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BANDIRMA ONYEDI EYLUL UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES

DEPARTMANT OF ECONOMICS

Master Dissertation

THE IMPACT OF FOREIGN DIRECT INVESTMENT AND DOMESTIC INVESTMENT ON ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM REPUBLIC OF GUINEA

Cece Charles LAMAH

195031115

Supervisor

Assistant Prof. Evren IPEK

Bandırma 2022

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APPROVAL OF THE THESIS

ETHICAL DECLARATION PAGE

TO

BANDIRMA ONYEDI EYLUL UNIVERSITY

INSTITUTE OF SOCIAL SCIENCIES

Upon this document, I declare that all the information in this thesis study have been obtained and presented on the base of the academic rules and ethical conduct. As required by these rules and conduct, I also declare that all the data, idea and results that do not belong to me have been fully cited and referenced (04/07/2022).

ABSTRACT

THE IMPACT OF FOREIGN DIRECT INVESTMENT AND DOMESTIC INVESTMENT ON ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM REPUBLIC OF GUINEA

Cece Charles LAMAH

This study aims to investigate the impacts of foreign direct investment and domestic investment on economic growth of the Republic of Guinea by using annual data covering the period 1987-2019. To achieve the specific objectives, the Autoregressive Distributed Lag (ARDL) model, bound testing procedure and Toda-Yamamoto causality test is applied. The empirical results demonstrated a cointegration relationship among the variables. Furthermore, findings from ARDL model estimations represent a statistically significant and negative long run impact of foreign direct investment on economic growth and domestic investment showed a positive impact on the economic growth in the long run. According to the results of the error correction model, the short run effect of foreign direct investment on economic growth is positive and statistically significant. Toda-Yamamoto test results represent a bidirectional causal relationship between foreign direct investment and economic growth and unidirectional causality from domestic investment to foreign direct investment and economic growth.

Keywords: Economic Growth, Foreign Direct Investment, Domestic Investment, ARDL Model, Toda Yamamoto Causality Test

ÖZET

DOĞRUDAN YABANCI YATIRIMLARIN VE YURTİÇİ YATIRIMLARIN EKONOMİK BÜYÜME ÜZERİNE ETKİSİ: GİNE CUMUHURİYETİ'NDEN AMPİRİK BULGULAR

Cece Charles LAMAH

Bu çalışma, 1987-2019 dönemini kapsayan yıllık verilerle doğrudan yabancı yatırımların ve yurtiçi yatırımların Gine Cumhuriyeti'nin ekonomik büyümesine etkisini araştırmayı amaçlamaktadır. Bu amaç doğrultusunda, Gecikmesi Dağıtılmış Otoregresif (ARDL) model, sınır testi ve Toda-Yamamoto nedensellik analizi uygulanmıştır. Ampirik sonuçlar değişkenler arasında eşbütünleşme ilişkisini ortaya koymaktadır. Bununla birlikte, ARDL modeli tahminlerinden elde edilen sonuçlar doğrudan yabancı yatırımların ekonomik büyüme üzerindeki anlamlı ve negatif yönlü uzun dönem etkilerine, yurtiçi yatırımların ise ekonomik büyüme üzerindeki anlamlı ve pozitif yönlü uzun dönem etkilerine işaret etmektedir. Toda-Yamamoto testini sonuçlarına göre doğrudan yabancı yatırımlarla ekonomik büyüme arasında iki yönlü nedensellik ilişkisi bulunurken doğrudan yabancı yatırımlardan yurtiçi yatırımlara ve ekonomik büyümeye doğru tek yönlü nedensellik ilişkisi bulunmaktadır.

Anahtar Kelimeler: Ekonomik Büyüme, Doğrudan Yabancı Yatırımlar, Yurtiçi Yatırımlar, ARDL Model, Toda-Yamamoto Nedensellik Analizi

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Cece Charles LAMAH
Bandırma / Balıkesir
04/07/2022

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ABBREVIATIONS

ADF: Augmented Dicky Fuller

PP: Phillips Perron

KPSS: Kwiatkowski Phillips Schmidt Shin

GDP: Gross Domestic Products

GFCF: Gross Fixed Capital Formation

X: Exports

FDI: Foreign Direct Investment

DI: Domestic Investment

GATT: General Agreement on Tariffs and Trade

BW: Bretton Woods

BWI: Bretton Woods Institutions

WTO: World Trade Organization

IMF: International Monetary Fund

GNF: Guinea New Franc

WB: World Bank

WBD: World Bank Database

HIPC: Heavily Indebted Poor Countries

PRSD: Poverty Reduction Strategy Document

ODG: Sustainable Development Goals

UNDP: United Nations Development Program

OECD: Organization for Economic Cooperation and Development

UNCTD: United Nations Conference for Trade and Development

SSA: Sub-Saharan Africa countries

Y_d: Disposable Income

C: Consumption

S: Saving

NX: Net Export

M: Import

P_d: Domestic Price

E: Exchange rate

R: Revenue

OECD: Organization for Economic Cooperation and Development

NTIT: New Theories of International Trade

FMNs: Multi National Firms

VAT: Value-Added Tax

SAP: Structural Adjustment Program

NPS: National Prospective Study

INTRODUCTION

This study reflects the context of financial globalization and liberalization in Africa in general and then in the Republic of Guinea by following its chronological progress of the economic and social context at the beginning of its development. Globalization according to the economist Joseph Stiglitz is the most adequate integration of the nations in the world accomplished on the one hand by the demolition of artificial barriers for the free movement of goods and services and on the other hand by the fall in transport costs and communication.

Since the beginning of time, the difference in economic power between nations has always been a fundamental and crucial question in economics. Indeed, some nations commonly referred to as developed or advanced countries are far ahead of those called developing and underdeveloped countries in the context of economic and social developments. This economic provision has therefore made economists think very carefully about the economic circumspect that could lead to reduce this economic difference by assisting less developed countries, among others through the policies of opening up these less developed countries to the outside world which remain an essential factor for the accomplishment of these ones.

The liberalization of national financial systems and integration into the international market are transformations that affected the operating rationales (principles) of finance in the 1980s, hence the name financial globalization. Financial globalization replaced the capitalist system in developed countries. The role of the state in national markets, the activities of societies, and the structures of trade between nations underwent a great change. As a result, a regulation and inspection authority for international trade has emerged as an advantage to the global economy.

In this new regulation, several theoretical works were developed in the same order. All these elaborated theories asserted the assured interest through the increase of the gross domestic product (GDP) of all the countries, which engaged in these exchanges. The economic growth assumptions stipulated that trade openness and foreign direct investment can contribute to economic growth through workforce training and technology transfers. These free trade agreements were developed by the passage of the General Agreement on Tariffs and Trade (GATT) in 1947, from Bretton Woods (1944) to the

World Trade Organization in Morocco in 1994, that ensured the good standardization of the international market. It is important for all countries to engage in international trade for their economy regardless of its size (Romer, 1990: 73). The interaction between nations with a high level of human capital remains the most important because it promotes the transfer of technology and the transfer of modern management methods.

The work carried out by De Gregorio, Lee, and Borensztein in 1995 has since then made it possible to admit that the progress of technology has a positive impact on the economic growth of a country. This technical progress has a strong impact on the final level of productivity: the acquisition of new production techniques, the formation of human capital, the import of new products, etc.

Indeed, during the 1980s, the flows of private capital, more precisely foreign direct investment in Africa after globalization or financial globalization, had generally increased. Foreign direct investment flows in some countries outside the franc zone have grown in size since 1980. Compared to some emerging countries namely Philippines, India, Mexico, and Brazil, some African countries such as Morocco, Mozambique, Nigeria, Ghana and Botswana obtained a higher FDI ratio relative to GDP.

Obviously, the West Africa countries[1] experienced a strong appearance of foreign direct investment during the 1980s. Its growth nevertheless remained very weak in the following decade. The Republic of Guinea, the country which is the subject of this study, has for its part succeeded in attracting a few foreign investors because of its very rich natural potential since the date of acquisition of its independence on September 28, 1958, by the late President Ahmed Sékou TOURE.

The Republic of Guinea since its accession to independence is governed by particularly, three different governments, which have applied two types of regimes. The first regime, which is the socialist system was applied during the period of the first government from 1958 to 1984. This regime had the monopoly of almost all production and trade activities in Guinea. The private sector was on the fringes of this system because it represented a minimal part of the country's economic activities. Faced with this

[1] West Africa countries: Ivory Coast, Ghana, Nigeria, The Republic of Guinea, Benin, Burkina Faso, Cape Verde, Ivory Coast, Gambia, Liberia, Mali, Mauritania, Niger, Senegal, Sierra Leone, Togo.

situation, domestic investment that is one of the very important factors in attracting foreign direct investments were completely sidelined. This could explain the low presence of foreign companies (a key sector for the growth of gross domestic product) which led to the poor presentation of the Guinean economy during this first regime.

The second and the third government adopted different regime, which is the liberalism started from 1984 to our days. The second one opted for the adoption of several reforms through a vast program of structural adjustment with the help of the Breton Woods Institutions (IBW) radically modifying almost all the economic and social structures of the Republic of Guinea. Provisional estimates following this change indicated a slight increase of 4.8% in gross domestic products in real terms in 1988. Investments grew by 40% with the participation in the growth of gross domestic product (GDP) at 15% in the same year (Gilles, 1989: 74-75).

Although all these reforms were implemented in the 1990s, the Republic of Guinea was far from being sidelined from the poorest countries in Africa. Thus in 1993, the United Nations Development Program (UNDP), through its Human Development Index, the Republic of Guinea was ranked 173rd out of the 173 poorest countries in the world. Added to this, the population investigation by the Ministry of Planning and Cooperation in 1996 indicates that more than 40% of the Guinean population lived below the poverty line.

External financing was further covered by grants and debts from international financial institutions such as the World Bank (WB) and some European countries. This showed rapid and high growth of Guinean external debt. Diallo (2007), in his study concludes that two essential factors can contribute to the rapid growth of gross domestic product (GDP) namely the development of human capital and the rate of investment. It benefits little from its commercial openness and all its natural potential that it abounds. It is therefore essential for Guinean State to review the various strategies applied for the reduction of the external debt and the survival of the economic performance. It is obvious that despite all the reforms adopted in previous management and the decline in the debt ratio from 71.49 (% GDP) for the 1990s to 42.92 (% GDP) for the 2010s, the results expected by Guinean State have not allowed it until then to take advantage of the outside world. This could stimulate economic growth through the attraction of foreign investors,

the stimulation of gross fixed capital formation (GFCF), and the diversification of exports (X). For this purpose, we wondered a number of questions that will allow us to situate the problems of the Republic of Guinea, namely:

- How do foreign direct investment and gross fixed capital formation affect the economic growth of the Republic of Guinea?
- What is the place of foreign direct investment (FDI) in the economic growth of the Republic of Guinea?
- What is the impact of foreign direct investment in stimulating gross fixed capital formation (GFCF)?

The Republic of Guinea, despite all its natural resources, is still struggling to get on the list of emerging countries in Africa due to the adopted strategies. The overall objective of this study is to convey our modest knowledge to economic decision-makers regarding the importance accorded to foreign direct investment as well as some of its effects that may contribute to the stimulation of economic growth. For this purpose, the specific objectives are enumerated as follows:

- Enumeration of the importance of foreign direct investment in developing countries specifically in the Republic of Guinea while highlighting its implication in the stimulation of gross fixed capital formation and the economic growth through some macroeconomic indicators;
- Determine the factors that prevent the spreading of foreign direct investment and gross fixed capital formation in the Republic of Guinea.

To this end, the real hypotheses that will be analyzed for the completion of this study will be listed below.

- Foreign direct investment (FDI) effectively contributes to the rapid formation of gross domestic product (GDP);
- Gross fixed capital formation (GFCF) that is sometime stimulated by FDI is one of the main factors to economic growth;

The organization of the thesis is made as follows. After the first chapter devoted to the introductory study, the following part considered, as the second chapter will be devoted to the general analysis of foreign direct investment (FDI) inflows and their impact

on the gross fixed capital formation (GFCF). With regard to the third chapter, the promotion of foreign direct investment in the Republic of Guinea will be discussed with reference to its political and economic situation and finally, the fourth chapter will examine the literature review and the empirical analysis as well as the conclusion and recommendations.

CHAPTER ONE

GENERAL INFORMATIONS ABOUT FOREIGN DIRECT INVESTMENT INFLOWS AND GROWTH THEORIES

Foreign direct investment being considered by many economists as a macroeconomic indicator having a stimulating power on economic growth is generally composed of several types which will be enumerated in this part of the study. Then will be followed by the strategies adopted by foreign investors to conquer third markets. The determinants of foreign direct investment are also essential for investors because they allow them to expand their investments in the host countries and also the impacts of FDI will be discussed in this chapter.

1. DEFINITION OF FOREIGN DIRECT INVESTMENT

Foreign direct investment is an acquisition of assets that is materialized in two different ways. The first way is the establishment of new foreign company in a host country and the second way is the acquisition of national firms by foreign investors that involves the purchase of stock in national corporations (Ugwuegbe, Modebe and Onyeanu, 2014: 188).

By convention in the 1980s, a direct investment relationship was generally established upon the acquisition by an investor of at least 10% of the share capital of the invested company. As a result, investments are made up not only of the initial transaction which establishes the relationship between the two companies but also of all subsequent capital transactions between them and between all other associated companies or corporations. Therefore, FDI can be defined as an investment including the control of a host entity with sustainable benefits over a defined long period (Razin and Sadka, 2007:1).

According to the definition of the Organization for Economic Co-operation and Development (OECD) in 1983, foreign direct investment can be explained by following the three criteria below:

- The creation or extension of a company, a subsidiary or a branch belonging exclusively to the financial backer;

- Full acquisition of an existing business; Participation in a new or existing business;
- A long-term loan (5 years and more).

Whatever the definition given to foreign direct investment as and when changes, the character of the sustainable transaction remains common to it, which differentiates it from the different type of foreign investment namely the official flows, the commercial loans and the portfolio investment, which is the acquisition of bonds and action of a financial nature.

2. THE DIFFERENT TYPES OF FOREIGN DIRECT INVESTMENT

Before any investment, the investor is faced with many choices, but once it has been demonstrated that it is more favorable for the investor to set up directly in the host country than to export, the flows of foreign direct investments can take many forms. Through the statistics of the Organization for Economic Cooperation and Development in 2008, there are different forms of foreign direct investment: Brownfield Investment, Greenfield Investment and Joint ventures.

2.1. Brownfield Investment

Brownfield investments, also considered as acquisitions or mergers, are purchase or lease transactions by a non-resident of an already existing production entity in the host country. This operation is carried out following the transfer of ownership of the acquisition titles and the modification of the articles of association of the entity. This type of investment is not only beneficial to the investor in saving costs but also in reducing the process of building a new entity as allowed for construction (Zeqiri and Bajrami, 2016: 48).

One of the disadvantages that the Brownfield investment may have is for the investor to find an entity or company with an asset in equipment and technology that could allow it to enter the threshold of its activities even if it was similar. The most emphasized benefit of Brownfield investment is the increase in labor productivity, but not much can be proven in terms of increased employment. The Brownfield investment continues to be viewed as more effective in acquiring new equipment or modifying

existing equipment than in building a new entity on bare land (Zeqiri and Bajrami, 2016: 48).

2.1.1. The Advantages of Brownfields Investments

According to Corporate Finance Institute, Brownfield investments by their nature have several benefits, namely:

- Quick and easy access to a foreign market;
- A lower cost of establishment due to the use of an already existing site;
- The low costs of training due to the existence of an already existing staff;
- May sometimes include the existence of authorizations and licenses from government or regulators.

