in their countries of origin, providing economic support to these regions, alleviating poverty, and enhancing access to essential services, thereby contributing to social stability. Over the long term, this support may also mitigate migration pressures. To optimize these benefits, it is crucial to design migration policies that align with labor market needs while facilitating the integration of migrants into society. The tables and graphs below illustrate the variations in the benefits of net migration policies in Guinea compared to other countries, particularly Canada and the United States.

Guinea functions as a country of origin, transit, and destination for migrants. In 2019, it hosted over 120,000 international migrants, constituting 0.6% of the total population. According to the 2014 General Population and Housing Census (RGPH), the number of international migrants residing in Guinea was 160,469, representing 1.5% of the population. However, the collection of accurate migration data remains a significant challenge. Such data are critical for supporting the National Migration Policy and the 2016-2020 Statistical Development Strategy (SDS2), which aim to enhance the quality of national statistics. The migration policy is aligned with the 2016-2020 National Economic and Social Development Plan (PNDES) and further supports the objectives of Vision 2040. A new strategic plan for 2021-2025 is currently under development to address key developmental issues, including migration. These initiatives are part of

broader regional and global efforts, such as the Global Compact for Safe, Orderly, and Regular Migration, which underscore the necessity of accurate data for evidence-based policymaking. Additionally, migrants from the Economic Community of West African States (ECOWAS) residing in Guinea contribute to the local economy: 54% of them in the capital have established businesses, with 69% operating in the informal sector. Furthermore, 52% report no difference in the treatment of their business environment compared to that of nationals, while 32% believe the environment is more favorable for them.

2.1. Theoretical Framework of Immigration

Migration is a multidimensional phenomenon influenced by individual choices, household strategies, and global structural forces. To provide a comprehensive understanding of migration, theories can be categorized by level of analysis: micro, meso, and macro (Hagen-Zanker, 2008; Wickramasinghe & Wimalaratana, 2016). This section discusses key migration theories grouped accordingly, with emphasis on their economic dimensions and relevant sociological insights.

2.1.1. Micro-Level theories

Micro-level theories concentrate on the individual as the primary decision-maker. They explore how personal factors, expectations, and cost-benefit assessments shape migration behavior.

One of the earliest explanations at this level is Lee's Push-Pull Theory (LEE, 1966), which builds upon Ravenstein's foundational migration laws. According to this theory, migration is influenced by positive (pull) and negative (push) factors in both origin and destination areas. Lee emphasizes that these factors are subjective, and their perception depends on individual characteristics. He also introduces the concept of "intervening obstacles" — elements that can hinder or prevent migration, such as policy restrictions, cultural barriers, or financial limitations.

The Neoclassical Microeconomic Theory of Migration views individuals as rational actors aiming to maximize expected income. Migrants are assumed to evaluate the net benefits of moving by comparing expected wages, employment probabilities, and costs, including relocation, integration, and potential legal risks. If the perceived gains

outweigh the costs, migration becomes a rational choice. This approach treats migration as an investment in human capital (Massey et al., 1993).

Although powerful in explaining economic motivations, micro-level theories often overlook the role of families, institutions, and systemic constraints. This has led scholars to develop meso-level theories that bridge the gap between individual and structural dynamics.

2.1.2. Meso-Level theories

Meso-level theories emphasize the role of social relationships, networks, and institutions in enabling or shaping migration decisions. They focus on the social infrastructure that mediates between macroeconomic conditions and individual choices.

The Network Theory explains how existing ties between migrants and non-migrants reduce the costs and uncertainties associated with migration. These networks provide vital information, emotional support, and logistical help, facilitating continued migration flows. As networks expand, migration becomes self-perpetuating, even in the absence of strong economic differentials (Massey et al., 1993).

Institutional Theory complements this view by highlighting the role of organizations that emerge around migration flows. These can be formal (e.g., NGOs, advocacy groups) or informal (e.g., smuggling operations), and they often grow in response to regulatory restrictions. Such institutions can make migration more accessible but also complicate state control over cross-border movements.

The New Economics of Labor Migration challenges the assumption that individuals migrate independently. Instead, it argues that households — not individuals — are the primary decision-making units. Migration is used as a strategy to manage economic risks in environments where credit and insurance markets are incomplete. One or more family members may migrate to diversify income sources, secure remittances, or hedge against local market failures (Stark & Bloom, 1985).

Together, these meso-level approaches illuminate how collective actors and social structures shape and sustain migration, extending beyond purely economic calculations.

2.1.3. Macro-Level theories

Macro-level theories explore how broad structural and systemic factors — including global economic systems, labor market segmentation, and political institutions — drive international migration patterns.

The Neoclassical Macroeconomic Theory suggests that migration is a response to labor market imbalances across countries. Regions with a surplus of labor (typically low-income countries) experience emigration, while regions with labor shortages (typically high-income countries) attract immigration. Over time, wage differentials are expected to narrow as labor redistributes globally (Ranis & Fei, 1961; W. ARTHU, 1954).

The Dual Labor Market Theory, introduced by (Michael, 1979), contends that migration stems from structural labor demands in developed economies. These labor markets are split into two segments: a primary market offering stable, well-paid jobs, and a secondary market consisting of low-status, low-wage positions that native workers are reluctant to fill. Immigrants are recruited to perform these jobs, not because of their own economic hardship, but because of persistent employer demand.

Lastly, the World Systems Theory, rooted in the work of (Wallerstein, 1974), frames migration as a byproduct of capitalist expansion. As global markets penetrate peripheral economies, traditional livelihoods are disrupted, prompting population displacement. Migration is thus viewed as a structural consequence of global inequality. This theory underscores how international labor flows mirror the historical and economic dependencies between the Global North and Global South (Elena Giorguli Saucedo, 1998).

These macro-level perspectives highlight how global economic processes, rather than individual preferences alone, shape migration systems and flows.

2.2. Determinant of theoretical migration

Economic Factors

Disparities in living standards, employment opportunities, and wage differences are major drivers of migration (MATHIAS & HEIN, 2018) . Economic crises and poverty push individuals to emigrate in search of better living conditions. Bodvarsson and

Hendrik Van den Berg, in their book The Economics of Immigration provide a thorough exploration of immigration policy. They offer a historical overview of immigration policies from various nations and analyze the theoretical frameworks and economic factors that shape immigration. Conversely, countries with economic stability tend to attract migrants. According to human capital theory, individuals with higher qualifications often migrate primarily to maximize their professional skills and optimize their income potential (Villarreal & Blanchard, 2013).

Social Factors

Migration is profoundly influenced by a variety of social dynamics, including familial connections, educational opportunities, and cultural factors. The processes of family (Pranka et al., 2022) reunification and the establishment of migrant networks are essential in facilitating migratory movements. Furthermore, numerous individuals undertake migration as a means of escaping discrimination or enhancing their cultural and social quality of life (Catherine, 2024). Migrants frequently exhibit a preference for destinations where they have established social or familial ties, as these connections can significantly assist in their integration and mitigate perceived risks associated with relocation. Additionally, environmental factors, such as natural disasters, water scarcity, and ecosystem degradation, are increasingly recognized as critical determinants in shaping global migration trends (Chandler & Tsai, 2001).

Political Factors

Political regimes, alongside both internal and international conflicts, exert a significant influence on migratory dynamics (Bridget, 2018). Armed conflicts, systematic persecution, authoritarian governance, and chronic instability frequently compel populations to relocate, either within their national boundaries or to other nations (Chan et al., 2022). Such forced migrations typically arise in contexts where individuals are seeking protection and security. Furthermore, the migration policies enacted by states are pivotal; welcoming policies, including reception programs and family reunification initiatives, tend to promote migratory flows, whereas restrictive measures, such as border closures, heightened controls, and the criminalization of irregular migration, may obstruct these movements or alter their trajectories. Additionally, diplomatic relations, as well as

bilateral or regional agreements and the role of international organizations (Mayda et al., 2022), shape these migratory flows by establishing institutional frameworks that can either facilitate or restrict human mobility.

Net migration, defined as the difference between the number of immigrants and emigrants over a specific period, significantly influences a country's demographics, economy, and society. A positive net migration indicates population growth, whereas negative net migration signifies a decline (Murtala & Abubakar, 2024). This phenomenon is shaped by a variety of economic, social, political, and environmental factors and is crucial for economic growth, which is the primary focus of this study. Maggie & Fiorentina, (2015) found that net immigration tends to increase with higher median family incomes, favorable temperatures, and fiscal surpluses, while it decreases in areas characterized by high living costs, hazardous waste sites, and significant income taxes. Interest in theories of net migration has surged, contributing to an expanding body of literature on the subject. However, theorization in migration remains less developed compared to other areas of international relations, largely due to the complexity and diversity inherent in the issue of international migration.

2.2.1. Comparative advantage

In his seminal work The Competitive Advantage of Nations, published Porter, (1990) laid the foundation for a comprehensive and structured analysis of global economic development. His research provided a deeper understanding of how a nation's competitiveness reflects the evolution of its economic development, particularly through the influence of various key forces driving productivity and economic growth. Porter emphasizes that it is not only natural resources or an abundant labor force that determines a nation's prosperity, but also its ability to adapt to global economic transformations.

Sutono et al., (2023) highlights the importance of factors such as innovation, technology, infrastructure, and human capital, all of which play a crucial role in enhancing long-term economic performance. This pioneering work thus paved the way for a new approach to studying growth dynamics, focusing on the competitiveness factors that allow nations to succeed on the international stage.

The evolution of these driving forces is essential for explaining why some countries manage to maintain a sustainable competitive advantage, while others struggle to keep up with the pace of global economic change. According M. E. Porter (1990) offers a detailed analysis of the mechanisms by which these forces influence national development and economic resilience, highlighting the central role of competition in improving economic performance at both the national and international levels.

2.2.2. The Connection Between Net Migration and Economic Development

The relationship between net migration and economic development is complex and multifaceted, prompting extensive research by numerous scholars. Giovanni (2016) examined how positive net migration can facilitate economic growth by augmenting the labor supply, which in turn stimulates production, attracts foreign investment, and promotes innovation. Furthermore, he emphasized that immigration could enhance domestic demand, thereby contributing to sustainable economic growth. This section analyzes the impact of net migration on economic development, particularly concerning GDP projections and the optimization of migration policies. Migration serves as a significant catalyst for development, contributing to the enhancement of financial, physical, human, and intellectual capital (Serhii et al., 2024). In 2023, the International Organization for Migration (IOM) estimated that there were approximately 300 million international migrants, representing 4% of the global population, with 60% classified as workers.

Conversely, (Michael A., 2011) has conducted extensive research on the phenomenon of negative net migration, commonly referred to as "brain drain." His findings underscore the ways in which the emigration of skilled individuals can impede economic progress, particularly in developing countries. Nevertheless, he acknowledges that the financial contributions migrants make through remittances can alleviate these challenges by bolstering local economies and fostering investment in critical sectors such as education and healthcare. Lucas (2005) made significant advancements in this domain by analyzing the implications of migration policies on the interplay between net migration and economic development. He contended that well-designed policies could optimize the

advantages of positive net migration while simultaneously addressing the adverse effects of brain drain, particularly through the promotion of migrant assimilation and the facilitation of skills transfer.

3. FOREIGN DIRECT INVESTMENT

Foreign Direct Investment (FDI) plays a pivotal role in the contemporary global economy, significantly contributing to the development of countries, particularly emerging and developing economies. In today's era of globalization, FDI serves as a vital tool for stimulating economic growth, facilitating technology transfer, and enhancing the competitiveness of local businesses (Vernon, 2015).

FDI can take various forms, with one of the most common beings, "greenfield" investment. In this scenario, a foreign company establishes new facilities or infrastructure in the host country. Developing countries often seek this type of investment because it directly creates jobs and facilitates the transfer of technology and skills (Blomström & Kokko, 1997). Another prevalent form of FDI involves acquisitions or mergers with local companies. This approach allows for quicker integration of operations; however, it may raise concerns about economic sovereignty and the control of strategic sectors. The effects of foreign direct investment (FDI) vary significantly. While FDI can drive economic growth, it also poses several challenges. These challenges include increased competition for local businesses, dependency on foreign capital, and concerns about economic sovereignty (Rodrik, 1999). Additionally, profit-driven multinationals may exploit local resources without reinvesting the resulting gains into the host country's economy. This behavior can worsen regional inequalities, as investments tend to be concentrated in more developed areas, often overlooking peripheral regions.