2.1.2. The Disadvantages of Brownfields Investments

The Brownfield investment, despite all of its advantages mentioned above, has certain disadvantages, namely:

- Development of infrastructure may require a strong financial mobilization, which may increase the cost of foreign investment;
- In the case where the company is old, it will need a high cost for good tuning of the maintenance;
- If the company does not manage to adapt to the needs of new productions, the profitability of the company would be ineffective;
- There may be unforeseen taxes and regulatory issues.

2.2. Greenfield Investment

Greenfields investments are investments whose operations involve the creation of an entirely new business by a non-resident in a host country. It is the most common form of foreign direct investment in developed and developing countries. This is the type of investment made by foreign investors to have a high level of control over its external activities and to avoid intermediate costs (Zeqiri and Bajrami, 2016: 47).

According to Corporate Finance Institute, Greenfield investment present certain advantages and disadvantages:

2.2.1. The Advantages of Greenfield Investment

- A high level of corporate control over its brand;
- A high level of control of the company over its external affairs;
- A high level of control of the company over the manufacture and sale of the products or services granted;
- The reduction of the unemployment rate in the host country;
- Bypass trade restrictions.

2.2.2. The Disadvantages of Greenfield Investment

Since Greenfield investments are those adopted by the majority of foreign investors, they nevertheless present disadvantages, namely:

- This type of investment presents a very high risk because it is carried out on foreign soil;
- A very high cost for the establishment of it;
- Government regulations can hamper the establishment of greenfield investments.

2.3. Joint-ventures

This type of investment highlights the participation of a foreign and local entity, a government in the economic operations of a host country. In other words, it requires the participation of at least two foreign economic entities and favors local companies in terms of human capital formation in the sense that it matches with the foreign one (Zeqiri and Bajrami, 2016: 48).

Joint venture is a type of foreign direct investment where there is a link between companies in order to put together their competences and wealth (resources). In this type of foreign direct investment, companies aim to set up stronger competitive conditions. The negative effects of competitive rivals can be reduced by companies by mingling the research of development, financial resources and production and distribution channels. So the industry augments the profitability through joint ventures by lessening the competitive market where both companies are present (Channon and Sammut-Bonnici, 2015: 1).

Channon and Sammut-Bonnici (2015) enumerate the advantages and disadvantages of joint ventures as follows.

2.3.1. Advantages of Joint-Ventures

- In the developing country market with attractive conditions, joint ventures can be profitable for smaller companies or firms having not a significant finance and/or specialist management skills to obtain the necessary resources to enter a new market.
- In the host country, joint ventures can be used to lessen the political disagreement and preserve foreign companies against nationalist stubbornness.
- The joint ventures can come up with professional knowledge of local market and gain access to supplies of raw materials.
- This kind of investment is more profitable for the host country in terms of foreign partner is expected to provide necessary technology to the accomplishment of their goals especially in defense and extractive companies.

2.3.2. Disadvantages of Joint-Ventures

- Joint ventures, concerning a considerable cross-border exchange, are not easy to mingle to a global strategy.
- Joint ventures can face difficulties when the two partners (foreign and local) have different objectives to achieve. For example, both partners may have different attitude face to the risk to take in short terms.
- In some countries where nepotism reigns and where employment is essential for family members, joint ventures often face problems with management structures and staffing.
- Tax conflicts of interest are sometimes the basis of the failure of many joint ventures. However, this conflict can be avoided if the nature of the shareholding structure is taken into account at the outset in order to maximize tax efficiency.

3. THE ADOPTED STRATEGY OF FOREIGN DIRECT INVESTMENT

In general, foreign investments or multinational companies have several strategies on which the choices arise for their establishments in the host countries. These strategies are defined by the location characteristics of the different objectives.

Mohammed and Mohammed (2016: 11-12) therefore distinguishes three main investment strategies of multinational companies:

- A strategy of access to natural soil and subsoil resources;
- A market strategy or horizontal strategy;
- A vertical or cost minimization strategy.

3.1. Strategy of Access to Natural Soil and Subsoil Resources

Since long-standing before globalization, not all nations have the same potential in terms of natural resources. The strategy of access to natural resources of soil and subsoil has always been a means of attracting foreign direct investment. The explosion of global mining activities is allowed by the increase in world demand (high rate in the Asian continent) for soil and subsoil minerals in recent decades (Delport, Davenport, Blignaut and Hichert 2016:1). From the beginning of 16th century, this strategy faced its evolution, so it is not considered as a determinant of the world economy because of its appearance before the notion of financial globalization.

This old strategy is announced in the case where foreign investors extract natural resources in the country of origin and ultimately exploit them in the foreign country given the absence of several factors that could allow the exploitation of these (Lahimer, 2003). The country of origin with its various natural potentials is not in a position to exploit these resources, needs foreign direct investments for the exploitation and the marketing of the resulting products. This is the case of several countries of Sub-Saharan Africa rich in minerals and petroleum products.

This form of foreign direct investment could be the one that gives the simplest understanding because it is not characterized by a cost or another factor but rather by the only characteristic that is the presence of the natural resources targeted by the multinational enterprise in the host country showing no political instability and harmful macroeconomic factors.

3.2. A Market or Horizontal Strategy

The market strategy or horizontal integration strategy is a strategy of foreign investors who focus on the development of activity or the takeover of companies with a common center of activity, with the aim of creating an economy of scale, provision of new market segments and the reduction of costs (Kudełko, Wirth, Bachowski, Gacek, 2015: 98). This strategy, as being a relay workshop, on the one hand, intended for the local market of implantation for the partial or full reproduction of the goods and services produced by the parent company, and on the other hand, which are carried out in countries with the same level of economic development (North-North type investment). This type of investment is further spread within the triad that brings together the United States, Europe, and Japan and represents 400 billion dollars per year (Hagima, 2013:512).

The main objective of integration by horizontality is to grow and to promote the expansion of foreign company through its development abroad by the merger, and/or the acquisition of the competing company operating in the same sector of activity. The market strategy is characterized by four dimensions: (i) direction of horizontal integration that stipulates the integration of foreign firms to a related or a conglomerate activity firms; (ii) targets of integration that is the specification that set up an intelligible course of action like the tactical target, the operational target; (iii) intensity and forms of integration; (iv) profitability of integration (Kudelko, Gacek and Wirth, 2015: 99-101).

It is therefore essential to stress that foreign direct investments are very precise on their characteristic, which is the existence of a strong domestic market. Moreover, this market existence calls not only for development but also for the economic development of the host country in general. The determination of the host country or location is at the level of the conditions offered by it to reach its market.

The objectives of this kind of integration are focusing on the identical firms in terms of the market size. This includes the efficiency or competence of the market, high qualification of their workforce, and the presence of the most suitable infrastructures and that makes the developing countries margin away of this strategy (Herger and McCorriston 2014: 24-25). Horizontal integration can also happen when a high-level

company joins forces with a competitor to form a single entity (Mugo, Minja and Njanja, 2015: 2).

(Kudelko, Gacek and Wirth, 2015: 98-99) enumerate some advantages appropriate to a company or business following the adoption of the horizontal strategy:

- Increase of technology level and the improvement of the quality through the coalition between companies or businesses;
- The diversification of the production caused by the economy of scope;
- The company has the advantage of positioning itself very profitably in the home market segments to be able to meet customer expectations;
- The decrease in competition on the national market following the merger and/or the acquisition of the competing company;
- The increase of the production due to the promotion of an economy of scale;
- Help the entity to access of certain markets other than the local one.

3.3. A Vertical or Cost Minimization Strategy

Vertical strategy has been defined by several author like (Khoi, 2007: 7), who defines it as being the structuring of two or more lines of production, marketing and commercialization of one or more products under the control of a single property. From this paper, the vertical or cost minimization strategy is defined as foreign direct investment strategy that allows a parent company to take full control of all of its activities in the host country. In this strategy, foreign investors have power over the entire operation of the company, from production to distribution of its offerings.

Unlike the horizontal strategy, the vertical integration strategy focuses on investments between nations that do not have the same level of economic development, i.e. between North-South countries but rarely South-North because less developed countries are not able to invest in more developed countries.

Vertical integration allows companies to have full or partial control over all production and acquisition chains of raw or intermediate materials, manufacturing processes and the distribution and sale of finished products (Claici, Basalisco, Michiel, Okholm and Maier 2020: 17).

Harrigan (1983: 1), underlined that, this strategy has a major objective which is the maximum reduction in production costs, more precisely that of labor, even though sometimes, companies knowingly, undertake costly integration. The differences in capital and labor endowments and the comparative advantages of countries play a very effective role in the explanation of vertical foreign direct investment.

Therefore, it presents very important advantages namely:

- An increase of technology and marketing level in the host country;
- High overview of company's economic surrounding;
- Participation in regional integration of the host country.

Foreign investors are sometimes faced with more or less delicate strategies in the host countries. This often leads them to apply both types of strategies in the same host country.

4. THE DETERMINANTS OF FOREIGN DIRECT INVESTMENT

According to the study carried out beside investment promotion agencies in 44 African countries by the United Nations Conference for Trade and Development in 1999 for the "World Investment Report", the main factors motivating foreign direct investment in Africa are as follows, in descending order of importance:

- The profitability of the investment;
- The legal and regulatory framework;
- Political and economic perspectives;
- Access to regional markets;
- Commercial policy;
- The tax system;
- Access to global markets;
- Access to a skilled workforce at low cost.

Since the advent of globalization in the early 1990s, foreign direct investment has increased rapidly. From its involvement in economic processes, they are seen as inevitable sources of financing economic development, which does not generate debt due to its virtue of promoting the inflow of capital without facing loans from foreign institutions or countries (Bouhajja, 2012).

Table 1.1: Determinants of Foreign Direct Investment

General regulatory structure of the host country.	- Political, social and economic, stability. - Laws concerning entry and financial and legal transactions (including property laws). - Standards adjusted specifically to the treatment of foreign subsidiaries. - Policies relating to the structural functioning of markets (dealing in particular with competition regimes and mergers and acquisitions transactions). - International agreements concerning FDI (in particular agreements regional integration programs) - Privatization policy. - Trade regime (tariff and non-tariff barriers): coherence of FDI and trade regimes. - Tax system. - Judicial system in general.
Business climate	- Promotions and investment incentives (in particular image campaigns and activities generating investments, and services facilitating investment). - Activity costs (linked to corruption and inefficiency administration). - Collective equipment. - Post-investment services. - Availability of funding.
Economic determinants	**Penetration strategy: market research** - Market size and income per capita. - Market growth. - Access to regional and global markets. - Local consumer preferences. - Market structure. - Exclusivity of the intellectual property of the goods or and services.
	Delocalization strategy: search for resources - Raw materials. - Cheap unskilled labor. - Skilled labor. - Technological, innovative and other assets (for example trademarks). - Physical infrastructure (ports, roads, energy, telecommunications…)
	Delocalization strategy: search for efficiency - Cost of resources and assets, adjusted for productivity of the work force. - Other input costs, such as transport costs

	and communication with the host country and within this, and other intermediate goods. - Adherence to a regional agreement promoting the establishment privileged commercial relations. - Specific infrastructure promoting export activity (export platform).

Source: Thaalbi (2014: 107)

Several economists have tried to advance theories that account for the determinants that encourage foreign investors to expand their financing internationally. Bouhajja (2012) mentioned in his studies that the explanatory variety of foreign direct investment by many economists awaits several questions that remain perplexed by foreign investors, namely:

- What are the determining factors to encourage the attraction of FDI?
- Why does a company choose to invest abroad?
- What are the foundations on which companies rely for the choice of the host country?

The answers to these three questions will come from the analysis of the three approaches, namely:

- The eclectic approach (OLI);
- The New Theories of International Trade (NTIT) approach;
- The pull-factor approach.

4.1. Eclectic Approach (O.L.I)

Eclectic approach is based on three main advantages as revealed by its name O.L.I (Nayak and Choudhury, 2014: 9-10):

- **O**: the specific advantages (Ownership advantages), which correspond to the specific advantages possessed by the company. It can be represented by the company's brand, trade secrets, patent, …
- **L**: Location advantages, which explain the advantages associated with locating activities abroad. It means that real property must tend to be used for long period in the host country by minimizing the cost of productivity, commercialization, etc.

- **I**: the advantages of internationalization (Internationalization advantages), which correspond to the gains from the internationalization of activities abroad. This can be explained by the less welfare of subcontracting than to operating the specific property by yourself. It also reduces the risk of selling technology to other companies so as not to be exposed to competition.

The three determining factors for MNF's to choose the host country location are:

- Cost factors (labor, inflation, production);
- Factors linked to business climates (democracy, degree of indebtedness, political stability;
- Market factors (growth and size).

4.2. New Theories of International Trade (NTIT) Approach

The old theory of trade stipulates that to produce and trade, the demand of the countries has to have an over-extended zone in terms of field of goods that are produced and consumed. In this analysis, supply is not considered as an explanation of trade but rather demand. The approach of new theories of international trade appeared to correct failures in the earlier approach by underlining the main role of the economy of scale and its advantages from the international trade in taking in account the size of the companies and market structure (Sen, 2010: 5-6).

From this approach two type of strategy are born: (1) the horizontal strategy whose objective is to conquer local markets is only practiced in North-North countries, that is to say between developed countries and (2) the strategy of the vertical type, which is practiced, between the North-South countries. The first one targets countries with a market with significant potential whereas the second one points markets by looking at endowment factors (Herger and McCorriston, 2014: 24).

4.3. The Pull-Factor Approach

The pull factor approach or the internal factors approach broadly defines the macroeconomic climate of a nation that can encourage the inflow of foreign capital to that country. This macroeconomic climate is characterized by the rate of economic growth, the rate of inflation, the volatility of the exchange rate, the national interest rate,

and taxation. Its performance and stability are necessary conditions for attracting capital inflows to the host country (Kinda, 2008: 3-4).

According to Mohamed (2020: 239-240), the pull factors are country attractions, material and non-material, economic and non-economic that set off the decisions of immigrants to return back home. So, he classified the attractions into three namely: the economic attractions, personal or psychological attractions and situational attractions.

- The economic pull factors are characterized by the economic opportunities in the country like the investment opportunities, the higher demand in the home country.
- The personal or psychological pull factors are the bonds of affection that exist between immigrants and their home countries that encourage them to return back. The two factors that are associated with are the seeking of identity and social cohesion and the retirement purpose.
- The situational pull factors are more about the changes that happens in the home country to push the immigrants to get back to their homeland namely the end of civil war and the good governance.

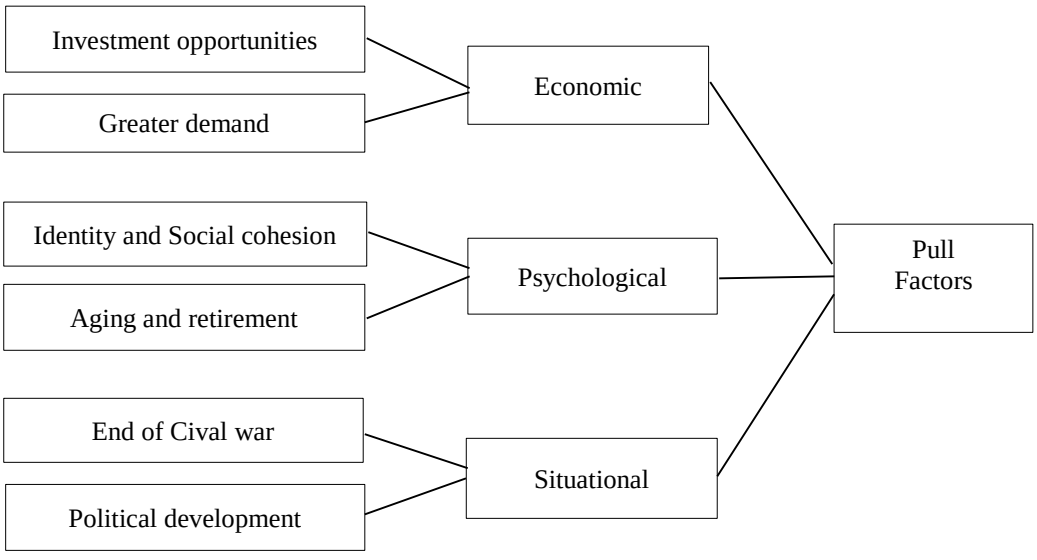

Figure 1.1: Pull Factors of Foreign Direct Investment

Sources: Mohamed (2020: 238)

5. IMPACT OF FOREIGN DIRECT INVESTMENT ON THE ECONOMY OF DEVELOPING COUNTRIES

It turns out that the precise goal of economic policies for the economy awakening of a nation lies at the level of four macroeconomic indicators. These indicators are a growth with a high and not temporary rate (i) the balance of payment in equilibrium (ii) the balance between supply and demand which defines the stability of the prices (iii) and (iv) finally the maintenance of a high employment rate (Benazić and Rami, 2016: 1038).

Foreign direct investment is a key factor in the process of developing strategies to be adopted for the rapid and healthy revival of economic performance. Its presence in host countries stimulates the rapid growth of gross domestic product (GDP) which, through certain relationships participates in the growth of macroeconomic indicators. It is known to be a crucial sector in the economic growth of developing countries. The current debate is at the level of determining the factors by which foreign direct investment affects the economic growth of countries. Investment in a developing country is largely made up of foreign direct investment relative to developed countries (Agosin and Mayer, 2000: 2). Having a minimum of human capital, foreign direct investment serves as a vehicle for the transfer of new technology and above all strengthens the capacity of the workforces (Borensztein, Gregorio and Lee, 1998: 117).

Most developing countries have a major common problem that is the lack of domestic capital. To remedy this problem, it requires increased export performance to produce foreign currency. The entry of FDI promotes growth in the trade balance (Muzurura, Sikwila and Nesongano, 2017: 2). Economic growth in developing countries is largely influenced, according to several studies, by the increased inflows of foreign direct investments. It is influenced through the stimulation of several economic indices.

This study analysis the impact of foreign direct investment on economic growth through different channel:

- FDI leads to the increase of domestic investment;
- FDI leads to the increase of export;
- FDI promotes the transfer of new technology;
- FDI positively affects the exchange rate;

- FDI leads to the decrease of the unemployment rate;
- FDI promotes the qualification of human capital.

5.1. Impact of Foreign Direct Investment on Domestic Investment (GFCF)

Domestic investment can be defined as gross fixed capital formation in a country. According to the world bank database, it consists of tangible and intangible acquisitions with fewer disposals of fixed assets carried out by a resident entity in a period of at least one year. Gross fixed capital formation has always been emphasized by economic theories as an economic indicator playing a major role in the economic growth model of a country that, its deficiency is seen as the most serious handicap to long-term economic growth (Sunny and Osuagwu, 2016: 2).

The inflow of foreign direct investment in a country can have different effects on domestic investment depending on the type of investment. In particular, the entry of Greenfield investments negatively affects short-term domestic investments, but gradually with the adjustment of local firms, the effect of FDI becomes positive in the long term.

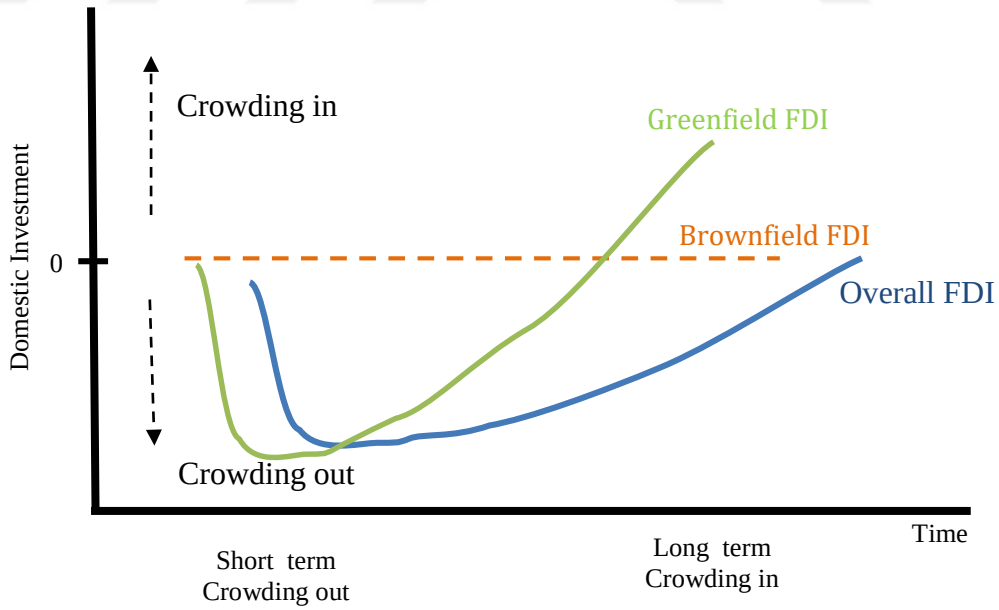

Figure 1.2: Reaction of Domestic Investment on FDI Inflows
Sources: Jude (2018)

Notes: In the Figure 1.2, the level 0 on the vertical axis represents the non-reaction of domestic investment to FDI inflows while the bellow curve represents the crowding out of DI and the above curve represents the crowding in (creates more domestic investments).

The entry of foreign investors into a developing country promotes the improvement of its national savings which allows increasing its national investment. The impact of foreign direct investment on domestic investment can vary depending on the type of investment. As shown in Figure 1.2 in brown color, the entry of Brownfield investment does not have a significant impact neither in short term nor in long term on domestic investment despite the expansion or modernization of equipment.

The entry of Greenfield investment, which has higher level of productivity and lower marginal cost, as shown in Figure 1.2 in green color, has a short-term crowding out effect on domestic investment. These foreign investors relying on local suppliers generate long-term profits for domestic companies.

Despite sometimes the positive contribution of foreign direct investment on domestic investment, domestic investment remains further influenced by other internal factors namely interest rate, expectation, technology transfer, the level of economy activities, the cost of capital goods, etc. The interest rate among the other determinants remains the key determinant of domestic investment. Its changes cause movement along the investment demand curve (IDC) while changes in the other determinants cause the investment demand curve to shift. It is obvious that the level of the interest rate granted to households by financial institutions may or may not encourage them to take an interest in the loans granted. A high interest rate generally leads to a decrease in borrowing which also stipulates a decrease in investment. Conversely, setting a low interest rate may incite households to take an interest in borrowing, which will encourage them to invest more. More specifically, there is a negative relationship between interest rate and domestic investment. the lower the interest rate, the more the investment increases and on the contrary it decreases (University of Minnesota Libraries, 2011: 490).

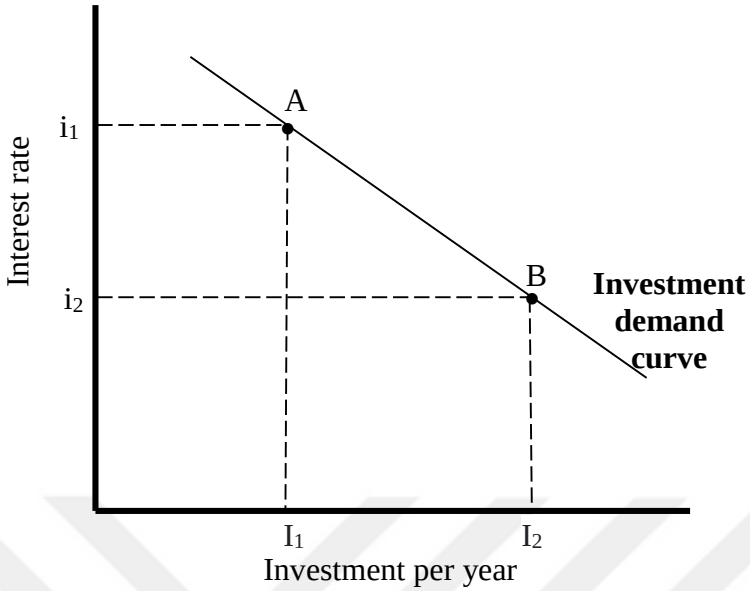

Figure 1.3: Interest Rate and Investment Demand Curve

Source: University of Minnesota Libraries (2011: 492)

Keeping all other factors (determinants) of investment constant, the total amount of investment employed is showed by the investment demand curve at every single interest rate per year. The Figure 1.3 presents the negative relation announced previously between the interest rate and the investment that increases the investment per year from I_1 to I_2 when the interest decreases from i_1 to i_2, all other factors remain constant.

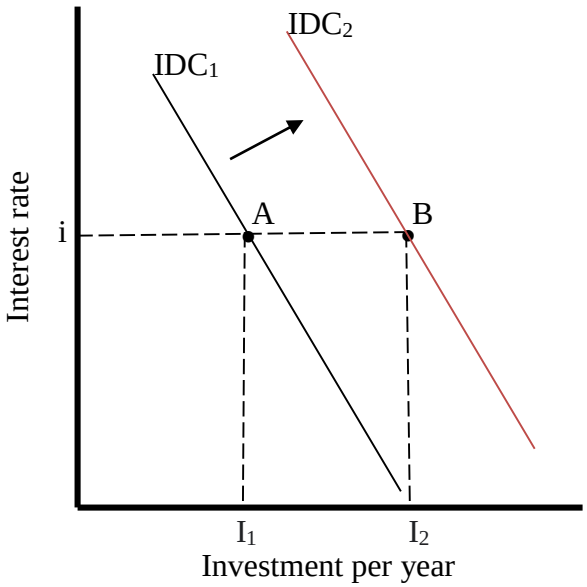

Figure 1.4: Effect of Technology Improvement on Investment Demand Curve

Source: University of Minnesota Libraries (2011)

Keeping all other factors (determinants) of investment constant, when the technology level is improved like the advances in computer technology, the households can opt for the massive investment in computers that will shift the investment demand curve one (IDC_1) to investment demand curve two (IDC_2). For this the investment per year will increase from I_1 to I_2 as shown in the Figure 1.4, all other factors remain constant.

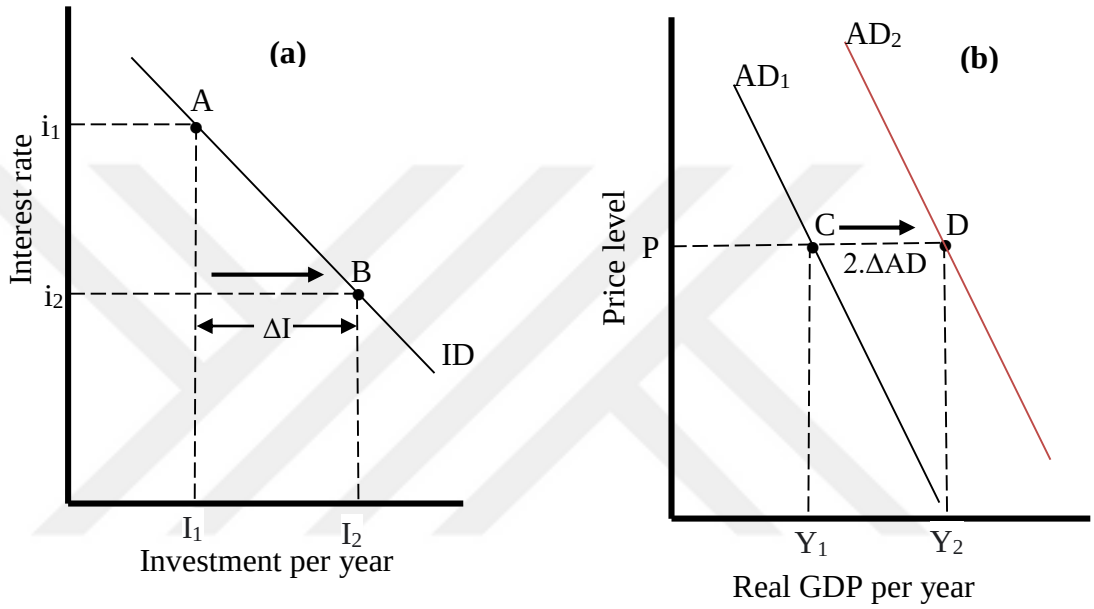

Figure 1.5: Investment and Aggregate Demand

Source: University of Minnesota Libraries (2011: 500)

As shown previously the negative relationship between interest and domestic investment, the decrease of interest rate from i_1 to i_2 augments the investment per year from I_1 to I_2, so it increases at ΔI as shown in the Figure 1.5 (a). With the effect of multiplier of 2, the aggregate demand increases by two times of the investment increases ($2.\Delta AD$). So, the aggregate demand curve (AD_1) shifts to right (AD_2) following of the augmentation of $2.\Delta AD$ as shown in the Figure 1.5 (b). At any given price level, the total amount of real GDP increases.

5.2. Impact of Foreign Direct Investment on Technology Transfer

Technology transfer can be defined as a process of acquisition by the host country of technical information from a foreign country for use in its manufacturing mechanism (Gheribi and Voytovych, 2018: 550). The transfer of technology has become a constraint

for non-developed countries wishing to be developed for several reasons. It gives to the national productivity a rapid boost, protects its local market from the total domination of the external market, reduces the unemployment rate through the creation of new jobs, etc. All of these reasons cited above mainly lead to trade openness (Abdelkaoui and Bouzidi, 2018: 100).

The inflow or the improvement of technologies may have different effects on the growth of developing countries in term of the short-run and long run period. The purchases of high technology being costly paid from the developed countries results in short run in less effectiveness encouraging cost pressures on the company in the host country. This infers that there is a negative relationship in short-term between real growth and the entry of new technologies in developing countries. Added to this is the decline in employment through the layoff of the workforces due to the superfluous of certain jobs (Sadare, 2016: 795).

Foreign companies can carry technology in two different ways: (1) the first way is called internally or directly to foreign invested firms (FIFs) under their full control and ownership; (2) and the second way is externally or indirectly to domestic firms in the host country. It can stimulate directly technical change and technological knowledge acquirement through the competence in the organization and the transfer of new technology to one of its affiliate (FIFs). More precisely, the progress of technology in the subsidiaries of foreign companies is determined by its knowledge, experience and competence in order to increase its productivity, change in its industrial structures and the diversity of export. Foreign companies by its direct and positive impact on the FIFs, can indirectly make a positive change in the technical and technological knowledge acquirement to the domestic firms in the host economy. In fact, the spillover of technology is materialized when there is a vertical integration between companies. Domestic companies can improve technical changes and technological knowledge acquirement in four different strategies: (1) competition with foreign invested firms; (2) cooperation between foreign invested firms and upstream suppliers and downstream customers; (3) spillover of human capital from foreign invested firms to domestic firms because skilled labor passes between employers; (4) the imitation or demonstration due to the proximity (Economy of Survey of Europe, 2001: 186).

Solow introduce technology progress as a factor that stimulates the productivity having the other factors of production function unchangeable. The production function relates the total capital K and total labor L to total output Y is expressed as the function bellow:

$$Y = F(K, L) \quad \textbf{(1.1)}$$

By including the efficiency of labor that implies the knowledge about production methods such as technology improvement, the equation 2.1. can be written as follow:

$$Y = F(K, L^* E) \quad \textbf{(1.2)}$$

Where:

Y, K, L, E represent respectively the productivity, total capital, labor forces and the efficiency per worker (technology progress).