The analysis of FDI's impacts is based on several key theoretical frameworks. Vernon (2015)'s product life cycle theory argues that firms expand internationally to sustain profitability once their domestic markets reach saturation. Internalization theory Buckley & Casson (2009) explores why companies choose international production, emphasizing their need to control costs associated with production and distribution in foreign markets. In contrast, dependency theory underscores the risks faced by developing nations, warning that excessive dependence on FDI can jeopardize their long-

term development prospects. Foreign Direct Investment (FDI) is a critical catalyst for economic and social transformation in numerous developing nations. Its effects are diverse and contingent upon specific national and sectoral contexts. To optimize the benefits of FDI while mitigating potential adverse effects, host countries are required to implement suitable public policies and establish comprehensive regulatory frameworks. These initiatives should aim to cultivate a stable economic environment and guarantee that foreign investment promotes sustainable and inclusive development (De Beukelaer, 2014). A comprehensive understanding of the theories and models associated with FDI is imperative for anticipating future challenges and maximizing the advantages of this significant engine of growth.

3.1. Dimensions of Foreign Direct Investment

This section explores various categories and their unique characteristics. It investigates the motivations behind FDI, its effects on host economies, and the different forms it can take (Dunning, 1992). The aim is to offer a thorough understanding of the complex dynamics associated with international investment flows. The analysis clarifies essential concepts such as the direct investor and the investment enterprise (including subsidiaries, associate companies, and branches) and examines various categories of FDI and their implications for countries like the Republic of Guinea.

As noted by Borenstein et al. (1998), FDI can stimulate the economic growth of recipient countries by introducing capital and technology; however, the impact largely depends on the specific circumstances of the beneficiary country. The available statistics reveal disparities between FDI flows and stocks, particularly in emerging economies such as Guinea, where these gaps are often more pronounced in terms of stocks (Alfaro & Charlton, 2007). Although FDI flows to these economies have increased, a significant portion continues to be directed toward industrialized nations (Marjanović et al., 2021). The discrepancies between data from UNCTAD (United Nations Conference on Trade and Development) and the IMF are particularly notable, especially regarding the decline in FDI flows to emerging countries in 2001. This underscores the importance of recipient sectors, and the challenges associated with collecting reliable data.

In the financial sector, there is a significant lack of comparable and accurate data at the international level. For instance, in Spain, a reassessment of outbound foreign direct investment (FDI) flows in the financial sector-including transactions by holding companies-revealed a substantial increase during the period from 1997 to 2001 (Duce, 2003). These findings highlight the complexities involved in analyzing international financial flows, particularly in areas where transparency is limited. This typology of FDI underscores the diversity of investment forms, sectoral implications, and the methodological and statistical challenges associated with examining FDI flows and stocks, especially in countries like Guinea, where the impact of FDI on economic development is a crucial concern (Duce, 2003).

While some regions have successfully attracted more foreign investment than developed economies, they provide valuable insights for international companies looking to invest in emerging markets or those facing heightened global competition. By employing a methodological approach that incorporates the insights of foreign investors and experts, this study develops a global FDI model applicable worldwide, particularly in Guinea. This model categorizes investors into four profiles. This analytical framework-both descriptive and strategic-emphasizes the importance of understanding the motivations of local companies and business partners when making entry decisions into these markets (Magnier-Watanabe & Lemaire, 2018). Additionally, it offers guidance for foreign companies seeking to capitalize on investment opportunities in Guinea while remaining adaptable to other developed economies facing similar challenges.

3.1.1. Vertical Foreign Direct Investment

Recent research has indicated that intra-group trade between multinational corporations (MNCs) and their subsidiaries is not universally a pivotal factor. For instance, studies examining American and Asian enterprises reveal a low proportion of intra-group trade, with numerous subsidiaries failing to return goods to their parent companies (Antra's & Yeaple, 2013). This paper investigates the motivations underlying vertical foreign direct investment (FDI), even in the absence of direct trade between international production units. A theoretical model is presented in which a downstream firm may either acquire an upstream company abroad or opt for outsourcing or offshoring

to procure inputs. This analysis elucidates two principal effects of vertical FDI: first, the activation of the firm's intangible assets in foreign markets Markusen, (2002), and second, there is an improvement in subcontracting conditions within the domestic market (Walter E. et al., 2004). This study also indicates that vertical foreign direct investment reflects price dynamics; however, its overall impact on welfare is clearly positive only when there is free market entry. Even in the absence of direct trade, vertical FDI can empower firms to optimize their sourcing conditions and mitigate costs. The ramifications of these FDIs in home and host countries are not invariably symmetrical. As illustrated by Blonigen et al. (2014), they can occasionally diminish social welfare by reducing tariff revenues or engendering economic imbalances in the host country. This study augments our comprehension of the intricate incentives propelling vertical FDI and emphasizes their diverse effects on global production, outsourcing, and the welfare of the nations involved.

3.1.2. Horizontal Foreign Direct Investment

Horizontal multinationals are enterprises that manufacture identical goods or services at various production sites across different countries. In this framework, each factory is specifically designed to meet the demands of the local market, employing localized production techniques. The emergence of horizontal FDI is primarily driven by two significant factors: the imposition of positive trade costs, such as transportation fees and customs barriers, and the realization of economies of scale at the organizational level, which facilitate the optimization of production and distribution expenses. The principal motivation for horizontal FDI lies in the reduction of transportation costs and the effective navigation of entry barriers in foreign markets, challenges that can be adequately addressed only through local production. Consequently, this form of investment enables companies to extend their presence in international markets while simultaneously minimizing logistical inefficiencies. Horizontal economic models suggest that multinational activities typically emerge between countries that are economically and structurally analogous.

This similarity facilitates synergies and collaboration between local entities and the parent company. Such integration not only reconciles the globalization of operations

with the customization of services to meet regional needs but also enhances the overall competitiveness of firms in the international arena. Horizontal FDI refers to the establishment of subsidiaries or branches by a corporation in foreign countries that replicate or closely resemble the operations of the parent organization. This form of corporate consolidation occurs when entities within identical or closely related industries collaborate to generate enhanced economic value (Alexander. P, 2004; SAYUTI SULEMANA, 2019). Companies pursue this strategic integration to exploit operational synergies, consolidate competitive advantages, strengthen market power, and diversify their business portfolios. Furthermore, they seek to leverage economies of scale, which promote a more efficient allocation of resources and optimize their expansion into international markets (Behrens & Picard, 2007). These dynamics contribute to the expansion of the companies' market base, thereby enhancing their competitive resilience and flexibility in response to the challenges posed by globalization.

3.1.3. Platform FDI

Platform FDI, also known as triangular FDI, is a distinct investment strategy in which an investing country utilizes an intermediary country to channel its investments toward a target country. In this framework, the home country establishes a subsidiary, branch, or affiliate in the intermediary nation, which acts as a conduit for investments aimed at the final market.

According to (Barry, 2004), this variant of FDI is characterized by its origin in one nation while ultimately targeting another, with the primary objective of marketing products or services in a third country. Consequently, the goods or services produced through this investment are specifically intended for export to a foreign market, distinct from both the investing country and the intermediary country (Ekholm et al., 2003). A concrete example of this model is an American multinational corporation, such as Apple, establishing production facilities in Vietnam with the primary goal of distributing the manufactured products in the European market. In this case, the United States serves as the origin country of the investment, Vietnam functions as the production hub, and Europe represents the final market for the exported products. This model exemplifies the intricate and transnational nature of FDI flows in a globalized economic landscape, where value

chains extend beyond national borders to optimize production costs and access diverse markets.

3.2. Conglomerate (type of diversification)

Diversified FDI significantly contributes to the economic development of host countries by fostering regional innovation and facilitating knowledge transfer. This process enhances productivity and strengthens economic competitiveness. Empirical research indicates that inward FDI exerts a positive influence on regional innovation, particularly in developing economies such as Brazil. Regions that attract diversified inward FDI are observed to exhibit superior innovative performance, as they are better positioned to capitalize on the benefits associated with knowledge sharing (Renato et al., 2023).

In the context of conglomerate FDI, large corporations commonly implement both vertical and horizontal investment strategies. For example, in Thailand, the investments frequently involve a range of unrelated activities, such as procurement, production, and sales (Tientip & Chitchanok, 2016). The diversification strategy adopted by these corporations seeks to penetrate sectors that are not directly related to their domestic operations, with a significant focus on services and manufacturing industries. This strategic approach is designed to diversify investment portfolios, enhance financial stability, and establish holding companies in jurisdictions with favorable tax policies. Notably, investment decisions in Thailand are primarily influenced by financial objectives rather than considerations of market size or resource availability.

3.3. The Consequences of Foreign Direct Investments on The Selected Economic Indicators

FDIs exert a significant influence on the economies of both source and host countries. These impacts are shaped by a variety of structural and contextual factors that determine the nature, scale, and direction of investment flows. Such underlying determinants influence the economic and social consequences for both source and host nations. The management of the effects of FDIs primarily lies with multinational corporations (MNCs), and these effects can have both good and negative repercussions

for the host nation’s economy. The consequences of FDIs can manifest both positive and negative outcomes, affecting various aspects of the host country's economy, including job creation, technology transfer, and industrialization. Furthermore, FDIs also have repercussions for source countries, potentially stimulating growth or, in some cases, generating economic imbalances. This section aims to provide a comprehensive examination of the effects of FDIs on key economic indicators, such as economic growth, technological advancement, and labor market dynamics, drawing on the research conducted by (Hoàng & Huyn, 2015).

3.3.1. The Impact of Foreign Direct Investment on the Growth of Economic and Technological Spillovers

Economic growth, as measured by Gross Domestic Product (GDP) and per capita income, is significantly enhanced by foreign direct investment (FDI) through mechanisms such as technology transfer, the development of local skills, and the more efficient allocation of resources (Hasan Alp, 2012). While neoclassical economic theories tend to regard these effects as transient, endogenous growth models argue that they can produce enduring impacts by fostering improvements in human capital and generating technological externalities (Borensztein et al., 1998c; Kotrajaras, 2010). Nonetheless, the effectiveness of FDI is largely contingent upon the recipient countries' capacity to assimilate these technologies, a capacity often constrained by inadequacies in infrastructure and human capital. Furthermore, the beneficial effects of FDI are amplified by policies designed to bridge the technological divide and enhance the competitiveness of local enterprises (Holger & David, 2003).

FDI plays a crucial role in promoting global economic growth by providing essential capital, advanced technology, and skilled labor. It contributes to job creation, infrastructure development, and the modernization of critical sectors, including industry, healthcare, and education. Nevertheless, the efficacy of FDI is significantly influenced by the capacity of recipient countries to establish an environment conducive to innovation and sustainable growth (Moudatsou, 2003). On an international level, FDI facilitates economic integration and trade, resulting in beneficial outcomes such as enhanced productivity and improved export performance. However, these advantages are

contingent upon the ability of countries to optimize investment flows through the promotion of innovation and competitiveness.

From an economic perspective, foreign direct investment (FDI) is integral to job creation, enhancing the competitiveness of local enterprises, and stimulating exports through the adoption of contemporary management practices. The WORLD INVESTMENT REPORT (United Nations, 2018) indicates that FDI has contributed to decreased unemployment rates and heightened domestic demand in numerous developing countries. Furthermore, (Tee et al., 2017) assert that FDI facilitates access to advanced technologies, thereby further strengthening the competitiveness of domestic economic actors.

From a technological perspective, foreign direct investment (FDI) functions as a mechanism for technology transfer and skill development, which subsequently promotes the growth of human capital and innovation. This dual impact is vital for bridging the technological divide between advanced economies and developing nations (Zhang et al., 2020). By introducing innovations in sectors such as artificial intelligence and renewable energy, FDI aids in the transition toward sustainable development. The WORLD BANK REPORT (2019) particularly underscores the advantageous effects of information technologies, which modernize local economies and enhance their global competitiveness.

3.3.2. Eclectic paradigm

The OLI paradigm, proposed by Lorraine & Li, (2010), is a significant framework that explains the determinants of FDI. This framework consists of three key components: ownership, location, and internalization.