According to Solow model, the improvement of technology level leads to the rise of the efficiency of labors and the total production Y increases as well at every single moment of the process. The expression (L*E) refers to the actual number of worker and the efficiency of each worker. According to Solow model, it is concluded that having the other factors of production function like total capital and total labor unchangeable, the total output (Y) increases by the improvement of the labor force efficiency (E) that is explained by the technology progress (Mankiw, 2009).

5.3. Impact of Foreign Direct Investment on the Diversification of Exports

Foreign direct investment makes the host country a real platform for the re-export of finished, semi-finished or unfinished products to foreign markets. It aims to attract new markets to the region; compete with national firms and therefore either make them more competitive on the market or make them disappear and they will make it possible to rectify the specialization of the export of the host country. The impact of foreign direct investments on exports of host countries is function of the type of FDI (Dauti and Voka, 2020: 520).

OECD in 2002 stated in terms of trade, the main advantage for developing countries in attracting FDI lies in a long-term theory to the integration of host economy in economic internationalization through a qualifying process to ensure increased imports as well as exports.

Foreign direct investment is of great importance in the growth of export flows from the host country to foreign countries because its establishment in the host country suggests the export of finished, semi-finished or unfinished products to the native or foreign countries.

Net export is an economic aggregate that by its nature is influenced by the demand for goods and services in the foreign market. This foreign demand is a function not only of foreign income but also of the price level of goods and services in the local market and the exchange rate.

5.3.1. The Decrease of the Domestic Price

As mentioned previously, the increase of foreign direct investment leads to an increase in national output in the short and long-run, in other words, an increase in the national supply. Because of this increase in national supply, the price will reduce due to the market law. Let us suppose the domestic price (Pd) valued in Guinean franc (GNF) decreases while other variables such as foreign income (R_f) and the exchange rate (E=$/Gnf) remain constant, the value of the net export increases in response to the decrease in the domestic price.

5.3.2. The Increase of Exchange Rate

The net export that can be in surplus or in deficit is influenced by the exchange rate and vice versa. In general, the increase in exports may be due to the weakness of the national currency. This low currency on the local market encourages foreign markets to import from the national market (Leslie Kramer, 2020). Let us consider the domestic price (Pd) and the foreign income (R_f) remain constant, the increase in the exchange rate or the depreciation of the national currency, leads to an increase in foreign income which positively affects the net export.

5.4. Impact of Foreign Direct Investment on Exchange Rate

The exchange rate system is a very fundamental system for monetary policy. However, in countries with less developed economy, it influences inflation and aggregate demand taking into account the nature of the shock (Borivoje and Krušković, 2017: 55-56).

According to Mankiw (2009: 136-138), the exchange rate is the price that a resident of one country trades with another one and vice-versa. He lined up that there are two types of exchange rate namely the real exchange rate and the nominal exchange rate. The nominal exchange rate is the price of a local currency compared to another foreign currency. For example, comparing the exchange rate of United States of America to Turkey, one dollar equal to 15 Liras in world markets for foreign currency. A Turkish who wishes to obtain dollar would pay 15 Liras for one dollar and an American who wishes to obtain Lira would get 15 Liras for each dollar paid. So, the nominal exchange rate is the common used exchange rate that people generally refer to. The real exchange rate is the price of national goods compared to another foreign good. It shows the rate that can be used to trade goods from two different countries. One of the main determinants of the real exchange rate can be the trade balance (Net exports) that is supposed to be equal to the net capital outflow at the equilibrium level, which in turn equals to the savings minus investment (S-I).

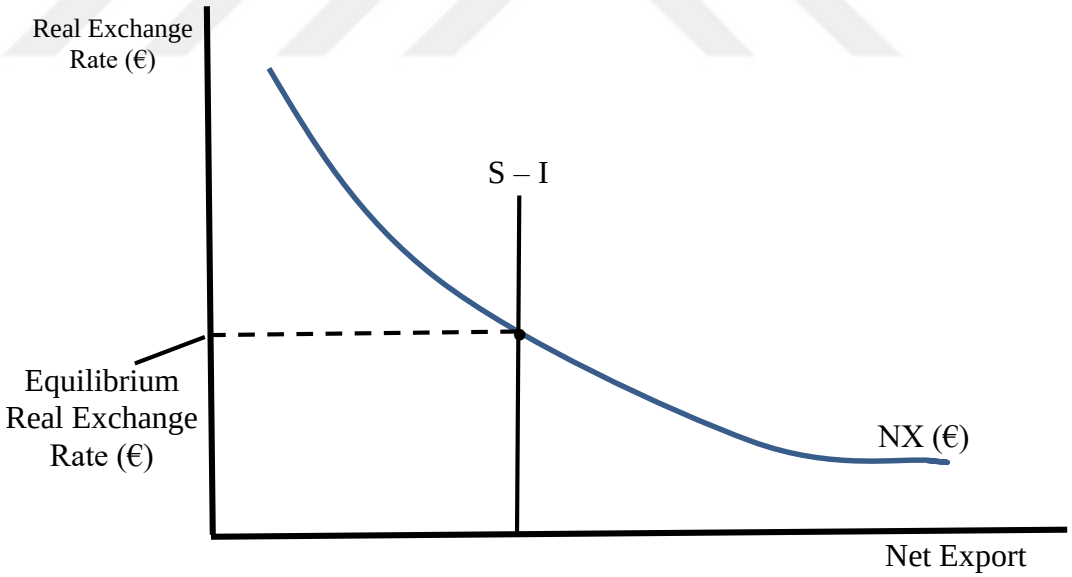

Figure 1.6: Determination of Real Exchange Rate

Source: Mankiw (2009: 139)

The intersection of the vertical line (S – I) and the downward-sloping net export shows the equilibrium real exchange rate as shown in the Figure 1.6. At this intersection the net capital outflow equals the demand of national currency.

Through the study conducted by Soylu (2019: 18-19) in Poland, it was shown that foreign direct investment and export represent the economic growth driving forces. In other words, the economic growth is considered to be defective if export and foreign direct investment are not promoted in the country and these two factors stimulate further national savings. So, the promotion of foreign direct investment inflows and export leads to the increase in saving by shifting $(S - I)_1$ to $(S - I)_2$ as shown in the Figure 1.7. This rightward shift lowers the exchange rate from $€_1$ to $€_2$.

Sultan (2003) considers foreign direct investment as an important way of improving or increasing export of the host country. So, its inflows may have significant and positive impact on host country's export and that will increase the net export. The increase in net export can also be explained through the stimulation or the improvement of national savings and in its turn decreases the real exchange rate that is suitable for the country's economy.

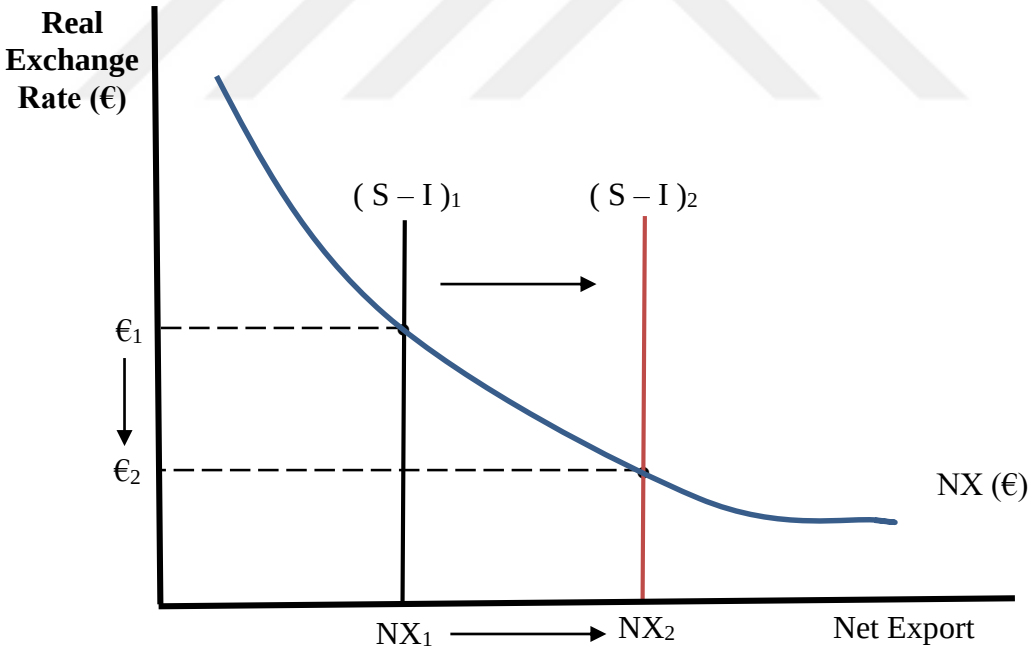

Figure 1.7: Decrease in Real Exchange Rate

Source : Mankiw (2009 : 140)

The increase in saving through the inflows of foreign direct investment increases the supply of the national currency by shifting the vertical line $(S - I)_1$ to $(S - I)_2$, which lowering the real exchange rate from $€_1$ to $€_2$ and then causes the net export to augment.

5.5. Impact of Foreign Direct Investment on Unemployment Rate

Unemployment is defined as country with less jobs opportunities for a high level of people who have the capability and desire to work but cannot find a job. The impact of foreign direct investment on the unemployment rate may vary from one country to another, taking into account, on the one hand, the macroeconomic particularities of the host country and, on the other hand, the type of investment the country is hosting. It is particularly emphasized that Greenfield investment influences the unemployment rate reduction much more than the Brownfield investment, which serves to buy out companies that already exists. FDI has a positive expectation of decreasing unemployment rate in the developing countries by assisting them to the industries process and these process leads to create more additional job or business (Mucuk and Demirsel, 2013: 53).

Several studies point out that when a country has too high unemployment rate, it turns out to be more attractive to foreign investors, regardless of the country's level of development (developed or not). This attraction results from two primary advantages: the existence of a considerable labor forces and a strong presence of labor available at a salary that is not too high.

According to Parkin (2010: 109), one of the major personal and economic problems of a nation is unemployment and may result from the reduction or loss of income and production. The decrease or loss of income and production is caused by the loss of a job. The loss of income represents a destructive factor for the non-employed and makes unemployment a terrible factor for society. As for the loss of production, it represents a reduction in usual consumption and a reduction in capital investment. In contrast to the loss or decrease in production and income, the increase in these leads first of all to the creation of jobs, hence the increase in national income through the entry of foreign investment and its influence on domestic investments. Since income is equal to the sum of consumption and savings, its increase will also lead to a proportional increase in consumption and savings which will finally impact investment.

5.6. Impact of Foreign Direct Investment on Qualification of Human Capital

According to Alţbeta Kucharčíková (2011), human capital includes the productive capacities that an individual obtains by accumulating general or specific knowledge, skills and expertise. The main mechanisms considered by the literature,

through which investment contributes to the accumulation of human capital, are both training and education activities.

Microeconomics treats human capital according to two approaches. The first approach considers human capital in terms of business economics as a factor of production while the second approach considers human capital in terms of managerial vision as a company resource or an asset that is part of the value company merchant. However, macroeconomics treats human capital as one of the factors of production that is a source of economic growth.

Through merger or acquisition, foreign direct investment leads to the development of the human capital. This enhancement is firstly expected to increase the national productivity and its profitability and also improve the commitment and the willingness of the employees (Michie, 2001: 3-4). The endogenous growth theory stipules that the increase in the enrollment rate is a source of development and can positively stimulate the effect of FDI on economic growth.

Other studies have shown that in developing countries the main impact of foreign direct investment on the qualification of human capital appears to be indirect because it is not directly linked to the effect of multinational companies already established, but rather through the policies put in place by governments to encourage the entry of foreign investors. These foreign investors suggest first of all a minimum qualification of the workforce of the host country. The level of education is very important for the development of a country having for vocation to attract foreign direct investment and to maximize its impact on human capital because the training granted to human capital by foreign direct investment can only supplement that which already exists, but in no case can replace it (OECD, 2002: 14-15).

5.7. Impact of Foreign Direct Investment on Creation of New Sources of Tax Revenue

Taxation is defined according to the set of regulations that allow the organization of the definition and collection of taxes. The advantages conferred by the existence of foreign companies in host countries such as the capacity to produce, the establishment of new companies through Greenfield investments allow these countries to take advantage

of the level of employment, productivity and then tax revenues (Becker et al., 2012). Taxes play a dual role in the economic growth promotion. It is an instrument of economy policy that sometime lead to the attractions of foreign investors and plays the role of collecting financial resources for the public authorities.

The impact of FDI on host countries' tax revenues can be explained according to the implantation period. The host country's tax revenues could decrease in the short-run period because of tax holidays. Tax revenues in the host country could be enhanced in the long run because foreign direct investment would not retire after the tax holiday period (Bond and Samuelson, 1986).

Foreign direct investment could be a better way to improve tax mobilization in developing countries because of its important in stimulating domestic investment and technology transfer, leading to the improvement in human capital and the quality of institutions in the host countries (Camara, 2019: 27).

6. GROWTH CONCEPT AND THEORIES

Economic growth is the set of changes that take place at the level of material production during a defined period generally fixed at one year. The concept of growth implies the annual increase in material production expressed in value, the growth rate of GDP or national income. Economic development is not only about increasing the material of production but also all other socio-economic changes and processes caused by the effects of economic factors. For that reason, economic development can be expressed over the long term as it constitutes a series of structural changes. The process of economic development of a country is completed through the contribution of industrial production capacity (secondary sector) and dominated at a higher level by the service sector (tertiary sector). In general, the change in the structure of production, the introduction of new products, new techniques and technologies, new production processes, raw materials and new energy sources make considerable importance for the economic development of all countries (Ivic, 2015: 55-56).

According to Singh (pp: 8-12) there are economic and non-economic factors affecting economic growth. The economic factors affecting are natural resources, capital formation, technology progress, human resources, population growth, social overheads, organization and transformation of traditional agricultural society and the non-economic

factors are political factors, social and psychological factor, education, urbanization and religions factors. Growth theories had always been discussing by many economists. These theories change depending on the evolution of different factors and the view of the economists. Among them, we can enumerate the classical growth theory, the exogenous growth theory (neoclassical theory), the endogenous growth theory, the Keynesian view theory, etc.

6.1. Classical theories

Among the economists of the classical period, this study will focus on the theories of Adam Smith and David Ricardo.

6.1.1. Adam Smith Growth Theory

In the year of 1776, the economist Adam Smith who is considered as the father of economic defined the wealth of nation by setting forth the growth theory of out-put and the distribution of income between wages and profits. The introduction of division of labor that explains the notion of rising returns was his foremost contribution to the economy. The accumulation of stocks, considered as capital, plays a role in the economy of a nation. The process of growth of circulating capital is used to support productive labor in turn generates the capital needed to sustain labor in the future (Masoud, 2014: 49).

Adam Smith underlined that the process of real growth can be understood by the evidence by grappling with the interrelated laws governing population growth, the rate of accumulation and the rate of technical innovation in an environment dominated by the scarcity of natural resources. He considered growth theory as endogenous by laying emphasis upon the effects of capital accumulation on the productivity of labor. He began his investigation by asserting that the per capita income must in every nation be adjusted by two different situations: (i) skill, dexterity and judgment with which its labor is generally applied and (ii) by the proportion between the number of those employed in useful work and that of those whore are not employed. Smith argues that an examination of the increase in per capita income is first and foremost an examination of the causes of increased labor productivity and the order according to whose product is naturally distributed among the different classes in the society. That is why he mentioned in his

document named Wealth Nation that there is no highest permissible value to labor productivity (Kurz and Salvadori, 2003: 8).

To the end, Smith's investigation indicated the theory of induced and embodied progress of technic that stipulate learning by doing and learning by using. So, only and not the outside world, the workers in the production process and those using the machines are the basis for the invention of new machines and knowledge acquisition. In that process new technical knowledge is generated and employed. Furthermore, the accumulation of capital gets moving this procedure then leads to new markets conquest and extends the old ones, increases the global demand that is the main stimulator of economic and social growth (Kurz and Salvadori, 2003: 3-5).

6.1.2. David Ricardo theory on Diminishing Returns

In 1817, David Ricardo known as one of the greatest classical economist published "Principles of Political Economy and Taxatio". His economic growth model, like Adam Smith's one is function of capital accumulation and this one hang on re-investment (Masoud, 2014: 49). He put away an increasing returns different from the analysis of Smith, the extension of the division of labor that creates a beneficial effects of capital accumulation on productivity does not play any role in his analysis. Most of Ricardo's argument was developed in terms of the implied assumption that the whole production process that cost-minimizing producers can choose, is given and constant. From this, the question that is supposed to be answered is how scarce natural resources (land) impacts profitability as capital accumulates. The question to be answered, Ricardo leans in what is called the natural course of event (Kurz and Salvadori, 2003: 8).

6.1.2.1. Diminishing Returns in Agriculture

Assuming that the real wage rate of workers is constant with the increase in population and the accumulation of capital, it is obvious that the rate of profit falls. According to Ricardo, this decrease in the rate of profit is due to the extensive and intensive decrease in the profitability of the land. In other words, any increase in the capital that is employed contributes to a decrease in the rate of production. The decrease in the rate of production in turn causes a decrease in profitability because the profits are usually related to the surplus of product obtained after the means used during all the

production processes and the wages of the workers are deducted from the social product. Assuming that there is only one insignificant saving related to wages and rents, a decrease in the rate of capital accumulation is observed following the fall in the rate of profit. Thus a stationary state is ensured by the natural course of Ricardo's events (Kurz and Salvadori, 2003: 8).

6.1.2.2. Technical Progress: An Antagonistic Factor

Ricardo affirms that technical progress is a contradictory factor to the increase in profit. In other words, technical progress is a factor that contributes to the decline in profitability because for him, the profit or the surplus in the quantity of food, the progress of society and the increase in wealth is only obtained by the sacrifice of more and more labors. According to Ricardo, the increase of the profit or income is opposed to the progress of the machines invented for the production of goods and the discoveries which will be able to incite labors to give up part of the work which finally could lead to the reduction of labors' salaries (Kurz and Salvadori, 2003: 9).

Capital accumulation is a productive factor for Adam Smith. Unlike Smith, Ricardo does not consider the accumulation of capital as endogenous productive factor, but he put forward certain singular events, scientific and other discoveries as productive factors. Moreover, Smith considers technical progress as an endogenous factor, while Ricardo treated it as exogenous in his analyses. The common point between these two economists is that technical progress is in no way advantageous to profitability and saving and investment that constitute accumulation come largely from profits (Kurz and Salvadori, 2003: 9).

6.2. Exogenous Growth Theory (Neoclassical Theories)

Neoclassical growth explain how income is distributed in a symmetrical method through the relative scarcities of the factors of production, capital and land by asserting the exogenous growth factor that classical school ignored in their analysis. Around the 1960s, neoclassical economics is concerned with choice of conduct by examining the individual perspectives of the statistical model on quantitative changes rather than on the qualitative changes essential to technological transformation. The neoclassical theory modeling approach that has been adopted and approved by a certain majority regarding

long-term growth, has enabled the increase in income. This theory emphasis that the model production of consumption is function of stock of knowledge that increases the income of capital and labor and creates an economy of scale (Kurz and Salvadori, 2003: 18).

There are many economists who came from neoclassical school, but in this study two of them will be illustrated.

6.2.1. Solow Growth Model

The model of Solow stipule that gross domestic product is produced in compliance with aggregate production function technology. He suggested that economies will conditionally converge to the same level of income if the same rates of savings, depreciation, labor force growth, and productivity growth are used. Taken from Cobb-Douglas form, Solow developed the production function at any time t (Todaro and Smith, 2012: 146)

$$Y_t = A_t\, K_t^{\partial}\, L_t^{1-\partial} \qquad 0 < \partial < 1 \qquad \textbf{(1.3)}$$

Where K_t, L_t and A_t, represent respectively the capital input, the labor input and the productivity of labor. A_t is also considered as the result in higher output without the increase in inputs. Its increase stimulates the productivity of the other factors that is why it is known as a measure of productive efficiency (Whelan, 2005: 2). The fact that the exponents on both capital and labor are fractional means that for each factor, there are decreasing marginal returns, if it is varied while keeping the other one constant. The fact that the exponents sum to 1 means that there are constant returns to scale. That is, if we increase both capital and labor by γ percent, output will also increase by γ percent as shown in the equation bellow (Todaro and Smith, 2012: 146).

$$\gamma Y = F(\gamma K, \gamma L) \qquad \textbf{(1.4)}$$

The coefficient γ can be any positive real number, a mathematical trick useful in analyzing the implications of the model is to set y = 1/L so that

$$Y/_L = f\left(K/_L, 1\right) \quad \text{or } y = f(k) \qquad \textbf{(1.5)}$$

Generally, per-capita term is used for long-run analysis, so by dividing the main production function by the labor L:

$$\frac{Y}{L} = A\frac{K^{\partial}\,L^{1-\partial}}{L} \quad \textbf{(1.6)}$$

After some mathematical transformation, we have:

$$\frac{Y}{L} = A(\frac{K}{L})^{\partial} \quad \textbf{(1.7)}$$

By the use of the shorthand $y \equiv {}^{Y}/_{L}$ (output per worker) and $k \equiv {}^{K}/_{L}$ (capital per worker), we finally obtain:

$$y = Ak^{\partial} \quad \textbf{(1.8)}$$

6.2.2. Harrod-Domar Growth Model

Having fixed the technology, according to Harrod-Domar economic growth depends on three factors: capital (K), labor (L) and resources (R), hence the following equation:

$$Y = f(K, L, R) \quad \textbf{(1.9)}$$

Labors L and resources R are the measure factors used on the basis of generating an increase in production capital (K). So, the relationship between growth and capital is so crucial to not be ignored. This relationship takes into account the relationship between savings (S), investment (I), productive capital (K) and productive capacity (Y). Harrod-Domar enumerate the relationships are as follows (Todaro and Smith, 2012: 146).

- Positive or the increase of saving (S) is the source of the investment (I)
- The increase in investment (I) creates the positive variation of capital (ΔK) of the later period
- The positive variation of capital directly creates a positive variation of national ouput (ΔY) of that period.

The model of Harrod-Domar argues that the promotion of saving and investment leads to the increase of capital stock and the production of capital remains the source of economy growth. The capital improvement is due to investment activities (Thong and Hao, 2019: 12-13).

6.3. Endogenous Growth Theories

The endogenous growth model emphasis that economic growth is an endogenous outcome of an economic system, not the result of outside forces. The empirical work does

not settle for measuring a growth accounting residual that grows at different rates in different countries. It tries instead to uncover the private and public sector choices that cause the rate of growth of the residual to vary across countries.

6.3.1. The Romer Growth Model

Broadly, Romer's endogenous growth theory examines technological outcomes that may be existing in the process of industrialization. That is, in other words, the process by which the production profits of one firm affect the production profits of another firm. In this model, Romer first begins to think that the process of growth originates at the enterprise level. Like Solow's hypothesis, there is the existence of perfect competition because each firm produces individually with constant revenues to scale. From this assertion, Romer estimates that there can be increasing returns to scale at the level of the national economy when the stock of capital at the level of the economy positively impacts production of the company. Like A (the technological progress which sometimes affects the other factors K and L) in the Solow model, Romer considers knowledge as a stock of firm's capital which can exert a positive influence on other local firms. Therefore, it deals with "learning by doing" by "learning by investing". Assuming there is a regularity between firms such that each firm uses equal capital and labor, the Romer production function is (Todaro and Smith, 2012: 152):

$$Y = AK^{\partial+\beta}L^{1-\partial} \quad \textbf{(1.10)}$$

In order to show more endogenous growth, implying the non-progress of technology A, the resulting growth rate of per capita income in the economy would be, after mathematical transformation:

$$g - n = \frac{\beta n}{1-\partial-\beta} \quad \textbf{(1.11)}$$

g and n represent respectively the growth rate of production and the growth rate of population. With constant returns to scale, β = 0 and without technological progress, per capita growth would be zero. This counterpart with Romer, the hypothesis is the following:

With $\beta > 0$ (Positive capital externity): $g - n > 0$ and Y/L increases.

6.3.2. Arrow Growth Model (Learning by Doing Model)

With the regard to endogenous growth theories, the concept of "learning by doing" was first instituted by the economist Kenneth Joseph Arrow (1962). He considered that the coefficient of social capital (Learning) is function of growing investment. For Kalbor, investment does only make productivity growth of labor on already existing capital. Arrow, in his analysis mentioned that the improved machines produce more than the already existing, that implies that investment does not only include productivity growth of labor but include the improvements of the productivity of labor covering all the productivity process. The analysis of Arrow consists of showing that, even if the firms are facing constant returns, they must take into account the increasing returns (Mishra, 2016: 51).

By the use of the Cobb - Douglas production function $Y = A\,K^{\partial}\,L^{1-\partial}$ there exist constant returns to scale for all inputs together (Since ∂ is positive, $(1-\partial) = 1$). To make endogenous the exogenous factor A in Douglas production function, let's create a production for each single firm:

$$Y_i = A_i\,K_i^{\partial}\,L_i^{1-\partial} \qquad \textbf{(1.12)}$$

From this, the question is how to knowledge A is accumulated to make it as endogenous factor. According to Arrow the knowledge arises from past cumulative investment (G) of all firms. Consequently, Arrow supposed that the technical progress factor is linked to aggregate capital in a process of "learning by doing". Explicitly, the experience of individual firm is linked to the stock of total capital in the economy, G, by the following function bellow (Mishra, 2016: 51).

$$A_i = G^z \qquad \textbf{(1.13)}$$

If G (capital stock) increases, knowledge used by an individual firm also increases by a proportion Z. The individual production function is as follows:

$$Y_i = G^z\,K_i^{\partial}\,L_i^{1-\partial} \qquad \textbf{(1.14)}$$

CHAPTER TWO

PROMOTION OF FOREIGN DIRECT INVESTMENT IN THE REPUBLIC OF GUINEA IN THE CONTEXT OF ITS POLITICAL AND ECONOMIC SITUATION

This part of the study will first focus on the general presentation of the Republic of Guinea and then it will look at its historical and economic policy while defining the structural adjustments that followed. The theoretical analysis on the evolution of the various macroeconomic indicators will be completed by the end.

1. GENERAL PRESENTATION OF GUINEA

The Republic of Guinea is a country in West Africa bordered by Senegal to the north, Guinea-Bissau to the northwest, Liberia and Sierra Leone to the south, Ivory Coast to the east, Mali to the northeast and west by the Atlantic Ocean, which stretches over more than three hundred square kilometers (300 km^2). It is a coastal country that covers an area of two hundred and forty-five thousand eight hundred and sixty square kilometers (245,860 km^2) with a population of thirteen million (13,000,000) inhabitants consisting of an active population of five million two hundred and forty thousand (5,240,000). Its literacy rate is estimated at twenty-nine point five percent (29.5%) (CIA - The World Factbook, 2015). The republic of Guinea is divided into four natural regions and eight administrative regions, which are in turn subdivided into thirty-three (33) prefectures.

According to the study of Diallo (1999) on the general presentation of Guinea, the four natural regions, as well as the administrative regions within them, are listed below:

- Lower Guinea or Maritime Guinea is a region cornered by the coastal plains comprising Conakry (the capital), Boké, and Kindia. Its vegetation is made up of mangroves, coconut palms, and palm trees. It is located in the West side of the country by covering an area of 44,000 km^2. Its subsoil is full of a large deposit of bauxite and is partly dominated by trade and food crops.
- Middle Guinea or the Fouta Djallon is dominated by mountains and filled with streams from which large rivers originate in the sub-region that makes this region the water tower of West Africa. It is composed of two administrative regions, Mamou and Labé and it main activity is breeding;

- Upper Guinea or Mandingo considered as one of the largest regions of Guinea is a region of wooded savannah watered by the Niger River and made up of Kankan and Faranah as administrive region. Its main activity is the traditional exploitation of gold and diamonds.
- The Forest Guinea or the Southern Region is the most mountainous region of the Republic of Guinea and covered with dense forests. It comprises the eighth administrative region which is Nzérékoré (the third large city of the country). Like Lower Guinea, food crops and industrial crops such as coffee, tea, cocoa, oil palm, rubber, etc. are the main activities of Forest Guinea and that makes it one of the most attractive regions.

Figure 2.1. Administrative Map of the Republic of Guinea.

Source : https://www.nationsonline.org/oneworld/map/guinea-map2.htm

2. HISTORICAL POLICIES AND ECONOMIC REFORMS IN THE REPUBLIC OF GUINEA

After the proclamation of independence in 1958, the Republic of Guinea headed by a young leader Sékou Touré decided to set up an emerging and competitive economy. It is in this perspective of development that the emphasis will be placed on the industrialization and modernization of economic activity sectors and the construction of basic infrastructure, namely roads, ports, hydroelectric dams, etc. Certain financial contributions dominated by loans, donations, and aid from institutions had become excessive for the financing of projects which included the development of the plains.

During a first socialist regime from 1958 to 1984 whose doctrine affirmed, "We prefer freedom in poverty to wealth in slavery", a quarter of the population that was estimated at almost two million people had migrated to neighboring and western countries to escape this dictatorial regime. The third of the population who remained experienced certain tragedies including the deterioration of health, the constant decline in purchasing power, misery, injustices, the massive growth of youth and only a third were schooling, then other resulting extortions that followed (Doré, 1990: 128-129).

The primary sector including agriculture had experienced large projects but generally limited to the presentation of these projects but rarely executed. The export of agricultural products that had a high rate experienced a fall while the imports of rice and other agricultural products became increased. The only activity advocated in the primary sector was the mining activity, which until today represents a large portion of the State revenues (World Bank Group, 2016).

The development system of the socialist regime did not encourage the development of the secondary sector which includes manufacturing industries, construction, etc. The government preferred to proliferate its own businesses by not leaving the task easy to private entities. The mismanagement of most of its businesses has caused a budget deficit. The extractive industries of mineral resources (bauxite) were the only private companies that were owned by foreigners, only allowing the acquisition of foreign currency to be able to cover imports.

The tertiary sector was dominated by the activities of the State, which had control of the market, as well as by the management of the distribution of products that were intended for depots and stores belonging to the State. Infrastructure such as roads, railways, public buildings was in a state of deterioration. Most of the activities being financed through loans and grants, the external debt accumulated successively with the Western and Arab countries with terms of repayment in goods that could not guarantee the future (Doré, 1990: 128).

During the period of globalization or financial globalization in the early 1970s to 1980s, the Republic of Guinea being a country with a very weak economy, just like several other countries in Africa experienced more critical periods through which the power of purchasing exports fell (decrease in export), the debt ratio to the outside world increased, the weakening of capital flows.

The republic of Guinea facing this situation needed an improvement in the management system or a structural adjustment that could allow it to benefit from the advantages of integration into international markets. In 1982, the State of Guinea with the help of the Bretton Woods institutions adopted and signed its first structural adjustment program. This first structural adjustment program was not of great importance because it could not solve the major problems the Republic of Guinea was facing concerning exports, agricultural production and improvement of private sector (Diallo, 2007: 13).