Ownership advantage

Ownership advantage refers to the unique attributes that confer a competitive edge upon a firm, including proprietary technology, a robust brand reputation, managerial expertise, and economies of scale. These advantages serve as critical determinants of foreign direct investment (FDI), as they empower firms to compete effectively in international markets. Dunning's framework underscores the significance of ownership-

specific advantages, demonstrating that firms possessing superior knowledge, capabilities, and resources are more likely to engage in FDI initiatives.

Location advantage

Location advantage is a critical factor in attracting FDI and encompasses a variety of country- or region-specific attributes that significantly influence the strategic decisions of multinational enterprises (MNEs). The primary determinants include market size, the availability and accessibility of natural and human resources, labor cost efficiency, infrastructure quality, political stability, and the regulatory and institutional environment. Collectively, these factors delineate a location's attractiveness to foreign investors. Dunning's OLI paradigm provides a systematic framework for comprehending the activities of foreign enterprises, emphasizing the significance of location-specific endowments in shaping patterns and scales of international economic engagement.

Internalization advantage

Internalization refers to the degree to which a firm conducts its activities internally instead of depending on external market mechanisms. By internalizing operations, firms can more effectively capture value, safeguard proprietary knowledge, and minimize transaction costs. This study underscores the strategic importance of internal market integration in achieving competitive advantage, demonstrating how firms can establish entry barriers by utilizing economies of scale.

In summary, the OLI paradigm, as developed by John Dunning, provides a robust framework for examining the determinants of FDI through the interaction of Ownership, Location, and Internalization factors. This model offers significant insight into the encouragement underlying multinational enterprises' foreign investments. Although it is extensively employed to elucidate global FDI patterns, its applicability may differ across various contexts and industries. For instance, a study investigating the entry mode choices of Polish firms in international markets indicated that the relevance of the framework was limited within the context of an advanced emerging economy such as Poland (Marian et al., 2016).

CHAPTER TWO

The second chapter presents a thorough study of Guinea's present and historical economic environment. With an eye on sectoral changes specifically, it seeks to elucidate how important economic variables affect development dynamics. This chapter presents and analyzes pertinent theoretical frameworks that will form the basis for the next empirical studies, therefore establishing the main hypotheses of the study.

ECONOMIC CONTEXT OF GUINEA

On West Africa's Atlantic coast, Guinea has a varied topography and a mixed population. Covering 245,857 km², the country has a wealth of natural resources with great economic potential: notably large concentrations of iron ore, gold, and diamonds. Still, its GDP per capita is somewhat low—roughly $3,100 in 2024—that which the World Bank projects. The nation still struggles with a high unemployment rate, especially among its young people even if the national GDP shows good increase in recent years and reaches $42.3 billion in 2023.

Guinea has quite great agricultural potential with 13.9 million hectares of arable land (FAO, 2021). Moreover, the country is rather important in the mining industry as it has more than 40 billion tons of bauxite, about two-thirds of the world's reserves, which helps to define it as the second-largest exporter worldwide (USGS, 2022). With regard to energy resources, the nation's hydroelectric potential is more than 6,000 MW; but less than 10% of this capacity is already used (World Bank, 2023). Thirty percent of the 45,301 km road network is paved, and the Port of Conakry is among the most efficient in West Africa, therefore enabling commerce (World Bank, 2023).

Guinea's economy is nevertheless vulnerable despite these benefits. Although agriculture shows potential, it is still underdeveloped; energy availability is restricted; and the business climate poses significant obstacles (IMF, 2023). Though economic diversification and improvements in public services provide major challenges, foreign investments—mostly in the mining and infrastructure sectors—are absolutely necessary (OECD, 2023). Guinea has to give the diversification of its economy first priority, the

enhancement of governance, and the building of its education, healthcare, and service sectors inclusive and sustainable development depends on these areas.

1. Overview of Guinea's Economic Structure

Guinea became the first country in sub-Saharan Africa to declare instant independence from the previous French colonial empire in 1958. The political and financial changes that followed independence mostly shaped this choice to reject participation in the Franco-African Community. Originally under the direction of Ahmed Sékou Touré, Guinea first embraced a socialist development model. This model changed with time to become a commerce-oriented economic framework including mining, livestock, and agriculture. Still, the country faced serious structural and financial difficulties.

Guinea's economic policies faced major challenges and shortcomings even with its aspirational goals for thorough socialist planning. The Guinean government now devotes significant funds to vital areas like mining, agriculture, manufacturing, transportation, and social services.

By helping Guinea to build a quasi-stable economy, these adaptation techniques have enabled GDP increase in the subregion. Still, structural limitations inherent in the economy hamper the expected results even in the implementation of different programs (Guichaoua, 1997).

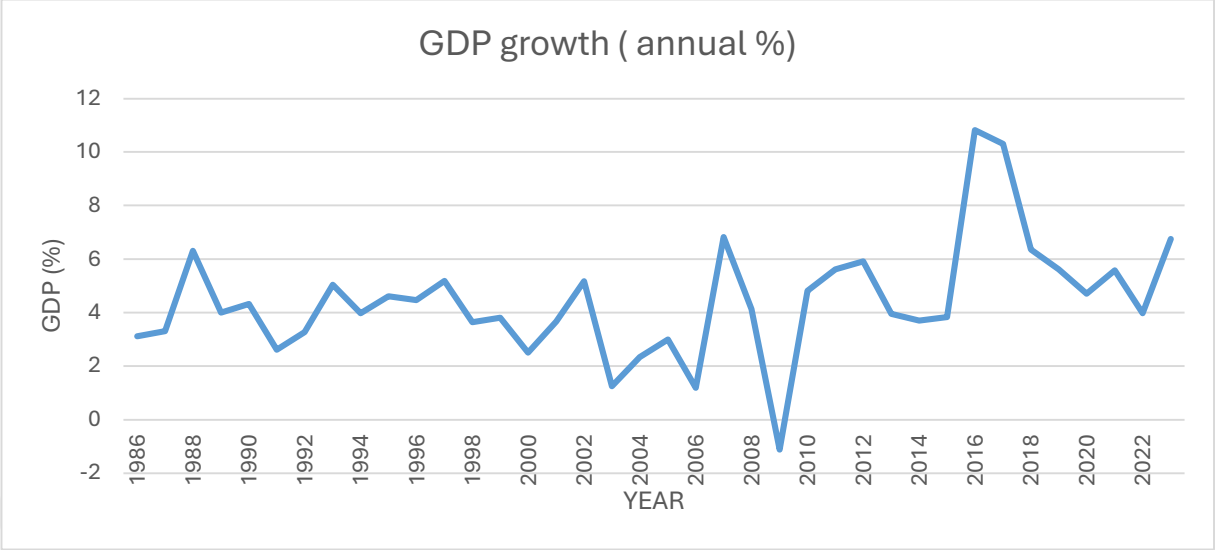

Figure 2: GDP Growth 1986-2023 (Annual %) – Guinea

Emphasizing major economic developments during the previous thirty-seven years, the figure (Figure 2) below shows the evolution of Guinea's GDP growth rate from 1986 to 2023. Growth was modest from 1986 to 2000, varying between 2% and 6%; periodic decreases but never dipped into negative territory. Greater instability defined the decade 2001–2010, highlighted by considerable swings and a clear decline in 2009 when growth became negative owing to the global financial crisis and domestic political difficulties in 2008.

Beginning in 2011, the economy started to recover; it showed amazing highs in 2016 and 2017, pushed mostly by the mining and agriculture industries, when the growth rate approached 10%. Mostly because of the COVID-19 epidemic, this progress somewhat halted after 2018. But in 2023, development resumed, rising to almost 7%, suggesting a degree of national economic recovery from the present.

2. Sectorial Contributions to GDP

Three main sectors define the Guinean economy: primary, secondary, and tertiary basic. It depends much on its natural resources, especially its strategic location and plenty of minerals, agricultural goods, and water. Particularly in travel and business, the tertiary sector has great opportunities for development and expansion. These closely linked industries show how much general economic stability may be affected by significant shocks to one industry. One clear example of this phenomena is the global financial crisis

of 2008, which negatively affected countries like Guinea whose GDP depends mostly on resource exports.

2.1. Primary Sector (Agriculture and Mining)

According to the World Bank's (Worl Bank, 2024) book, Guinea's economy depends critically on the agriculture sector, which accounts for 27.8% of the GDP and employs over half of the people. To improve this industry from a mostly subsistence farming model to a more profitable, market-oriented agricultural framework, it is very essential.

In many developing countries, mining and agriculture are basic economic pillars that greatly influence socio-economic development as well as expansion. Guinea has structural issues that need to be resolved even although it has plenty of natural resources and great agricultural capacity to guarantee ongoing economic development (Camara, 2023).

By means of the exploitation and marketing of its resources, the mining industry makes a major income. Apart from that, agriculture depends on certain mining inputs like potash and depends on modern infrastructure to help export its goods and transportation of them. Unlike agriculture, mining uses less land area and less effect on the deterioration of soil and water. Still, sustainable and responsible management helps to minimize negative effects and maybe turn them into positive results (The Crawford Fund, 2013).

Guinea's GDP grew by 5.7% in 2023, mostly driven by the mining industry, which saw a 9.4% rise ascribed to growing demand for bauxite and aluminum. Though the mining industry is predicted to continue rising, the Guinean government forecast for 2023 indicates that emergency funds after the Conakry fuel depot explosion may slow down economic development to 4.1% in 2024.

Guinea's socioeconomic data still show somewhat poor even with these developments. Ranked 181st out of 193 in world rankings, the nation has a GDP of $23 million in 2023 and a rising population. Therefore, even while mining and agriculture are main foundations of Guinea's economy, more work is needed to modernize these

industries, increase output, and strengthen resistance against economic and climatic obstacles.

2.2. Secondary Sector (Industry and Manufacturing)

Guinea's economy depends greatly on the exporting of raw minerals, especially unprocessed bauxite. Though programs meant to promote local processing of this resource into aluminum have had only mixed results. Furthermore, important for national income are gold and diamond mining; nevertheless, insufficient processing facilities cause these resources to be mostly exported in their raw form.

Processing operations in the agri-food industry are notably growing, best shown by the building of industrial facilities devoted to palm oil, fruit juices, and wheat. Though small in scope, the textile sector is growing thanks to hand-made clothing manufacture. Moreover, the cement sector is expanding slowly to meet the increased need for building supplies.

Guinea has been investing in energy infrastructure, including the building of hydroelectric dams like Souapiti, meant to provide a consistent power supply and enable industry, therefore supporting these advancements. The three pillars thus mainly underpin the secondary sector: mining, Construction and Public Works (CPW), and agri-food processing. Still, the local raw material processing is still undeveloped, therefore limiting the possibilities for value addition from these operations.

Guinea still needs to undergo a structural change that successfully combines the use of mineral resources with environmental conservation, industrial growth, and agricultural modernization notwithstanding the changes started during the 1984 Structural Adjustment Program (SAP). Lack of thorough structural changes has led to an uneven economy mostly depending on the extractive industries.

The Guinean government developed a bold agricultural strategy aiming at improving food security and upgrading the agricultural sector by 2022. Nevertheless, the execution of this strategy encountered great difficulties mostly related to insufficient financial and technological resources, therefore limiting its influence on the national economy.

1.3. Tertiary Sector (Services)

On Guinea, the tertiary industry consists of a wide range of activities. The Central Bank of Guinea stated in (BCRG, 2020) a 2.7% increase from 3.9% in 2019. Mostly, this slowing down may be ascribed to a declining performance in commerce, government, and services. Along with customs clearance fees at ports, airports, and border crossings all throughout the country, transportation prices rose.

Guinea's tertiary sector—which is mostly driven by services, especially those connected to trade and commercial activity—is quite important for its economy. With 41.2% in 2019, this industry accounted for over half of the GDP of the country according to the World Bank's 2020 report. Guinea, in West Africa, is the top bauxite producer and exporter in the world as well as having significant gold, iron, and diamond deposits.

According to December 2024 Ministry of Economy analysis, commerce, transportation, telecommunications, real estate, and business services mostly support the tertiary sector, which accounts for 40% of GDP in 2024. Still, it has major difficulties like poor infrastructure and a tight legislative environment.