The adoption of the first structural adjustment program characterized the end of the first independent regime with the death of President Ahmed Sékou Touré in 1984. After the socialist regime that lasted for twenty-six (26) years under the reign of President Ahmed Sékou Touré, the second Guinean regime this time liberal with General Lansana Conté at its head took power on April 3, 1984. The new President found that the Guinean economic and financial situation was totally disastrous, resorted to the International Monetary Fund (IMF) to carry out an assessment of the situation in order to take adequate measures (Griffon, 1989: 109-110). According to Gilles (1989: 71-72), the outcome of this assessment by the IMF was catastrophic:

- The dilapidation of the city of Conakry through the lack of basic services, such as water, electricity, etc.;

- The lack of public basic infrastructure and those that existed are in a rudimentary state;
- The existence of an inefficient bloated administration working in a precarious environment with a purely primitive system;
- The falling banking system was completely administered by the state;
- Public enterprises worked with the help of state subventions and operated at a quarter of their capacity;
- A high rate of inflation due to the injection of money into the market;
- A very heavy financial debt exceeding the financial capacity of the State, which could jeopardize the future;
- The depreciation of the currency.

The only significant sector was the mining sector, which represented the lifeblood of the Guinean economy. This sector was largely used for the acquisition of foreign currency to finance importations. Faced with this horrible situation, the Washington institution recommended to the President of the Second Republic to move on to a structural adjustment program for the recovery of the economy through which the agricultural sector would be considered as the stimulus element to the development and the increase of employment. A series of recommendations were made pointing to a reorganization of institutional structures and an improvement in the value of the currency or the exchange rate in order to measure up against parallel exchange rates (Gilles, 1989: 73).

On December 22, 1985, the Guinean government, with the support of the International Monetary Fund (IMF) and the World Bank, proceeded to implement the new structural reform, which was going to make the agricultural sector essential but also favor the private sector in Guinea, which was almost nonexistent.

- **The Results of Structural Adjustment**

Regarding the monetary system, « Sily», the local currency used by the old regime has been changed to Guinea New franc (GNF). Because of the introduction of a flexible exchange rate, devaluation was observed at a level of 60% over three years. Guinean currency (GNF) was respectively valued in US dollars ($) according to the years 1986,

1987, 1988 and 1989 at 365, 428, 450 and 573 (Griffons, 1989: 110). With the new reform aimed at standardizing trade support rates, customs fees have been rectified. The system being liberal, crucial trade and price liberalization measures were adopted following which a free price law was adopted except for the price of utilities, rice and petroleum products.

Leaning on the study of Griffons (1989: 110) on the structural adjustment and agricultural policy in Guinea, to solve the state budget deficit, a policy of reducing public service employees was developed because it was in overabundance. In 1985, a census was made following, which more than 90,000 state employees were identified, but after modification in 1988, only 60,000 civil servants were maintained who will then be subjected to training for their qualifications. By the end of 1985 and the beginning of 1986, six banks and some public enterprises in the commercial and industrial sector were privatized and liquidated, which helped reduce the public deficit.

All liberalization measures that have been initiated to encourage the growth of the private sector in order to revive Guinean economic growth had proven its worth by increasing investments at 40%, including gross fixed capital formation that represents (15%) between 1986 and 1987. Since 1985, the production of rice (the main Guinean food crop) has grown steadily because of liberalization in the market, whether on price or trade. Despite this slight progression of the Guinean economy, the macroeconomic exploits that were achieved during this process were not enough to highlight the well-being of the Guineans. For this reason, under the support of the Guinean State in 1996, a first complementary strategy document was designed under the name of "Guinea Vision 2010" and the second document called "The Poverty Reduction Strategy Document (PRSP)", under the support of the Bretton Woods Institutions was designed and then validated by the Guinean State in 2002. This second document allows heavily indebted poor countries (HIPC) to benefit from the enhanced initiative (Guinea, "Poverty Reduction and Strategy Document", 2004: 13).

This new addition to the reforms already developed by the Bretton Woods Institutions aims to reduce the poverty rate through the decentralization of the state budget and the modernization of public management at an international pace so that the attraction of foreigner investors is more excessive.

The primary role that foreign direct investment plays in different levels of economy is not the same, particularly in the economy of developed and non-developed countries. For this difference, in 1985 the World development report set up a consistent system for countries with a weak economy like most of the countries of South Sahara through the weakening of legal laws that could create an atmosphere of attracting foreign investors.

However, the weakening of the legal framework to attract investors could only be profitable for African countries if only they improved their macroeconomic conditions. These macroeconomic indicators are as followed: the rate of economic growth (Morisset, 2000), qualification of the workforce (Wang, 1990), the development of the national financial market and the control of the exchange rate (Alfaro, Chanda, Ozcan and Sayek 2000).

According to the United Nations Conference on Trade and Development in New York and Geneva in 2009, the financial and economic crisis of 2008 had largely wiped out international flows of foreign direct investment. The inflows of foreign direct investments would have fallen from 1.7 billion dollars in 2008 to less than 1.2 billion dollars in 2009. The crisis would have also modified the distribution of this one by favoring the countries in transition and the countries in development by increasing by 43% in 2008. More particularly the countries of West Africa would have reached an unprecedented condition by obtaining 63% of flows entering Africa. This increase in foreign direct investment flows to Africa is partly explained by a decline of 29% to developed countries.

However, the Republic of Guinea remains at the margin of this rapid increase in FDI through the expected results from 5.48% (in percentage of GDP) to 1.35% (in percentage of GDP) respectively during the years 2008 and 2009. Similarly, gross fixed capital formation decreased slightly from 28.58% (in percentage of GDP) to 20.93% (in percentage of GDP) in the same period of increase in inflows in West Africa. In particular, exports increased slightly from 21% (in percentage of GDP) to 22% (in percentage of GDP).

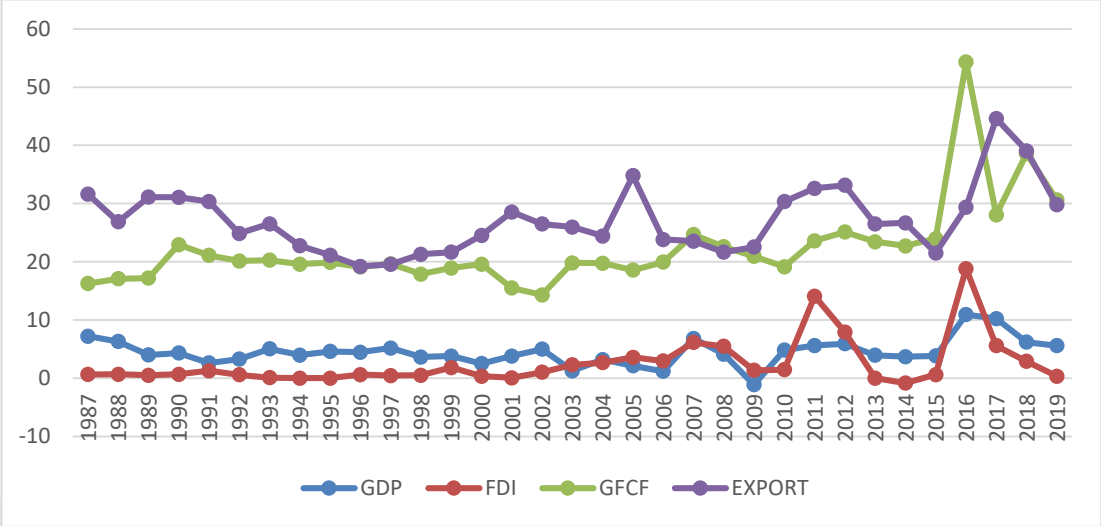

Figure 2.2: Foreign Direct Investment, Gross Fixed Capital Formation and Export in the Republic of Guinea

Sources: World Bank

The weakness of the expected results following the implementation of the various structural reforms since the early 1980s shows that Guinea still needs certain more in-depth reforms for more concrete results. In this momentum, in 1996, the Republic of Guinea equipped itself with a vision of short and long-term economic and social development called "Guinea vision 2010". This vision which dominated the macroeconomic adjustment and stabilization programs did not help to obtain the results hoped for the direction of economic and social development with the sole reason that the document “Guinea vision 2010” was drawn up without taking into account certain international development standards. In April 2012, a new national prospective study entitled “Guinea vision 2040” was effective under the reign of the third republic.

This study entitled “Guinea vision 2040” reflects the impetus for compliance with international conventions and the revival of the economic and social situation by referring to the objectives of Africa's Agenda 2063, Sustainable Development (SDG), and the New Deal. This document “Guinea vision 2040” aims to make the Republic of Guinea a very emerging and prosperous country and master of its destiny while guaranteeing a high level of well-being of its population and ensuring the future of generations futures. As a result, the Guinean state has the following objectives:

- Make the Republic of Guinea a strong, peaceful, united, and prosperous nation, based on the values of justice and solidarity;
- Create more openness to Guinea to fully contribute to the dynamics and changes at the sub-regional, regional and global level;
- Promote the qualification and training of human capital, which is a major asset for a country to move towards emergence;
- Give preferential treatment to the private sector, the engine of economic growth and progress, set up a diversified, competitive economy that creates decent jobs, a perfectly integrated mining sector;
- Provide Guinea with a public administration for development and responsible economic governance;
- A government at the service of its populations that can meet their housing needs, and a protected environment that secures the future of the next generations.

The accumulation of all these reforms in the republic of Guinea not having exactly obtained the expected effect nevertheless enabled the republic to increase the economic performance which had deteriorated following the pandemic crisis with the Ebola virus. Indeed, economic activity recorded a growth of 6.7% in 2017 against 3.5% in 2015.

The three main sectors of activity are agriculture, industry and services. The primary sector, which increased by 3.9% in 2017 against 3.1% in 2016, contributed nearly 19.7% to the formation of GDP in 2017. This performance of the primary sector is largely linked to the agriculture sub-sector and, also fisheries and livestock sub-sectors. With growth of 5% in 2017 against 4% in 2016, agriculture accounted for 8.7% of GDP in 2017 and provided 51.7% of added value of the primary sector. The secondary sector that includes industries contributed at 34.3% to the formation of GDP, with growth estimated at 11.7% in 2017 compared to 16.1% in 2016, mainly due to construction and extractive activities. The tertiary sector, which includes services is the largest sector of economic activity in the Republic of Guinea, contributed nearly at 47% to the formation of GDP during the years 2016 and 2017. The tertiary sector experienced growth at 4.6% in 2017 compared to 3.1% in 2016, thanks to an acceleration in all its sub-sectors, mainly that of post and telecommunications. In 2017, this sector contributed to GDP at 46%, compared to 47% in 2016 (Ntagunguria, 2018: 2).

3. THE EVOLUTIONARY SITUATION OF SELECTED MACROECONOMIC INDICATOR OF GUINEA ECONOMY

In this part of the study on the Republic of Guinea, the different macroeconomic indicators namely foreign direct investment, domestic investment, export and gross domestic product are elucidated in taking into account the period of the study. It is explained how these macroeconomic indicators evolved in each decade of the study period.

3.1. Foreign Direct Investment

During the advent of the first republic (1958-1984), the Republic of Guinea lived under a socialist regime that had full control of the economic activities of the country. Inflows of foreign direct investment were not encouraged by the unregulated business climate that could not attract foreign investors and the macroeconomic conditions were generally harmful to good economic growth. Only the mining sector that represents a source of external financing was in the direction of development, but could not be up to the level of ensuring the public budget. So, the State was under the constraints of launching into debt with financial institutions or from European countries.

At the end of the socialist regime, several adjustment policies were undertaken through various programs financed by the International Monetary Fund (IMF) and the World Bank (WB) and in the government's recovery program aimed at the rapid development of the Republic of Guinea. These adjustment programs will create a favorable environment for attracting foreign investors through the improvement of macroeconomic conditions and the establishment of a democratic policy.

During the first decade of the study period (1987-1997), the reforms for the standardization of trade support rates and the rectification of customs fees, a slight improvement in the accumulation of inward investment flow was obtained. The Republic of Guinea in a higher expectation did not achieve the expected result with an average percentage of GDP of zero point five hundred and fifty-three (0.553% of GDP), as shown in the Figure 2.3. (World Bank Database).

In the beginning of the second decade (1998-2008), the weakness of the results obtained during the first decade prompted Guinean State with the help of the Bretton Woods Institution to move to a higher stage through the development of two other

strategy documents called respectively « Guinea vision 2010 and the poverty reduction strategy document (PRSP) ». These new adjustments to the management of economic activities will boost the inflow of foreign direct investments, hence the ratio of FDI to GDP increased to 2.686% as indicated by the Figure 2.3.

The last decade of the study period (2009 – 2019), under the reign of the Third Republic, saw many reforms aimed at improving the work already established in previous structural adjustment programs. Among them, we have the national study entitled "Guinea vision 2040" which are developed within it certain stimulators to the attraction of FDI. The stimulation strategies are the opening of the Republic of Guinea on a regional and global scale, the establishment of a peaceful, united and prosperous nation, based on the values of justice and solidarity, implementation of strategies to enhance human capital, promote responsible economic governance in the republic.

All of these factors cited above being favorable to the promotion of an inflow of foreign investments, this period saw a rapid increase in foreign direct investment with a value in the average percentage of GDP of five point two hundred and twenty-three (5.223% of GDP) as shown in Figure 2.3.

During this period of the last decade and exactly from the start of 2010, foreign direct investment has grown in volume and reached its first peak in its history in 2011 with a value of fourteen percent improvement in GDP (14 % of GDP). This expansion is explained by the change of regime in the Third Republic with the Professor Alpha Condé at its head. This change to the democratic regime created political stability and a climate of confidence in the face of foreign investors.

Following this expansion, FDI experienced a compression of its volume and reached a minimum «Trough» with a value of minus zero-point eighty-four percent of GDP (0.84% of GDP) in 2014. This compression is explained generally on one hand by the start of political instability and on the other hand, by the expansion of the Ebola virus pandemic that began in December 2013.

In 2015, after the re-election of the President Alpha Condé and the end of the Ebola virus disease outbreak in mid-June 2016, foreign direct investment resumed its

expansion course and reached a second time in the history of the Republic of Guinea the peak point with a value of eighteen percent of GDP (18% of GDP) at the end of 2016.

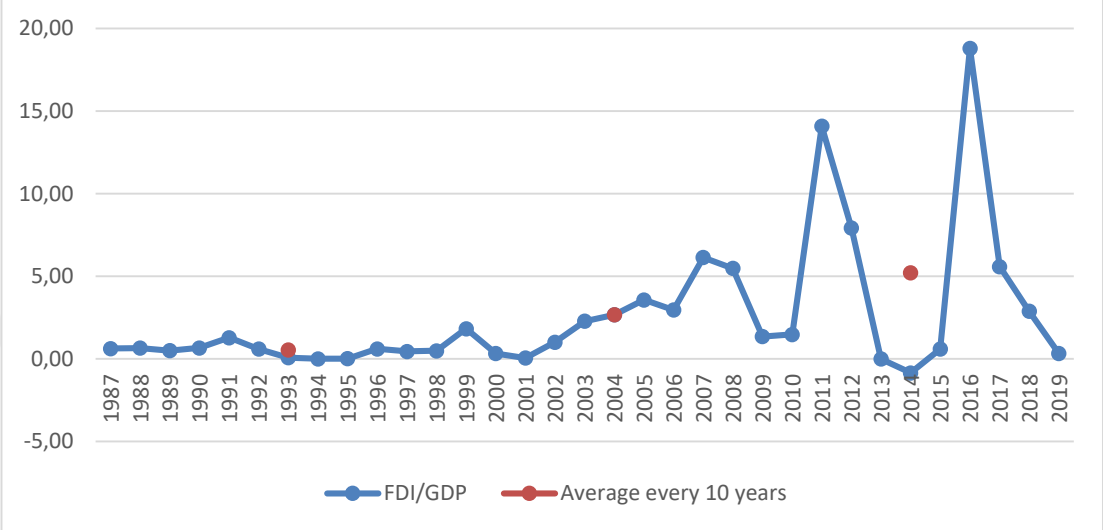

Figure 2.3: The Ratio of FDI to GDP in the Republic of Guinea
Sources: World Bank

Table 2.1: Foreign Direct Investment Flows in Republic of Guinea

Years	FDI		
	Nominal value (Million GNF)	Constant value (Million GNF)	FDI(% of GDP)
1986	2 801	69 646	0,44
1987	5 505	107 559	0,63
1988	7 439	119 469	0,66
1989	7 295	95 788	0,51
1990	11 791	132 008	0,67
1991	29 227	260 079	1,29
1992	17 760	125 211	0,60
1993	2 599	18 200	0,08
1994	205	1 416	0,01
1995	762	4 968	0,02
1996	23 869	153 176	0,61
1997	18 950	119 889	0,46
1998	22 028	134 876	0,50
1999	88 034	517 162	1,83
2000	17 367	95 979	0,33
2001	3 271	17 766	0,06
2002	59 275	320 550	1,02
2003	156 742	731 281	2,29
2004	219 681	879 599	2,67
2005	382 655	1 202 710	3,57
2006	643 594	1 008 270	2,96
2007	1 619 910	2 233 820	6,14
2008	1 757 290	2 076 400	5,48
2009	437 043	507 418	1,36
2010	580 337	580 337	1,48
2011	6 365 480	5 839 930	14,09
2012	4 230 340	3 480 280	7,93
2013	1 313	1 035	0,00
2014	-517 352	-397 561	-0,84
2015	398 772	297 593	0,61
2016	14 514 100	10 250 400	18,81
2017	5 249 320	3 356 560	5,59
2018	3 178 770	1 843 180	2,89
2019	407 764	220 005	0,33

Source: World Bank Database

3.2. Domestic Investment

Domestic investment (DI) is economically represented by gross fixed capital formation (GFCF). It represents land improvements, the purchase and installation of machinery and equipment, and the construction of infrastructure (roads, schools, residential housing, buildings, etc.

A few years after the regime change to liberalization, the Republic of Guinea embarked on reforms with the help of the World Bank, the International Monetary Fund, and other international institutions (Griffon, 1989: 109). These structural and institutional adjustment measures were undertaken to remedy the growing budget deficit through the privatization of several state enterprises in the industrial and commercial sectors. As the private sectors are a source of rapid growth in developing countries (International Finance Corporation, 2011), the Guinean government's policy of corporate privatization was then a priority for re-launching economic growth.

This policy will allow the creation of several small and medium-sized enterprises (SMEs) in different cities in the commercial sector, construction, and public works. The investment policy on production infrastructure and the growth of the agricultural sector was also the objective of Guinean decision-makers (Griffon, 1989: 111).

The development of a new structural and institutional policy affects the economy level with a slight growth in gross fixed capital formation (GFCF) from fourteen percent of GDP (14%) in 1986 to twenty-two percent of GDP (22%) in 1990. This slight growth in GFCF remained unchanged during the first two decades of the study with an average percentage of GDP of twenty-one (21% of GDP) (World Bank Database).

Like FDI, one of its multiple stimulators, gross fixed capital formation experienced its greatest expansion from the start of 2015, then peaked with fifty-four percent of GDP (54%) in 2016 which corresponds to the last decade of our study. This period of expansion was the result, as previously mentioned on the FDI, of the return to political stability following the re-election of Professor Alpha Condé and the end of the outbreak of the Ebola virus pandemic in mid-June 2016. This expansion of GFCF during this period shows in the third decade of the study thirty-one percent of GDP (31%) on a weighted average (World Bank Database).

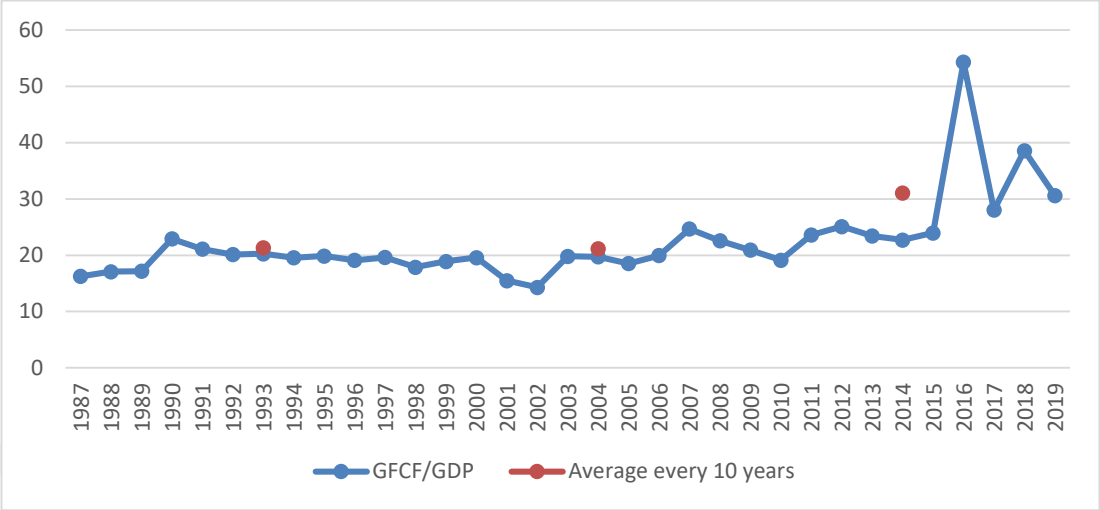

Figure 2.4: The Ratio of GFCF to GDP in the Republic of Guinea

Source: World Bank

Table 2.2: Gross Fixed Capital Formation in the Republic of Guinea

Years	GFCF		
	Nominal value (million GNF)	Constant value (million GNF)	GFCF (% of GDP)
1986	95 716	2 379 950	14,93
1987	142 197	2 778 320	16,26
1988	193 275	3 104 150	17,09
1989	247 245	3 246 480	17,18
1990	403 725	4 520 120	22,93
1991	479 716	4 268 780	21,11
1992	596 482	4 205 210	20,13
1993	635 169	4 447 990	20,27
1994	646 940	4 466 640	19,58
1995	728 440	4 746 840	19,89
1996	742 311	4 763 580	19,11
1997	813 700	5 147 870	19,63
1998	793 503	4 858 570	17,88
1999	908 109	5 334 750	18,91
2000	1 025 240	5 665 890	19,59
2001	856 584	4 652 300	15,50
2002	833 363	4 506 680	14,30
2003	1 355 470	6 323 940	19,81
2004	1 624 520	6 504 550	19,75
2005	1 986 020	6 242 210	18,55
2006	4 335 300	6 791 810	19,95
2007	6 505 450	8 970 850	24,67
2008	7 239 250	8 553 810	22,59
2009	6 751 400	7 838 550	20,94
2010	7 510 090	7 510 090	19,14
2011	10 662 400	9 782 120	23,60
2012	13 402 400	11 026 100	25,12
2013	13 557 300	10 690 700	23,43
2014	13 984 100	10 746 200	22,71
2015	15 778 700	11 775 200	23,97
2016	41 900 600	29 591 800	54,30
2017	26 344 900	16 845 700	28,04
2018	42 450 000	24 614 200	38,59
2019	38 221 700	20 622 100	30,62

Source: World Bank

3.3. Export

Since the advent of the first republic in Guinea until today, foreign trade is still dominated by natural resources of the soil. The export relies mainly on the transport of mineral resources such as bauxite (which is predominant), gold, and diamonds, which occupy more than 77.3% of exports (Draft Guinea Volume 1, 2003.

In the Republic of Guinea, exports represent a very important factor that is highly represented by mineral resources (bauxite, diamond, gold …) and the agricultural products. In 2019, they represent 85% of the national exports and 54% of the GDP (France Ministry of the Economy, Finances and Recovery, 2020).

According to the analyzes of the World Bank, covering the period of 1986-2018, the Republic of Guinea recorded an annual average of 27.21% with a change between the first and last year of 21% and an estimated from available data that the annual average will be 62.929 in 2025.

The first two decades of the study period shows that the export almost kept a constant average (with a slight downward variation of 0.82) with a value of 28.50% of the GDP in the first decade and 27.68% in the second.

The third decade marks an increase in the export rate compared to the last two. In 2015, the export rate experienced an expansion that will lead to its peak point at a percentage of GDP value of 44.68% in its history. This expansion of the export rate encouraged growth in the average with a value of 35.35% of GDP.

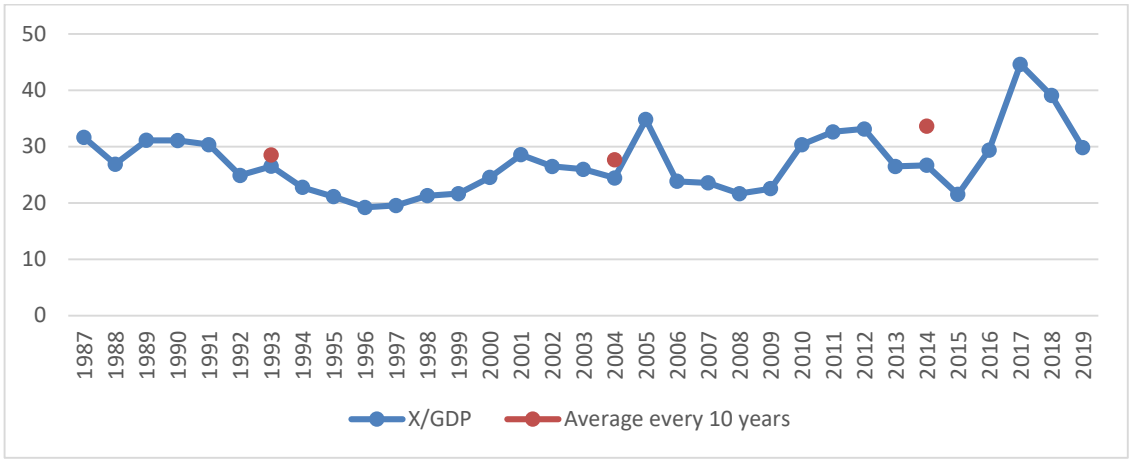

Figure 2.5: The Ratio of Export to GDP in the Republic of Guinea

Source: World Bank

Table 2.3: Export in the Republic of Guinea

Years	EXPORT		
	Nominal value (Million GNF)	Constant value (Million GNF)	Export (% of GDP)
1986	206 854	5 143 390	32,27
1987	276 648	5 405 300	31,63
1988	303 956	4 881 780	26,87
1989	447 406	5 874 720	31,09
1990	547 080	6 125 130	31,08
1991	689 398	6 134 650	30,33
1992	736 968	5 195 640	24,87
1993	830 862	5 818 400	26,52
1994	751 749	5 190 260	22,75
1995	773 368	5 039 600	21,12
1996	745 635	4 784 910	19,19
1997	810 687	5 128 810	19,56
1998	944 750	5 784 640	21,29
1999	1 039 170	6 104 680	21,64
2000	1 283 210	7 091 550	24,52
2001	1 577 250	8 566 400	28,54
2002	1 543 430	8 346 580	26,48
2003	1 775 690	8 284 480	25,96
2004	2 008 920	8 043 680	24,42
2005	3 723 340	11 702 700	34,79
2006	5 176 500	8 109 660	23,82
2007	6 210 370	8 563 940	23,55
2008	6 935 120	8 194 460	21,64
2009	7 260 990	8 430 200	22,52
2010	11 906 900	11 906 900	30,34
2011	14 728 300	13 512 300	32,60
2012	17 681 500	14 546 500	33,14
2013	15 317 100	12 078 400	26,47
2014	16 433 000	12 628 000	26,69
2015	14 151 200	10 560 700	21,50
2016	22 641 900	15 990 600	29,34
2017	41 906 500	26 796 100	44,61
2018	42 959 400	24 909 600	39,05
2019	37 184 200	20 062 400	29,79

Source: World Bank

3.4. Gross Domestic Product

Gross domestic product (GDP) is the most accurate economic indicator for estimating the production of goods and services in a country over a period typically one year. The Republic of Guinea has always experienced progress over the years (as shown in the graph 3.6.). Looking at data from the World Bank, the Republic of Guinea recorded a gradual growth from $235 per capita in 1987 to $929 per capita in 2019, an increase of 407% during the period from 1987 to 2019. The period of our study, which spans almost the period of analysis of the World Bank, respectively 1987-2019 and 1986-2018, has progressively recorded averages over the three decades that compose it.

The beginning of the first decade coincided with the beginning of the second republic, which had undertaken structural and institutional reforms in order to improve the macroeconomic conditions through the increase of foreign investments inflows and the gross fixed capital formations which are the great stimulators of gross domestic product. The implementation of all these reforms allowed to obtain with the real GDP an average value of $ 392 767 367.69 during the first decade of the study.

The second decade of the study, the period in which President Lansana Conté (President of the Second Republic) was re-elected early in December 1998 due to political instability caused a decline in national GDP. During this decade, a third vast structural adjustment program (SAP) was put in place with the objective of reforming public enterprises and improving governance, improving the management of public expenditure, and strengthening access to basic services. Despite this decline observed a little higher during these four consecutive years, the response to the return to political stability and the establishment of the SAP was concrete. Resulting in an average improvement in the value of real GDP which rose to $ 609 401 238.26 or a difference of $ 216 633 870.57 compared to the first decade.

The advent of the third republic that also allowed the revival of several reforms such as the national prospective study (NPS) "Guinea 2040" focused on the objective of making Guinean emerging and prosperous country in the next two decades. As mentioned above concerning the prospects of this reform, it participated in the improvement of certain economic sectors, which stimulated the growth of GDP during this last decade of the study. These reforms led to reach the peak since the history of Guinea republic with

a real value of GDP in dollars of 12 078 653 011.96 in 2019, showing the average of $847 014 146.61. The last decade has increased to $ 237 612 908.35.

The Republic of Guinea, during the last few years, has recorded a great performance that is the result of the control of budgetary expenditure and of a policy of mobilization of public revenue (introduction of stamp duties on imported vehicles, rationalization of the collection of import taxes on new vehicles ...).