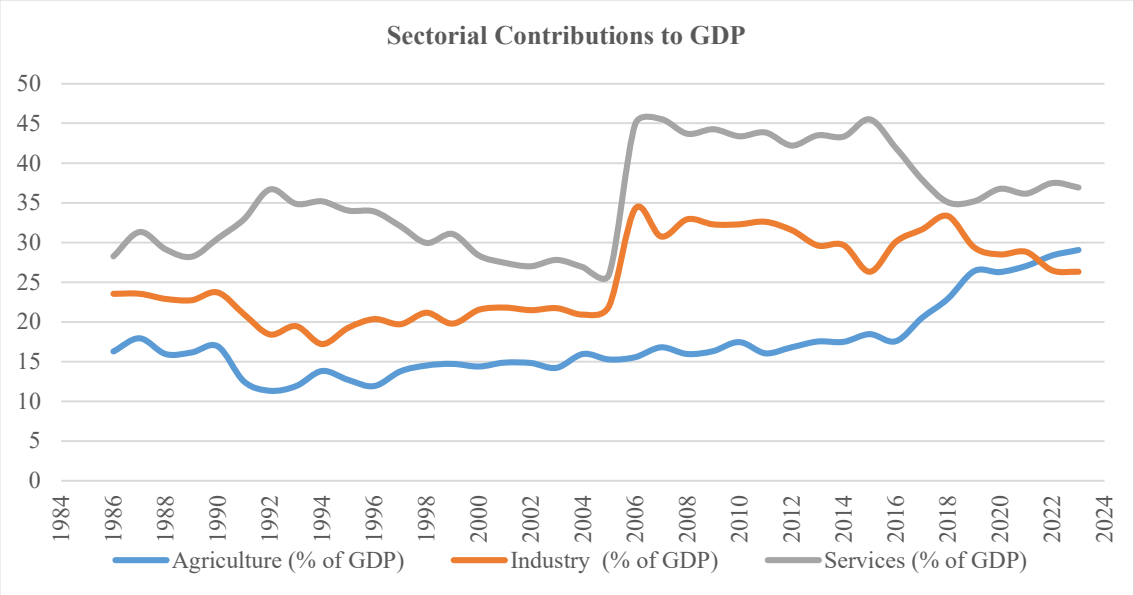

Figure 3: Structural contribution to GDP Growth % (Guinea)

Guinea's three major economic sectors—agriculture, industry, and services—have shown their contributions to the nation's GDP from 1984 to 2023 graphically above (Figure 3). With between 30% to 38% of GDP, the services sector dominated until the

early 2000s. This industry grew rapidly after 2005, peaked at about 50% before dropping after 2016, and remains the biggest sector overall.

Driven by the development of natural resources, the industrial sector saw a major change starting in 2005, growing suddenly from around 20% to 35% of GDP. By comparison, agriculture has always had a lesser part; between 1984 and 2005, its contribution was quite constant at around 15%. But after 2015, there was a rising tendency wherein the proportion rises to around 27% by 2023, signifying slow developments in this industry.

3. Foreign Direct Investment (FDI) Trends in Guinea

The communist government of Guinea faced difficulties in attracting FDI in the first years after its independence 1958. Following the fall of this government, Guinea worked in tandem with the World Bank and the International Monetary Fund (IMF) to carry out Structural Adjustment Programs (SAPs), meant to increase investment and create a stable economic environment.

Guinea's efforts to open the economy and draw outside capital clearly led to a significant rise in FDI inflows between 1975 and 1990. The nation started a series of changes meant to promote a market economy in the 1980s, therefore helping to boost foreign investment.

Particularly between the 1980s and 2000s, the application of market-oriented economic reforms—especially the establishment of a new investment law in 1998—along with different incentive policies significantly helped to revive FDI (Keita et al., 2022)

Since the early 2010s, Guinea has shown relative political stability, which has helped to create a favorable business environment and more foreign investor trust. The great natural resources of the nation, especially in the mining industry, have been very important in drawing foreign money and generating large investment flows. Thus, both structural and cyclical elements help to explain the notable rise in Foreign Direct Investment (FDI) between 2010 and 2020 (Lewis, 2000)

Moreover, the flow of FDI has been greatly encouraged by developments in trade openness and slow integration of Guinea's economy into international markets. These advancements have allowed international investors to reach bigger markets, hence improving Guinea's appeal as a place of investment (Keita & Baorong, 2022).

The 2014 Ebola epidemic seriously affect FDI in Guinea, especially in the mining and agriculture industries. FDI flows dropped to only $16 million over the first six months of that year, highlighting the negative impact of the outbreak on outside investment.

3.1. Employment and Unemployment in Guinea

Guinea nonetheless has ongoing job difficulties, with a modest unemployment rate but considerable underemployment—especially for young people. The unemployment rate in 2023 was 5.4%; forecasts show a little rise to 5.5% in 2024, then a decline to 5.3% in 2025. Particularly in the sectors of engineering, manufacturing, construction, services, as well as health and social protection, registrations with the Guinean Agency for Employment Promotion (AGUIPE) and private agencies increased by 29.3%, in the third quarter of 2024 (Trading Economics, 2024).

Responding to these difficulties, the Guinean government developed its first National Employment Policy (NEP) spanning the years 2024–2030 in July 2024 with an eye on the involvement of young people, women, and underprivileged groups (GRG, 2024), this project seeks to encourage good and productive work.

3.1.1 Employment in Guinea

Guinea's population is primarily young and rapidly expanding, making it a low-income country. A high degree of informality, young unemployment, and a continuous discrepancy between the demand and the supply of training define the labor market. The National Employment and Informal Sector Survey in Guinea (ENESIG, 2020) estimates that, both in urban and rural areas, almost 95% of the workforce works in the informal sector. Given the vitality of the young population, this circumstance creates a significant obstacle for employment but also offers a strategic possibility for national growth. Guinea's score of 156th out of 190 in the Doing Business 2020 report shows that the

official private sector is still undeveloped and faces issues like limited access to funding, difficulties in land acquisition, and a negative business environment.

FDI could be the main driver of Guinea's unemployment rate under this arrangement. Understood under cohesive governmental policies and focused on labor-intensive key sectors—such as agriculture, infrastructure, and processing industries—FDI could provide durable job opportunities and drive economic development. Moreover, it helps to strengthen local capabilities, the flow of knowledge, and productivity—all of which are vital for raising labor employability. Establishing a solid, appealing, and open institutional structure along with efficient monitoring and evaluation systems that guarantee alignment between investment flows, economic growth, and job creation would help one to fully maximize these benefits.

The sectoral study of employment between 1991 and 2022 exposes a considerable difference between Guinea and industrialized nations as Canada and the United States. All things considered, the Guinean economy still mostly relies on the primary sector and shows little growth of the service sector, therefore impeding the change toward a more balanced and sustainable labor market. With over 70% of employment in the early 1990s and still over 60% in 2022, most of the working population in Guinea stays focused on agriculture (Figure 4). This dominance indicates an undeveloped economic framework based on conventional agricultural pursuits.

By contrast, representing a highly automated and productive agricultural industry, only around 2% to 3% of the work force in Canada and the United States is engaged in agriculture (World Bank Group, 2024a) In terms of industry, Guinea had a somewhat constant proportion of around 22% until the early 2000s, then saw a little drop to 18% in 2022 (Figure 5). This little decline points to insufficient industry diversification and lack of investment, therefore slowing down modernization.

Though it is developing, Guinea's tertiary sector—services—remains undeveloped relative to global norms. Comparatively to more over 75% in Canada and the United States, it used between 20% and 30% of the working population in 2022 (Figure 6). This shortcoming reduces the nation's capacity to provide steady and contemporary employment, especially for recent graduates.

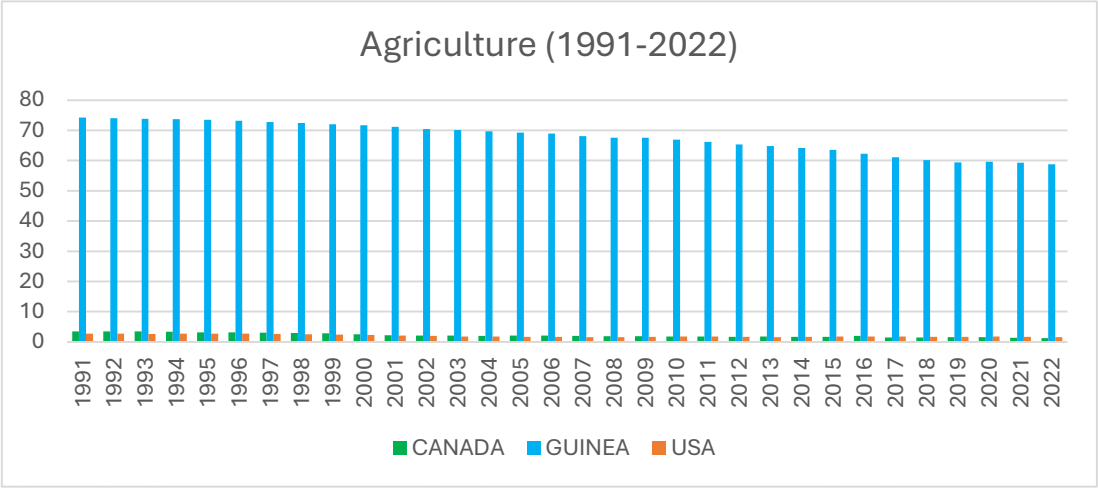

Figure 4: Comparative Graphical Analysis of Employment (Agriculture), (Source: World Bank)

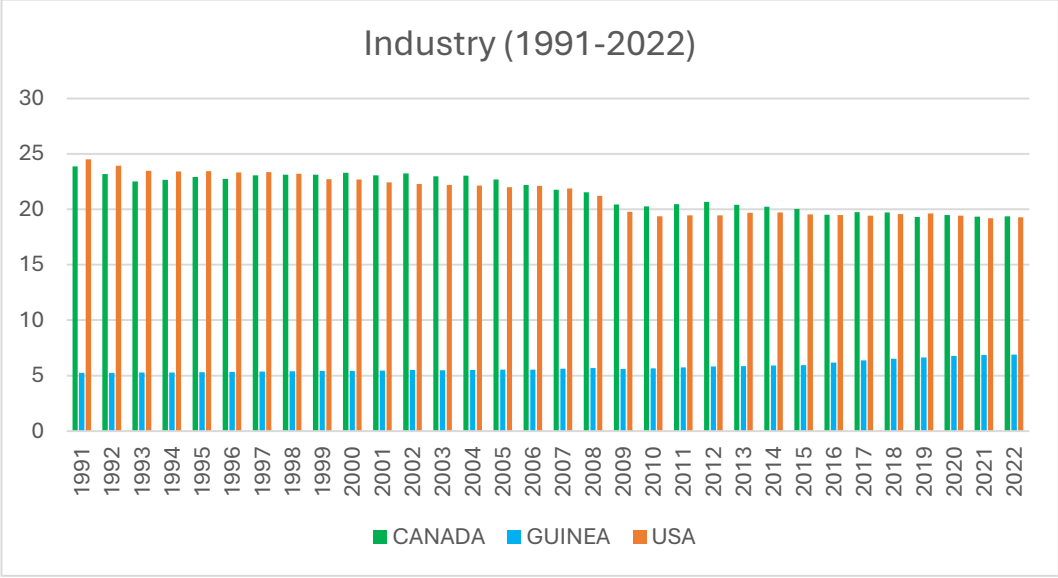

Figure 5: Comparative Graphical Analysis of Employment (Industry), (Source: World Bank)

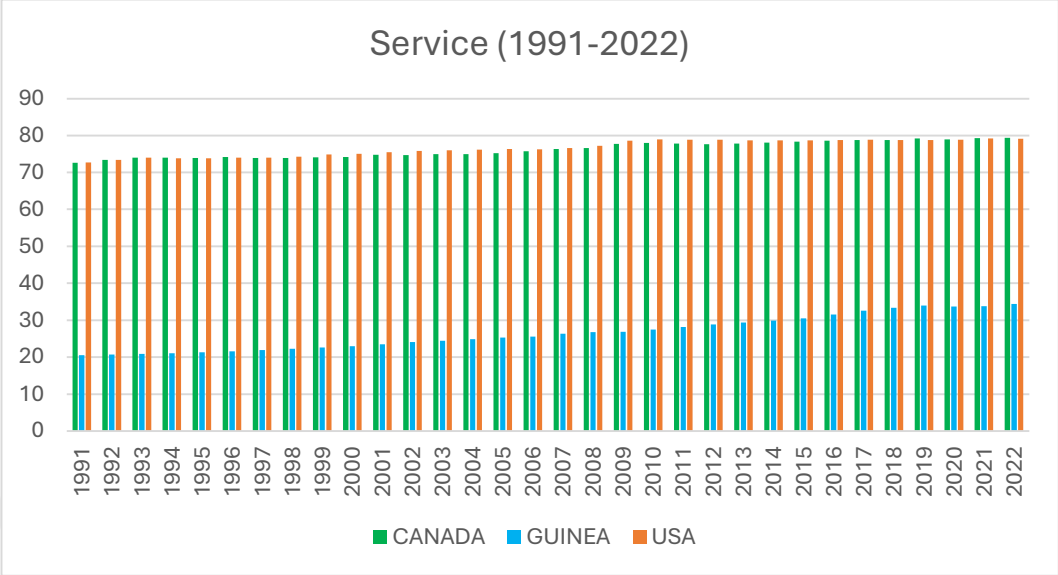

Figure 6: Comparative Graphical Analysis of Employment (Service), (Source: World Bank)

3.1.2. Unemployment in Guinea

With 50% of Guinea's population young people make up the biggest demographic group according to the IFRC Network Action (Reliefweb, 2024). But they also constitute the most vulnerable group in the workforce; often paid the lowest salaries and have disproportionately high unemployment rates, averaging 4.92% between 1991 and 2013, which impacted over 30% of the population. This tendency points to a somewhat steady work market throughout that decade.

However, starting in the early 2000s, the unemployment rate started rising and it has a peak in 2009 at 5.09%. Both structural changes in the labor market and internal economic difficulties help to explain this increase. This collapse most certainly resulted from outside events like the 2008 global financial crisis and the drop in commodities prices on foreign markets.

Though there were minor swings, unemployment rate were higher than in the 1990s throughout the 2010s. Once peaked in 2010, unemployment did not return to the record low levels seen in the year before. The situation became much worse in 2020, with a notable rise linked to the COVID-19 epidemic that caused massive worldwide

economic disturbances. This unexpected rise emphasizes the significant influence the epidemic has on national economies and labor markets—including those of Guinea.

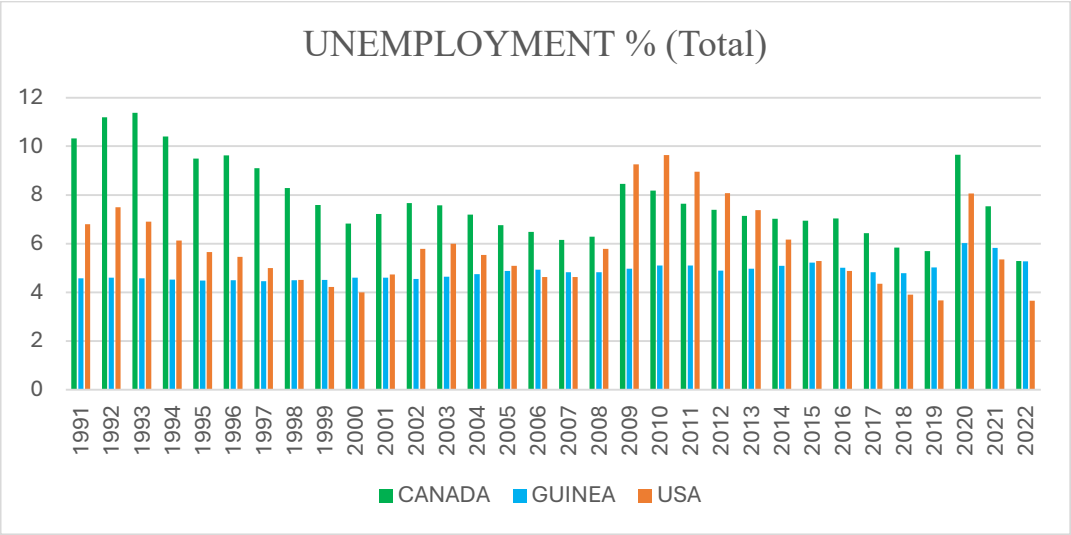

Figure 7: Comparative Graphical Analysis of Unemployment (1991 - 2023), (Source: World Bank)

Based on World Bank statistics, the graph below offers a comparison of Canada's, Guinea's, and the United States' overall unemployment rates from 1991 to 2023: It reveals that Canada, and the United States had notable swings, especially during the financial crisis from 2008 to 2010 and the COVID-19 epidemic in 2020, when jobless rates surged substantially. Guinea, on the other hand, had a somewhat consistent unemployment rate all during the time, usually falling between 4% and 6%. The prevalence of the informal sector helps to explain this seeming stability as official statistics hide fewer global economic volatility. The distinction between industrialized nations and Guinea emphasizes the structural variations in labor markets and the different vulnerability to world economic shocks.

4. Migration Trends in Guinea

From a mostly non-interventionist attitude to more restrictive frameworks formed by socioeconomic, political, ethnic, and nationalist factors, migration policies in sub-Saharan Africa have changed significantly since the 1970s. In this regard, emigration has been seen as a means of reducing unemployment and improving remittance flows. On the other hand, immigration—especially irregular migration—has come under more scrutiny,

especially in times of regional economic crisis. States have stepped up border restrictions and curtailed access to local labor markets even with interregional free movement agreements in place.

Adoption of liberal economic policies at the same time has aggravated internal inequities, hence increasing migration pressures mostly toward Europe. Internal displacement peaked in sub-Saharan Africa in 2023, impacting 19.5 million people—42% of the world total—an increase from 16.5 million in 2022 (IDMC, 2024). Moreover, accounts from Africanews show that between 2020 and 2024, 1,180 people died in the Sahara Desert trying their hands on Europe.

In sub-Saharan Africa, migration is a long-standing and complex phenomena mostly characterized by intra-continental mobility. It covers a wide range of migrant profiles: refugees, merchants, students, and victims of human trafficking among others. Especially, feminization and circularity define these movement trends more and more; young people often represent the most susceptible group. International migration is expected to remain a major problem given the region's ongoing political, demographic, and financial concerns. This fact emphasizes how urgently migratory dynamics should be included into development programs.

In the Republic of Guinea, net migration is defined as the difference over a certain time horizon between the number of immigrants—individuals entering the country—and the number of emigrants—individuals leaving. Guinea now has negative net migration; its yearly balance falls between -15,000 and -25,000 people (Véronique & Alhassane, 2017). Restricted economic possibilities, high unemployment rates, and ongoing political unrest define these phenomena mostly.

While North America is less common, the migrant movements starting from Guinea mostly point to Europe and West Africa. On the other hand, inbound migration to Guinea is mostly made of expatriates working in the mining industry and regional workers. Those who are considering emigration usually choose the United States, Canada, many European countries, bordering nations like Côte d'Ivoire and other West African governments. Poverty, the search for work, and financial difficulty rank as the main forces

behind these long-term deviations. Particularly prone to unemployment, poverty, and a lack of possibilities, young people under the age of 25 are greatly impacted by this trend.

According to an Afrobarometer poll, forty-three percent of Guineans have thought about leaving, clearly favoring locations in North America and Europe. A 2015 UN estimate shows that despite an increasing number of Guinean migrants heading to Europe, mostly via the Sahel and North Africa, there were 424,941 Guinean migrants, most of whom live in West Africa. Data from Frontex shows that Guineans entering Europe irregularly increased from 47 in 2009 to 14,708 in 2016. Among the top nations requesting asylum in Europe by 2021, Guineans were Moreover, return migration has been noted: 29,410 Guineans were returned with help from the International Organization for Migration (Mohamed Dougouno, 2024), therefore ranking Guinea as the top nation of return in Sub-Saharan Africa between 2017 and 2022. Though these migratory patterns are significant, academic studies particularly targeted on Guinean migration still fall short.

The current dissertation attempts to fill in response to this research vacuum by examining Guinean migration choices at many phases of the migratory process: departure, transit, settlement, return, and reintegration. Using semi-structured interviews with migrants in Europe, returnees in Guinea, and community stakeholders, the technique takes a qualitative stance. Additionally, a comparative approach is used to look at the changes in migratory patterns in West Africa and the reintegration policies followed. Theoretically, neoclassical migration theory and Raymond Boudon's rational choice theory ground us.

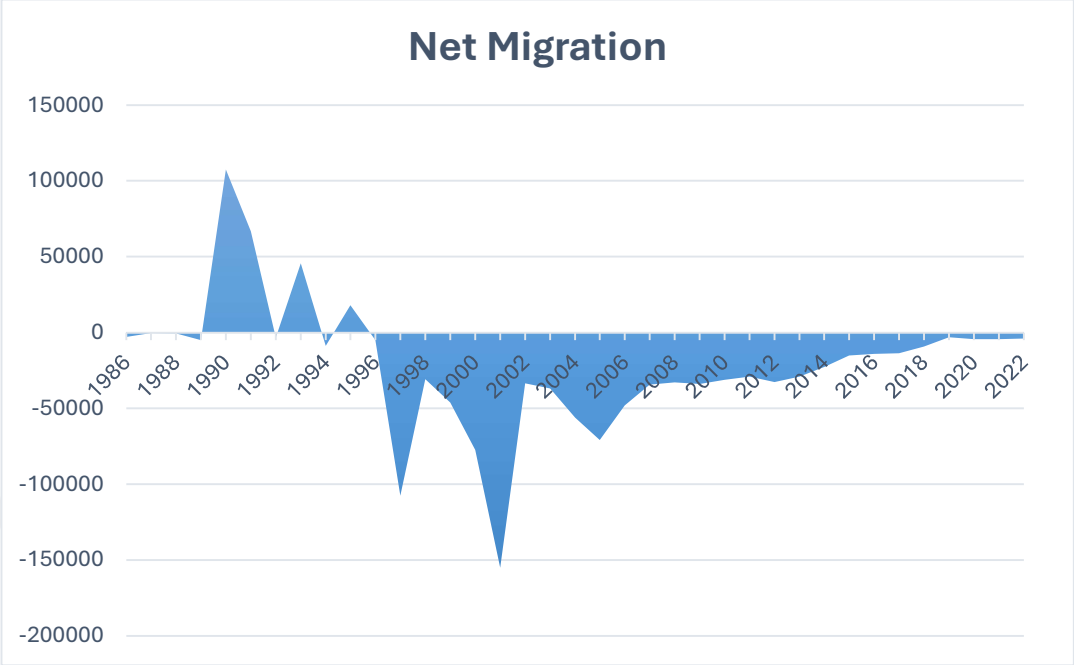

Figure 8: Net Migration of Guinea (1986-2022)

Source: World Bank Development Indicators

Figure 8 shows Guinea's net migration change from 1986 to 2022. From 1986 to 1993, the nation first showed positive net migration; it peaked in 1990, most likely in response to regional economic conditions or a time of relative stability. Starting in 1994, nevertheless, the trend flipped dramatically, and departures exceeded arrivals. Between 1999 and 2001, this drop becomes more pronounced, leading to a notable net loss of around 150,000 individuals suggesting a serious migratory issue. While net migration remained negative after 2002, the degree of outward movements progressively dropped. Net migration balances approaching zero between 2010 and 2022 point to a stability of migrant flows and maybe a partial improvement in Guinea's political and economic situation. All things considered; the graph emphasizes notable changes in Guinea's migration dynamics throughout almost four decades.

CHAPTER THREE

ECONOMETRIC ANALYSIS

This thesis aims to investigate the relationships among gross domestic product, foreign direct investment, and net migration in Guinea. Accordingly, this chapter begins with a review of the relevant literature, followed by a description of the methodology. Lastly, the analysis is performed, and the findings are presented.

1. Literature Review

Numerous studies have examined the complex relationship between GDP, FDI, and net migration, demonstrating that these relationships vary depending on the nation and specific economic environment.

According to a study conducted by Chowdhury & Mavrotas (2006), empirical results indicate that in Chile, gross domestic product (GDP) influences foreign direct investment (FDI), rather than the reverse relationship. In contrast, substantial evidence of bi-directional causation exists for Malaysia and Thailand. Furthermore, (Cicak & Soric, 2015) found that vector autoregression (VAR) models for Latvia and Slovenia support the notion that stable macroeconomic factors are advantageous for investors, suggesting that GDP has a significant effect on FDI.

Hansen & Rand (2006) examined the Granger causal linkages between FDI and GDP across a sample of 31 developing nations over a period of 31 years. Their findings revealed bi-directional causation between the FDI-to-GDP ratio and GDP level, utilizing estimators for heterogeneous panel data. While GDP does not exert a long-term effect on the FDI-to-GDP ratio, FDI has a lasting impact on GDP, illustrating how FDI contributes to economic growth.

Moses Joseph & Yao, (2013) asserted that the co-integration test reveals a long-term relationship among the variables under examination. The results of the Granger causality analysis indicate a unidirectional causal relationship between foreign direct investment (FDI) and exports; however, no causal relationship is found between FDI and GDP growth.

John & Matt (2018) underscored the importance of projected GDP growth. Migration patterns tend to be more pronounced toward and from regions where anticipated GDP growth is expected to be lower. Furthermore, elevated rates of inward migration are correlated with destination countries characterized by more flexible labor markets.

The relationship between GDP, FDI, and net migration is complex, particularly in the context of Guinea, where socio-economic conditions are fraught with challenges. Classical economic theory, as articulated by Todaro, (1969), posits that economic growth tends to reduce emigration by improving living standards. However, (Clemens & Postel, 2018) argue that during the early stages of economic growth, emigration may paradoxically increase as households acquire the financial means to facilitate their departure. This phenomenon is exacerbated in Guinea by pronounced regional disparities among areas such as Conakry, Kindia, Labe, Kankan, and others.

FDI exerts a dual influence on migration patterns. It can create local employment opportunities, thereby reducing the incentive to emigrate (Robert E & Fredrik, 2004). On the other hand, it may exacerbate regional or sectoral inequalities, compelling specific demographic groups to seek opportunities abroad (Hanson, 2010). In Guinea, FDI is predominantly concentrated in extractive industries, particularly bauxite, which often yields limited benefits for local infrastructure and, subsequently, affects migratory trends. The net migration issue in Guinea is critically shaped by factors such as unemployment, political instability, and restricted access to social services, leading to significant emigration toward Europe and other West African nations. Docquier et al., (2012) highlight that the migration of skilled labor, often termed "brain drain," can impede long-term economic growth while simultaneously enhancing financial inflows through remittances.

Furthermore, research conducted by Ndikumana & Verick, (2008) indicates that despite the substantial inflows of FDI into resource-rich nations like Guinea, these investments frequently fail to benefit the broader population. A comprehensive analysis employing dynamic effect models, such as those proposed by Manuel & Stephen, (1991), is essential for understanding these intricate relationships. This analysis should

incorporate both microeconomic and regional data to elucidate the disparities between major urban centers and rural areas.

Manning, (2003) examined the link between FDI and economic development by using panel data from eight EU candidates covering the years 1994 to 2001, therefore producing a total of 64 observations. The results showed a negative relationship between economic development and FDI.

Examining the period from 1970 to 2013, M. R. Singariya & Narain, (2015) look at the causal link between per capita GDP and outputs in the industrial and agriculture sectors in India. Complementing Impulse Response Function and Variance Decomposition Analysis, their work makes use of Johansen's cointegration test and the Vector Error Correction Model (VECM) within a Vector Autoregression (VAR) framework. The Johansen cointegration test shows a long-term link among the variables, therefore indicating unidirectional causation from the manufacturing sector to per capita GDP. Furthermore, supporting the presence of a strong long-term link between per capita GDP and the manufacturing sector is the dynamic causality study.

Using raw data from a sample of 50 countries, 10 advanced economies and 40 developing countries Attiah, (2019)) examined how the industrial and service sectors affected economic progress between 1950 and 2015. The dependent variable of the panel regression models the research used is GDP per capita. Particularly in lower-income nations, the results show a favorable association between the manufacturing sector's GDP contribution and economic growth. On the other hand, there was no such association found for the services sector.

Mwakabungu & Kauangal, (2023) is research looked at the causal link between foreign direct investment (FDI) inflows and economic development in Tanzania during the years 1990–2020. In their investigation, the researchers included trade and financial variables as middlemen. Their results showed a long-term association among the investigated variables using Autoregressive Distributed Lag (ARDL) models and causality testing. The findings reveal a clear and statistically significant unidirectional link wherein the influx of FDI is shown to drive economic development in Tanzania, both in the short term and the long term.

Using the Autoregressive Distributed Lag (ARDL) model, this innovative research spanning 1990 to 2017 (World Bank Group., 2023) shows that foreign direct investment (FDI) has a negative and statistically negligible impact on unemployment over the near term. These phenomena may be mostly ascribed to FDI's emphasis on resource extraction, which usually results in less job possibilities and shows poor integration into the local economy. Though over time FDI has a favorable benefit, its total impact is still limited. Complementary policies including diversifying investments toward the manufacturing sector, mobilizing domestic revenues to support agriculture and services, and strengthening human capital through educational and health initiatives targeted at improving young employability are essential to maximize the benefits of FDI (Diallo, 2024).

2. Methodology

In the methodology section of the research, the study design and various methods employed, ranging from descriptive statistical analyses to advanced econometric modelling, are comprehensively examined. The literature review conducts a critical analysis of the foundational concepts and practical applications of the Autoregressive Distributed Lag (ARDL) model in relation to research variables. The primary objective is to elucidate the effects of each variable on GDP growth in the Republic of Guinea and to evaluate the significance of their interrelationships. This methodological framework enables a thorough examination of the interactions among the variables, thereby augmenting the overall rigor of the research methodology.

2.1. Research design

This thesis conducts an analysis of the determinants of economic growth in Guinea, with a primary focus on the evolution of Gross Domestic Product (GDP). The study investigates the contributions of Foreign Direct Investment (FDI) and net migration to the country's economic dynamics. To address the complexity of the interactions among FDI, economic growth, and net migration, advanced econometric methods will be utilized, while also considering the constraints associated with data availability. The research employs annual data spanning from 1986 to 2022, incorporating variables such as GDP, FDI flows, trade, and net migration. The Autoregressive Distributed Lag

(ARDL) model will serve as the principal statistical tool for identifying relationships among these variables, supplemented by a series of tests designed to evaluate the robustness of the proposed econometric model.

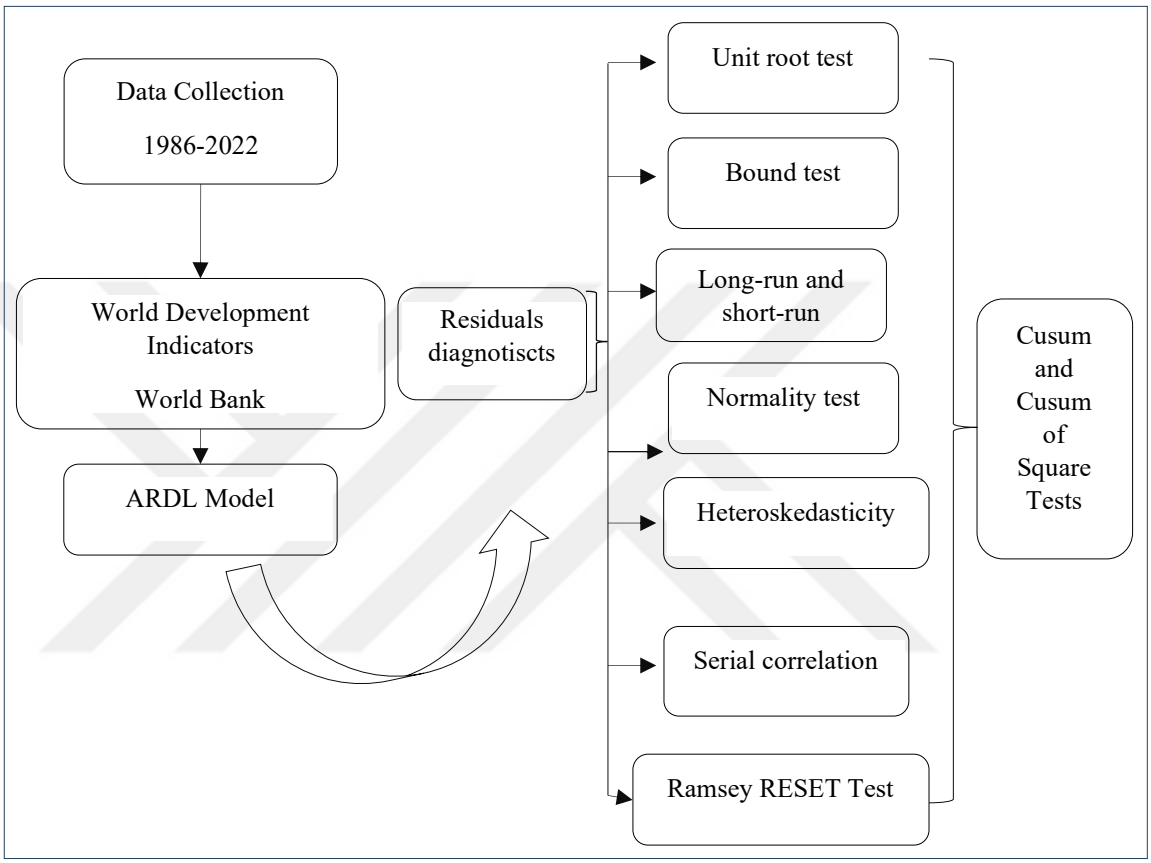

Figure 9: Flowchart of the ARDL model

This work uses the Autoregressive Distributed Lag (ARDL) model to investigate the interactions among many variables; this model is especially appropriate for small sample sizes and series displaying heterogeneous orders of integration. Beginning with data from the World Bank's World Development Indicators, the study runs from 1986 to 2022 as shown in Figure 4.

Diagnostic tests are carried out to confirm the dependability of the ARDL model after its estimate. To find possible cointegration connections, these tests include the unit root test, serial correlation test, normality test, heteroskedasticity test, and limits test. Moreover, whilst the CUSUM and CUSUM of Squares tests evaluate the stability of

coefficients throughout time, the Ramsey RESET test is used to find any model misspecification.

These diagnostic tests taken together support the validity of the empirical results and raise the validity of the econometric model-derived interpretations. Using GDP as the main metric of economic growth, this thesis investigates how foreign direct investments (FDI) might affect Guinean society. The study offers insightful research of the impacts of FDI, therefore supporting well-informed policy suggestions.

2.2. Study area

The Republic of Guinea, situated in West Africa, shares its borders with Guinea-Bissau, Senegal, and Mali to the north, and Sierra Leone, Liberia, and Ivory Cost to the south. Rich in natural resources, with significant energy potential and arable land conducive to agriculture, Guinea possesses substantial assets for economic development. As of 2024, the estimated population of the country is 14.53 million. Agriculture, as the predominant employment sector, plays a critical role in poverty alleviation and rural development, providing income for 57% of rural households and employing 52% of the active workforce.

Furthermore, the Guinean economy is heavily reliant on its abundant natural resources, particularly within the mining sector, which constitutes the primary source of export revenues. This evolving economic landscape is increasingly bolstered by manufacturing industries and the service sector. This information is available at the following (World Bank Group, 2024b)

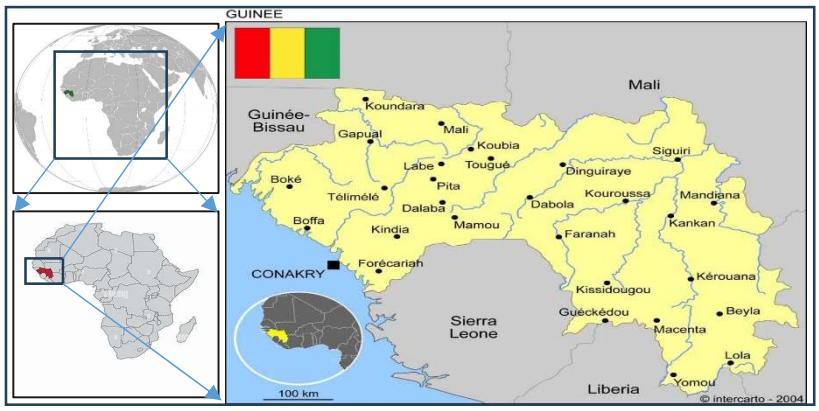

Figure 10: Map of the localization of the Republic of Guinea

2.3. Data

This thesis conducts an analysis of the determinants of economic growth in Guinea, with a specific focus on GDP per capita. It evaluates the contributions of foreign direct investment (FDI) and net migration to this economic growth. In light of the complex interactions among FDI, economic growth, and net migration, advanced econometric methods are employed to address the limitations inherent in the available data.

The study utilizes annual data from 1986 to 2022, incorporating variables such as GDP growth, FDI flows, net migration, and international trade. The impact of FDI and immigration on the Guinean economy during this period is assessed through the Autoregressive Distributed Lag (ARDL) model, which facilitates the analysis of long-term equilibrium relationships among these variables. The data, expressed as a percentage of GDP, are sourced from the World Bank's World Development Indicators. Following the confirmation that all-time series meet the requisite assumptions for the ARDL model, the model is applied to identify both short-term dynamics and long-term structural relationships among the variables.

1.4. ARDL Model

To account for both short-term and long-term impacts, the econometric method Autoregressive Distributed Lag (ARDL) model is used to examine the dynamic interactions between a dependent variable and many explanatory factors. This model is very flexible, which makes it relevant even in cases where time series data show different degrees of integration; it also stays strong with small sample numbers, which is a necessary benefit for the analysis of emerging economies like Guinea. This paper evaluates, by GDP, the effects of foreign direct investment (FDI), net migrant flows, and international commerce on Guinea's economic development using the ARDL technique. The model is expressed generally as follows:

$$\Delta GDP_t = \alpha_0 + \sum \beta_i \Delta GDP_{t-i} + \sum_{j=0}^{q1} \delta_j \Delta FDI_{t-j} + \sum_{k=0}^{q2} \delta_k \Delta NetMig_{t-k} + \sum_{i=0}^{q3} \varphi_i \Delta Trade_{t-i} + \lambda_1 GDP_{t-1} + \lambda_2 NetMig_{t-1} + \lambda_3 FDI_{t-1} + \lambda_4 Trade_{t-1} + \varepsilon t$$

- Δ: First difference operator
- GDPt: GDP growth at time t
- FDIt: Foreign direct investment
- NETMIGt: Net migration
- TRADEt: Trade openness
- q1, q2, q3: Optimal lag lengths selected by Akaike Information Criterion (AIC)
- α_0: Constant term
- ε_t: White noise error term
- $\lambda 1, \lambda 2, \lambda 3, \lambda 4$: Long-run parameters
- $\beta i, \gamma j, \delta k, \phi l$: Short-run dynamic coefficients

3. Empirical Analysis

The empirical literature review section presents some findings from past investigations conducted by scholars. The purpose here is to delve into more specific research that will elucidate the relationships between the variables employed in this study.

3.1. Data Analysis of Results

Table 2 offers essential insights into the central tendency, variability, distribution, and normality of variables pertinent to manufacturing, foreign direct investment, GDP growth, and imports and exports. It facilitates a comprehensive understanding of the patterns and dynamics associated with these economic indicators over the observed period. Notably, a skewness value of approximately zero (0.74%) indicates that the distribution is nearly symmetrical. Furthermore, regarding foreign direct investment, a standard deviation of 3.99% signifies a considerable level of variability around the mean, suggesting significant fluctuations in foreign investment.

Table 1: Descriptive statistics

	GDPG	FDI	NETMIG	TRADE
Mean	4.351619	2.258927	-20715.86	59.57393
Median	4.003476	0.605768	-15127.00	44.24810
Maximum	10.82063	18.82801	107641.0	115.0374
Minimum	-1.122642	-0.840221	-155276.0	29.08979
Std. Dev.	2.158626	3.999578	43785.88	27.14426
Skewness	0.749757	2.786420	-0.105851	0.609794
Kurtosis	5.549599	10.80713	5.882223	2.022180
Jarque-Bera	13.48803	141.8454	12.87604	3.767104
Probability	0.001178	0.000000	0.001600	0.152049
Sum Sq. Dev.	167.7479	575.8784	6.90E+10	26525.20

Table 2: Unit Root Tests

Variables	ADF	PP	KPSS	NG perron test				Remark
				MZa	MZt	MSB	MPT	
GDP	-4.182058*a (-2.945842)	-4.182058*a (-2.945842)	0.328960*a (0.463000)	-15.7030*a (-8.10000)	-2.79667*a (-1.98000)	0.17810*a (0.23300)	1.58035*a (3.17000)	| (0)
Net Migration	-3.279405*a (-2.945842)	-3.242096*a (-2.945842)	0.198696*a (0.463000)	-12.8208*a (-8.10000)	-2.52972*a (-1.98000)	0.19731*a (0.23300)	1.91930*a (3.17000)	| (0)
FDI	-4.538509*a (-2.945842)	-4.684657*a (-2.945842)	0.172456*1 (0.463000)	-16.6470*a (-8.10000)	-2.87899*a (-1.98000)	0.17294*a (0.23300)	1.49415*a (3.17000)	| (0)

TRADE	-6.443007*1	-7.890058*1	0.275400*1	-42.1094*1	-4.58852*1	0.10897*1	1.58186*1		(1)
	(-2.954021)	(-2.948404)	(0.463000)	(-8.10000)	(-1.98000)	(0.23300)	(3.17000)		

This study employs four widely recognized tests to evaluate the stationarity of the variables: Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), Kwiatkowski-Phillips-Schmidt-Shin (KPSS), and Ng-Perron.

In both the ADF and PP tests, the null hypothesis asserts that the series possesses a unit root, which signifies non-stationarity. Statistics stationarity at the 5% significance level, the p-value must be less than this threshold, implying that the test statistics must exceed the critical value in absolute terms. Conversely, a higher p-value indicates that we cannot reject the null hypothesis. The KPSS test functions differently. Its null hypothesis presupposes stationarity; if the test statistic is below the critical value, this assumption is validated. However, if the test statistic surpasses the critical value, the null hypothesis is rejected, suggesting non-stationarity.

The Ng-Perron test consists of four sub-tests: MZα, MZt, MSB, and MPT. To reject the null hypothesis of a unit root and confirm stationarity, the MZα and MZt statistics must exceed their critical values in absolute terms. In contrast, for the MSB and MPT, stationarity is indicated when the statistics fall below their critical thresholds at the designated significance level.

Note: *: 5%, a: Intercept, (0): stationary is level, (1): stationary at first difference, Augmented Dickey-Dickey- Fuller (ADF), (PP) Phillips-Perron, (KPSS) Kwiatkowski-Phillips-Schmidt-Shin, and Ng- perron

Table 3: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPG (-1)	0.067872	0.234048	0.289991	0.7758
GDPG (-2)	0.457366	0.172812	2.646606	0.0183
GDPG (-3)	0.447351	0.184263	2.427779	0.0282
GDPG (-4)	-0.460238	0.254265	-1.810076	0.0904
FDI	0.492245	0.112194	4.387441	0.0005
FDI (-1)	0.181633	0.165571	1.097007	0.2899
FDI (-2)	-0.186451	0.119154	-1.564787	0.1385
FDI (-3)	0.200370	0.142422	1.406870	0.1798
NETMIG	-7.69E-06	7.80E-06	-0.985972	0.3398
NETMIG (-1)	-1.11E-05	7.12E-06	-1.556170	0.1405
NETMIG (-2)	8.79E-06	7.60E-06	1.157826	0.2650
NETMIG (-3)	1.76E-05	7.12E-06	2.466185	0.0262
TRADE	-0.038704	0.046417	-0.833841	0.4175
TRADE (-1)	0.043645	0.037119	1.175817	0.2580
TRADE (-2)	-0.007999	0.039155	-0.204292	0.8409
TRADE (-3)	-0.153107	0.065873	-2.324287	0.0346
TRADE (-4)	0.139837	0.053692	2.604433	0.0199
C	1.698048	1.051604	1.614721	0.1272

Overall, model statistics offer insight into the explanatory, power, goodness of fit and significance of the regression mode. This information is critical for evaluating the model's reliability and its efficacy in elucidating the relationship between independent and dependent variables.

Table 4: Model statistics

Statistical indicators	Numerical value
R-squared	0.833006
Adjusted R-squared	0.643746
S.E. of regression	1.339419
Sum squared resid	26.91065
Log likelihood	-43.45921
F-statistic	4.401381
Prob(F-statistic)	0.003005

Table 5: Long-run and Short-run coefficient

Variable	Statistic	Value	Probability
Long-run			
FDI	F-statistic	3.709511	0.0862
	Chi-square	3.709511	0.0541
NETMIG	F-statistic	0.002846	0.9586
	Chi-square	0.002846	0.9575
TRADE	F-statistic	3.061043	0.1141
	Chi-square	3.061043	0.0802
Short run			
FDI	F-statistic	0.00278	0.9591
	Chi-square	0.00278	0.9579
NETMIG	F-statistic	0.030925	0.8643
	Chi-square	0.030925	0.8604
TRADE	F-statistic	2.184515	0.1735
	Chi-square	2.184515	0.1394
Joint (Long-Run and Short-Run)			
FDI	F-statistic	7.252295	0.0133
	Chi-square	14.50459	0.0007
NETMIG	F-statistic	0.030624	0.9699

	Chi-square	0.061248	0.9698
TRADE	F-statistic	3.47416	0.0762
	Chi-square	6.948319	0.031

Table 5 presents the long-run and short-run coefficients derived from the Autoregressive Distributed Lag (ARDL) model. Long-run analysis reveals a moderately significant relationship between Foreign Direct Investment (FDI) and Gross Domestic Product (GDP) at the 10% significance level, supported by both F-statistic (3.709511) and Chi-square statistic (3.709511) with corresponding p-values of 0.0862 and 0.0541, respectively. This suggests a potential long-term impact of FDI on GDP in Guinea, although the statistical strength of this relationship is limited. In contrast, neither net migration nor trade exhibited statistically significant long-run impacts on GDP, as evidenced by their respective F-statistics and Chi-square statistics with considerably high p-values.

Short-run analysis indicates that none of the three variables (FDI, net migration, and trade) demonstrates a statistically significant relationship with GDP. This is supported by the insignificant F-statistics and Chi-square statistics associated with each variable.

When considering both short-run and long-run dynamics together, the joint impact analysis reveals that FDI plays a statistically significant role in explaining GDP variations, as indicated by highly significant F-statistic (7.252295) and Chi-square statistics (14.50459) with corresponding p-values of 0.0133 and 0.0007. Net migration, however, shows no significant joint impact on GDP. Trade, on the other hand, exhibits a moderately significant joint influence on GDP, supported by the F-statistic (3.47416) and Chi-square statistic (6.948319) with p-values of 0.0762 and 0.031, respectively.

To validate the robustness and reliability of the Autoregressive Distributed Lag (ARDL) model, the diagnostic and stability tests performed. These tests assess crucial assumptions, including the presence of serial correlation, heteroskedasticity, and non-normality in the residuals, as well as the adequacy of model specification and the stability of estimated parameters.

Table 6: Bound test

	10%		5%		1%	
F- Statistic	I (0)	I (1)	I (0)	I (1)	I (0)	I (1)
5.729120						
30	2.334	3.515	2.794	4.148	3.976	5.691
35	2.254	3.388	2.685	3.96	3.713	5.326
Asymptotic	1.99	2.94	2.27	3.28	2.88	3.99

The F-statistic of 5.729120 exceeds the critical value of 3.96 at the 5% significance level, thereby facilitating the rejection of the null hypothesis of no cointegration. Since the F- statistic exceeds the upper bound at the 5% significance level, there is substantial evidence to suggest that variables are cointegrated, indicating the presence of a long-run equilibrium relationship between them. This finding enables us to advance to modelling the cointegrating relationship.

Table 7: Serial Correlation Test

F- statistic	**Probability**
0.029307	**0.8720**

The Breusch-Godfrey Serial LM Test yielded an F-statistic of 0.029307 and a p-value of 0.8720. Given that the p-value surpasses the conventional significance threshold of 0.05, we are unable to reject the null hypothesis of no serial correlation at the 5% significance level.

Table 8: Heteroskedasticity; Heteroskedasticity Test (Breusch-Pagan-Godfrey)

F-statistic	0.671874
Probability	0.5900

The Breusch- Pagan-Godfrey Test produced an F-statistic of 0.671874 and a p-value of 0.5900, suggesting that the null hypothesis of homoskedasticity in the residuals of the regression model cannot be rejected.

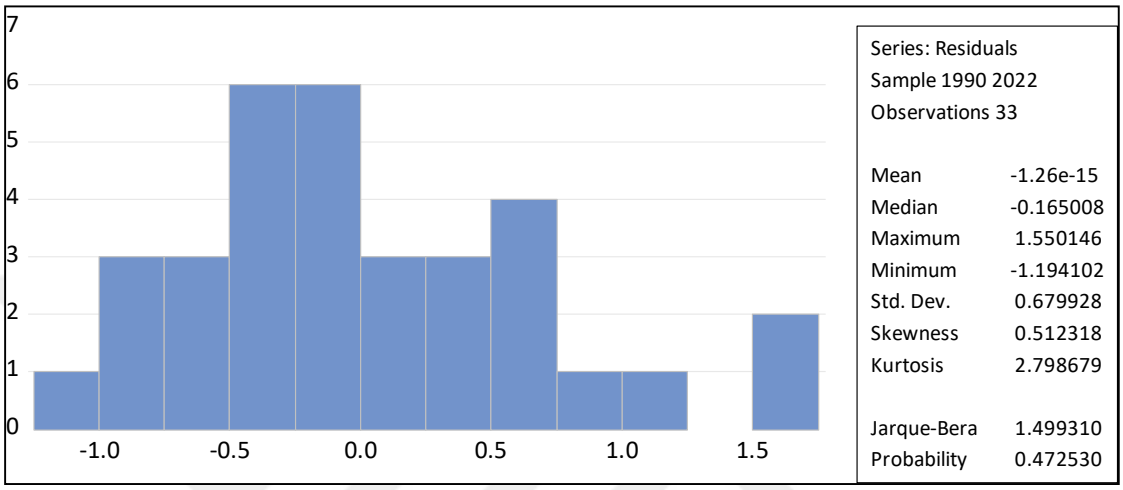

Figure 11. Normality Test

Normality Test: The probability value of 0.472530 obtained from the Jarque-Bera test supports the decision to fail to reject the null hypothesis, which that the series follows a normal distribution.

Table 9: Ramsey RESET Test

Parameter	Value	df	Probability
t-statistic	0.723226	8	0.4901
F-statistic	0.523056	(1, 8)	0.4901
Likelihood ratio	2.090001	1	0.1483

The results of the Ramsey REST test indicate no significant evidence of model misspecification, as evidenced by an F-statistic of 0.523056 and a p- value of 0.4901. Given that the test fails to reject the null hypothesis, it suggests that the functional form of the model is likely correctly specified and does not exhibit omitted variable bias.

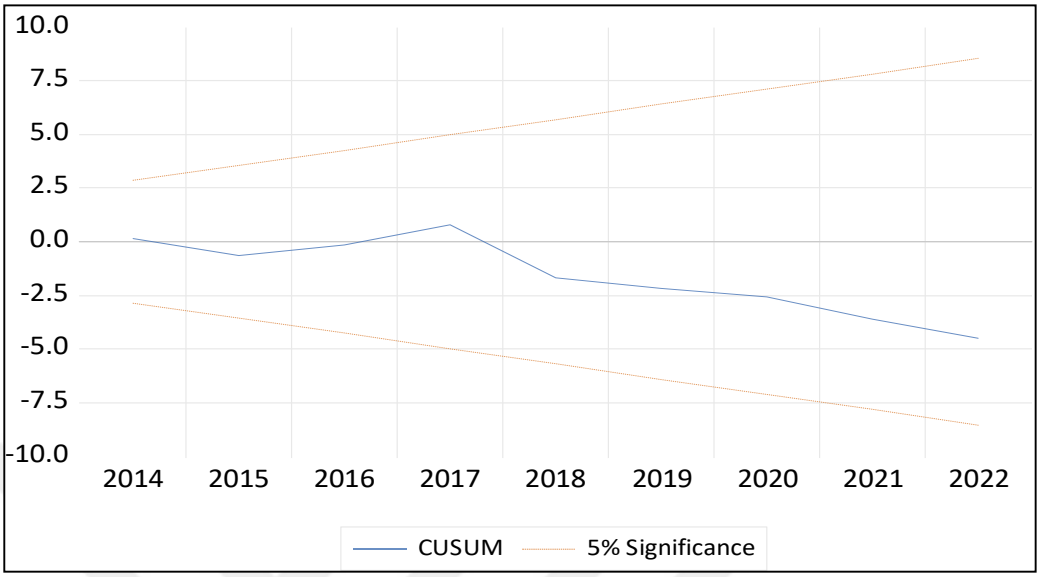

Figure 12. CUSUM test

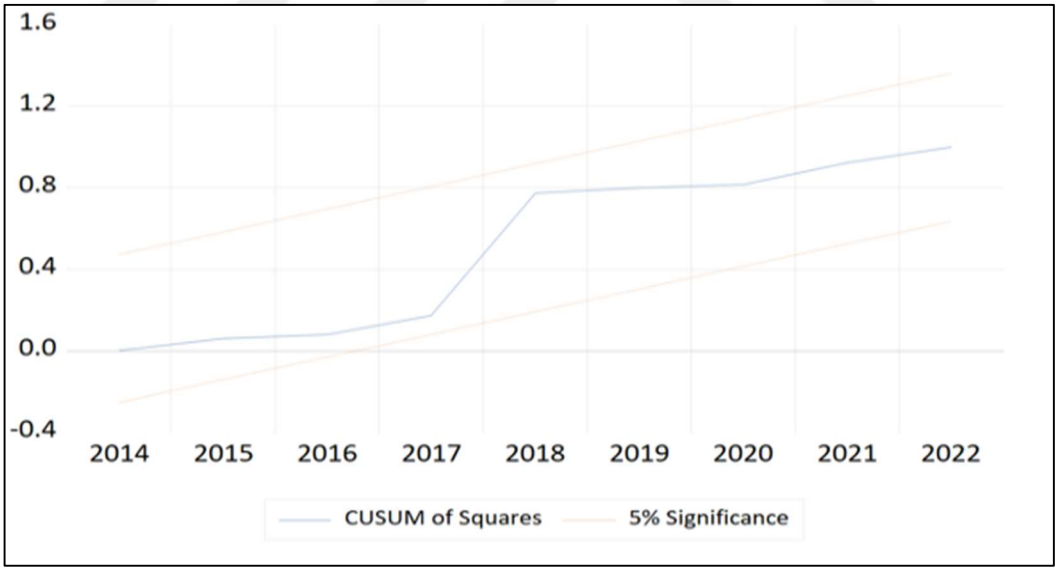

Figure 13: CUSUM of Square Tests

The CUSUM analysis indicates that the cumulative sum of recursive residuals remains within the 5% significance bounds. This finding suggests that the parameters of the regression model are stable, with no statistical evidence of structural breaks. Consequently, the stability of the model's coefficients implies that its forecasts can be regarded as reliable.

The CUSUM of Squares analysis reveals that the squared cumulative sum of recursive residuals exhibits a consistent upward trend while remaining within the 5% significance bounds. This observation indicates a lack of statistical evidence for variance instability in the regression model, thereby confirming the presence of homoscedasticity among the residuals.

Figures 11 and 12 show the results of the CUSUM test and the CUSUM of squares test respectively, applied on the investigated model from 2014 to 2022. Whereas the CUSUM of squares tests evaluates the stability of the variance of the residuals, the CUSUM test helps to find any instabilities in the coefficients of the model.

Both tests show that the model shows structural stability at the 5% confidence level by the blue test statistic curves remaining within the 5% significance boundaries (in orange). As such, there is no statistical proof suggesting structural fractures in either the variance of the model or the parameters within the recorded time. These results support the general stability of the projected model, therefore strengthening the robustness of the found econometric links across the whole studied period.

CONCLUSION AND RECOMMANDETIONS

This study investigates the complex relationships between Gross Domestic Product (GDP), Foreign Direct Investment (FDI), and net migration in Guinea utilizing an Autoregressive Distributed Lag (ARDL) model. The findings highlight the significant role of FDI in stimulating economic growth while simultaneously highlighting its limitations in addressing critical structural challenges, such as widespread unemployment and regional disparities. Despite its substantial contribution to economic development, FDI remains concentrated within the extractive industries sector, thereby limiting its broader benefits to the population. Similarly, while net migration has a notable influence on labor market dynamics and generates remittance inflows, the analysis reveals no statistically significant direct effect on GDP growth.

Net migration, foreign direct investment (FDI), and GDP growth show a long-term negative correlation wherein net migration reduces economic performance. By means of the negligible F-statistics and Chi-square statistics for each variable, FDI, net migration, and trade show a statistically significant correlation with GDP. Trade and FDI inflows help Guinean GDP growth, which emphasizes the need of luring FDI for the advancement of the country. Strong statistical evidence supports the findings of the combined research, which demonstrate that FDI clearly influences changes in GDP. On the other hand, whereas international trade has a quite important impact on GDP, net migration does not clearly exhibit a joint influence on economic growth.

When compared with existing literature, several key parallels and distinctions emerge. Consistent with Hansen & Rand, (2006), this study corroborates the long-term impact of FDI on GDP, emphasizing its critical role in fostering economic growth. However, in contrast to Chowdhury & Mavrotas, (2006), who observed a reverse causality between GDP and FDI in Chile, this research finds no evidence of GDP influencing FDI in the Guinean context. Furthermore, while Moses Joseph & Yao, (2013) identified a unidirectional relationship between FDI and exports, this study did not uncover such a direct linkage between FDI and GDP growth within the Guinean economic framework. Regarding migration, the findings partially align with Matt & Alex, (2012),

who emphasized the role of GDP growth projections in influencing migration patterns, although this study highlights the limited direct economic impact of net migration on Guinea's GDP. These nuances point the significance of contextual factors, such as Guinea's resource-dependent economy, in shaping the dynamics between these variables.

The analysis emphasizes the imperative for Guinea to diversify its economic base and implement policies that maximize the benefits of FDI, including fostering human capital development and enhancing infrastructure. Furthermore, effective management of migration flows through targeted policies could contribute significantly to sustainable economic growth. Rigorous diagnostic tests confirm the robustness of the ARDL model, validating the reliability of the results for informing policy decisions.

This research contributes significantly to the existing literature on economic growth in resource-rich developing nations, providing empirical evidence to guide the formulation of strategies aimed at achieving inclusive and sustainable development in Guinea. Future research could further explore the sectoral impacts of FDI and the socio-economic dimensions of migration to provide a more comprehensive understanding of their connection with economic growth.

The results highlight the need of creating an environment that supports industrial development marked by open institutions, effective regulatory systems, and strong infrastructure by means of transparent institutions, Guinea can draw more investment, inspire creativity, and completely maximize its industrial sector by tackling governance issues and fostering a favorable business environment.

Nasreen et al., (2012) shown via foreign direct investment (FDI) and economic development a favorable correlation. Abadli et al., (2022) bolstering this assertion discovered a bidirectional causality between FDI and GDP, therefore proving a dynamic interaction wherein one measure affects the other. Zekarias, (2016) also looked at how FDI influenced the economic development of 14 Eastern African countries using panel data techniques over a three-decade period from 1980 to 2013. Solving technology and resource shortages, reducing unemployment, and balancing trade imbalances drove FDI attraction into these undeveloped nations.

Finally, based on the results of the different studies carried out in this research, it seems that several important levers must be turned on if Guinea is to assist it overcome migratory difficulties, boost its economy, and raise the GDP growth. To better guide governmental choices and policies, foreign direct investment (FDI) in industries with great job creation potential must be promoted; this will help to enhance economic governance and build mechanisms for tracking and assessing migration trends.

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