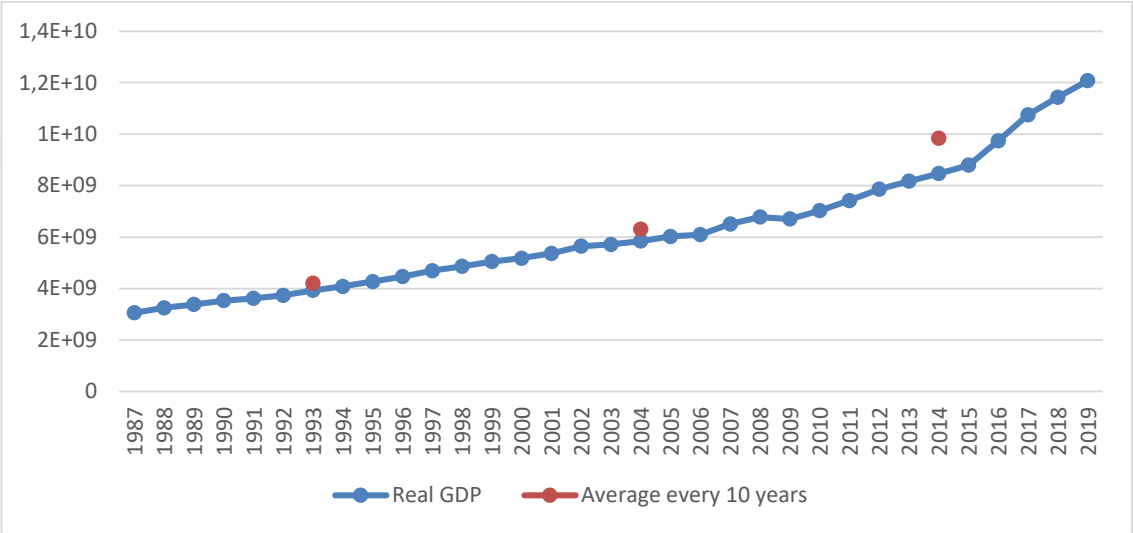

Figure 2.6: The Real GDP in the Republic of Guinea
Sources: World Bank

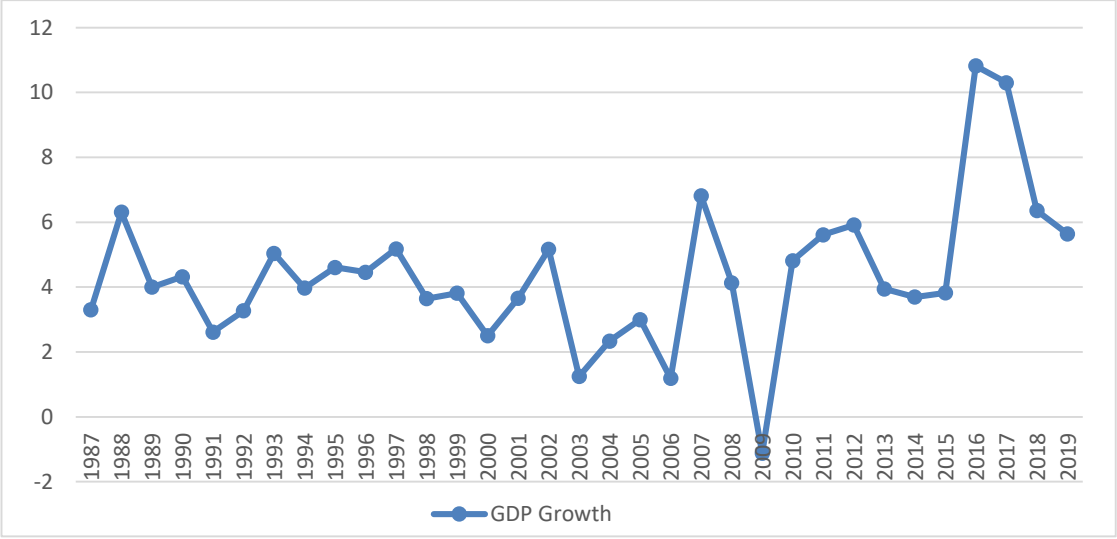

Figure 2.7: GDP Growth in the Republic of Guinea

Source: World Bank

Table 2.4: Gross Domestic Product in the Republic of Guinea

Years	GDP		
	Nominal value (Million GNF)	Constant value (Million GNF)	Growth
1986	641 096	15 940 700	
1987	874 600	17 088 400	7,20
1988	1 131 100	18 166 400	6,31
1989	1 438 900	18 893 700	4,00
1990	1 760 410	19 709 600	4,32
1991	2 272 800	20 224 600	2,61
1992	2 962 740	20 887 400	3,28
1993	3 133 110	21 940 700	5,04
1994	3 304 170	22 812 900	3,98
1995	3 662 030	23 863 400	4,60
1996	3 884 570	24 928 200	4,46
1997	4 144 480	26 220 000	5,18
1998	4 438 220	27 174 900	3,64
1999	4 802 190	28 210 800	3,81
2000	5 232 510	28 916 900	2,50
2001	5 526 800	30 017 300	3,81
2002	5 828 020	31 516 900	5,00
2003	6 840 950	31 916 500	1,27
2004	8 227 040	32 940 900	3,21
2005	10 703 700	33 642 400	2,13
2006	21 727 800	34 039 400	1,18
2007	26 369 900	36 363 500	6,83
2008	32 047 000	37 866 400	4,13
2009	32 248 400	37 441 300	-1,12
2010	39 243 400	39 243 400	4,81
2011	45 175 700	41 445 800	5,61
2012	53 358 100	43 897 500	5,92
2013	57 864 600	45 629 500	3,95
2014	61 573 300	47 316 200	3,70
2015	65 829 100	49 126 500	3,83
2016	77 159 000	54 492 700	10,92
2017	93 942 600	60 069 400	10,23
2018	110 000 000	63 782 400	6,18
2019	124 811 000	67 340 700	5,58

Source: World Bank

Table 2.5: Trend of Some Macroeconomic Indicators from the Republic of Guinea

	GDP (annual %)	Net export (% of growth)	Inflation (annual %)	FDI inflows (% of growth)	Employment (% of population)	CAB (% of GDP)	Unemployment, total (% of total labor force)
2006	1,19	-14,35	34,70	2,962	61,38	-5,25	4,70
2007	6,82	-12,80	18,18	6,143	61,38	-7,24	4,67
2008	4,13	-12,10	23,07	5,483	61,31	-6,29	4,72
2009	-1,12	-11,73	4,68	1,355	61,22	-6,01	4,81
2010	4,81	-10,88	15,46	0	61,19	-4,77	4,77
2011	5,61	-18,23	21,35	14,09	61,13	-17,12	4,79
2012	5,92	-22,13	15,23	7,928	61,06	-13,60	4,82
2013	3,95	-28,85	11,89	0,002	60,97	-14,20	4,87
2014	3,70	-23,78	7,07	-0,84	60,89	-11,18	4,90
2015	3,83	-29,45	10,82	0,606	60,81	-11,60	4,92
2016	10,82	-51,77	8,17	18,83	60,73	-31,93	4,88
2017	10,30	-15,21	8,91	5,594	60,61	5,03	4,91
2018	6,36	-11,33	9,83	2,975	60,46	-1,61	4,98
2019	5,62	-15,05	9,47	0,33	60,34	-2,34	5,02
2020	4,64	51,46	10,60	1,245	57,93	18,95	6,10
2021	3,12	50,22	12,60		58,18	29,27	6,34

Source: World Bank Database

The economy of the Republic of Guinea is an economy with a very fragile structure. This fragility is generally explained by certain internal factors, namely political troubles, the pandemics such as the Ebola virus, Covid-19, poor policies for the management of public funds and others. Referring to Table 2.5, the year 2021 recorded a slight decrease of economic growth from 4.64% in 2020 to 3.12% in 2021, an increase in inflation from 10.60% to 12.60% during the same period. The contribution of net export to economic growth was fruitful since 2020 because it perfectly increased from -15.05% in 2019 to 51.46% in 2020, then 50.22% in 2021 leading to an increase of the current account balance from -2.34% in 2019 to 18.95% in 2020, then to 29.27% in 2021. The employment rate during this same period slightly increased to 58.18%. This changes were the results of all reforms that was adopted by the government to secure the development.

CHAPTER THREE

EMPIRICAL ANALYSIS

Chapter four of the study, which involve empirical analysis, is divided into five main sections. The first section looks at previous empirical studies that have focused on gross domestic production and investment relationship. The specification of the model will therefore be followed by the description of all the dependent and independent variables. Section four which demonstrates the methodology adopted for the empirical analysis is finally followed by the empirical results which are represented in the last section of the chapter.

1. LITERATURE REVIEW

Foreign direct investment and gross fixed capital formation are such aggregates that influence economic growth that their low growth in Guinea has a negative impact on its economy. This analysis cannot be done without referring to certain studies already made to highlight the impact of each independent variable, namely gross fixed capital formation (GFCF) and foreign direct investment (FDI) on the dependent one, which is gross domestic product (GDP). In the announcement of the theoretical framework, some of the studies that have been made in different countries for the examination of the impact of foreign direct investment and gross capital formation on the gross domestic product will be highlighted.

Moudatsou (2003) in his empirical assessment for European Union countries, exhibit the effects of foreign direct investment on economic growth covering the period from 1980 to 1996. Through the regression model, it was evidence that the relation of economic growth and foreign direct investment appears to be different according to the level of countries development. It also underlines that gross domestic products may be stimulated by foreign direct investment through the level of the technology transfer.

Dritsakis, Varelas and Adamopoulos (2006) evaluate empirically the causal link among four macroeconomic indicators namely: gross domestic products, foreign direct investment, gross fixed capital formation and export for Greece covering the annual period data from 1960 to 2002. Johansen co-integration test is the methodology used to show the long-run equilibrium relationships among these variables. Granger causality test

prove that there is a unidirectional causality from FDI to GDP, Export to GDP and GFCF to GDP.

Sukar, Syed, and Seid (2006) underlined the effects of foreign direct investment on economic growth in Sub-Sahara African countries by using the panel data from 1975 to 1999. The quantitative analysis of this study is conducted by using the endogenous estimate growth method showed that foreign direct investment has a positive impact on economic growth but not statistically significant. They concluded that the low impact of FDI on economic growth could be explained by the low presence of foreign investments in African countries and those that register certain inflows focus precisely on the mining and energy sector.

The impact of foreign direct investment on economic growth in developing countries is a study conducted by Adewuni in 2006 focusing on Africa in general. This study is conducted using graphical and regression analysis with time series data for a period ranging from 1970 to 2003. The results of the analyzes demonstrated that investment has a positive impact in all African countries but in particular has a negative impact in some of its countries due to the quality of certain factors.

Keita and Yang (2010), in their study underline the contribution of foreign direct investment on Guinea Republic's economic growth, in the period from 1985 to 2008. The Granger Causality test results indicate that the economy of Guinea is not yet stimulated by foreign direct investment due to the faint of it. In revenge, the economic growth of Guinea's Republic stimulates foreign direct investment, so the more the value of gross domestic products increases more the propensity of foreign direct investment increases as well.

Babatunde (2011) focused on Sub-Saharan African Countries (SSAC) and investigated the relationship between foreign direct investment, trade openness, infrastructure, and economic growth over the period from 1980 to 2003. Through the regression model, proved that foreign direct investment (FDI) of countries in the sub-Saharan region depends on trade openness (import and export) and on the gross domestic product per capita. It is also shown that the link between the level of advanced infrastructure and international trade has a slight influence on the growth of FDI inflows.

The foreign direct investment significantly affects gross domestic product positively. The recommendation following this study is certainly that to ensure more sustainable economic growth in the sub-Saharan region, leaders have to deal with the improvement of infrastructure and international trade that can be key factors for attracting foreign investors.

Saqib, Masnoon and Rafique (2013), investigate the impact of foreign direct investment on the economic growth of Pakistan by using the ordinary least square method over the period of 1981 till 2010. Their findings indicate that foreign direct investment inflows to Pakistan affect its economic growth negatively while gross fixed capital formation has a positive impact on it. From these results, it is suggested to Pakistan's policies maker to limit foreign direct investment inflows and encourage domestic investment for its economic growth.

Ugochukwu and Chinyere (2013) analyzed the relationship between gross domestic products considered as the dependent variable, and capital formation, and some other macroeconomics indicators in Nigeria during the period of 1982-2011. In this analysis, it was shown through the ordinary least square that capital formation has a positive and significant impact on economic growth over the study period. Therefore, the investigation showed that in Nigeria the capital formation is one of the most important economic indicators that enhance national productivity.

Johnston and Ramirez (2015), due to the economic growth experienced by Ivory Coast over the past ten years, investigate the stimulation of Ivory Coast’s economic growth by foreign direct investment inflows covering the period of 1975 - 2011. Through unit root test and co-integration analysis, it was shown that in the short term, the gross capital formation positively affects the gross domestic product of Ivory Coast and foreign direct investment negatively affects gross domestic product (GDP) due to certain structural troubles in the country and to the repatriation of net income abroad. In this study the result showed that foreign direct investment is not a stimulator of economic growth in Ivory Coast. This negative impact, which is different from the results of several other studies, is partly due to certain factors related to the repatriation of net income outside Ivory Coast. In this empirical study, it turns out that despite the net inflows of foreign investment, the growth of the African economy in general, remains very weak.

Ferrer and Zermeno (2015) conducted a study considering foreign direct investment as an important factor that strongly stimulates economic growth. The study focused on different countries namely Peru, Brazil, South Korea, and China in the interval of 1995-2012. The vector autoregressive (VAR) being the estimator model, it is shown that there is a positive link between foreign direct investment and economic growth in China but does not exist in the other countries. Through Toda Yamamoto causality, the relationship between foreign direct investment and economic growth is not like expected because economy growth is the one stimulating foreign direct investment and not vice versa.

Mahadika, Kalayci and Altun (2017) conducted the researches for Indonesia highlighting the link between gross domestic products and the export volume, and the foreign direct investment by using the time series data from 1981 to 2013. Through Johansen co-integration test, it was shown that foreign direct investment and export volume have a significant and positive impact on gross domestic products and clearly showed the long run relationship between the variables.

Alzaidy, Ahmad and Lacheheb (2017) analyzed the role of foreign direct investment in Malaysia economic growing through its financial development covering the period of 1975-2014. The Autoregressive Distributed Lag bound test approach was applied to show up the influence of foreign direct investment on economic growth in Malaysia. The results demonstrated that in Malaysia, more the level of foreign direct investment spills over, more the economic growth is considerable.

Okumoko, Akarara and Opuofoni (2018) emphasize the relationship among foreign direct investment, gross fixed capital formation and economic growth in Nigeria in taking account annual data from 1981 to 2016. Johansen co-integration results indicate that there is a long run relationship among the variables. The error correction model showed that gross fixed capital formation has a positive and significant effect on gross domestic products, while foreign direct investment has a positive effect but not significant. Through Pairwise Granger causality test, there is a bi-directional causality between FDI and GFCF and a unidirectional causality from FDI to GDP.

Filho and Diallo (2018), investigate the influence of foreign direct investment (FDI) on the economic growth of Senegal during the period of 1970 - 2013. For this

analysis, the Vector Auto Regression (VAR) model was used, and then Toda and Yamamoto causality approach for the complementary. The result showed that in the long run and short-run term, all the variables include export (X) and foreign direct investments (FDI) affect positively gross domestic product (GDP) in Senegal. On the other hand, import (M) and gross fixed capital formation (GFCF) affect negatively the economic growth. The negative influence of imports on economic growth was anticipated because of the rapid growth of foreign purchases in Senegal and this enhances the balance deficit (impact of goods is superior that export of goods). Turning to the side of gross fixed capital formation, its negative effect is may be linked with the industrial structure of Senegal which consists of mining and food sectors and manufacturing. Referring to the result of the analysis, it is conclusive to know that Senegalese politics and its economy tend to procure skills for the growth of foreign direct investments (FDI). Furthermore, the groundwork of the country's economic activities is the economic openness and the international exchange activities. Hence, the assumption of import-led-growth or export-led-growth is not supported in the Senegalese economic growth model.

Gokmen (2021) investigates the relationship of the real gross domestic products and foreign direct investment inflows in Turkey considering the period from 1970 to 2019. The Vector Error Correction Model indicates that there is a significant short run and positive relationship between the variables and according to the Granger Causality Test results, there is a unidirectional causality from GDP to FDI inflows. Therefore, a foreign direct investment inflow is not considered as a significant driver of economic growth in Turkey.

2. THE SPECIFICATION OF THE MODEL

Economic growth is approximated by the growth of gross domestic product. The growth of the latter can be stimulated by the presence and management policy of several other variables, namely: FDI, GFCF etc.

Our assumption is that foreign direct investment; gross fixed capital formation affects gross domestic product.

$$GDP_t = [FDI_t\ , GFCF_t\ , \dots\dots\dots t] \quad \textbf{(3.1)}$$

Where (t) denotes the time.

Dunning (1993) mentions in his research that the flows of foreign direct investment, which may be essential for the economic growth, depend on the level of development and its political stability. The Republic of Guinea, being a developing country rich in raw materials, represents an attractive country for FDI. For a test of the hypotheses mentioned above, some statistical data under a period of 32 years (1987-2019) were examined.

The estimation model was as follows:

$$GDP = \beta_1 + \beta_2 FDI + \beta_3 GFCF + \mathcal{E}t \quad \textbf{(3.2)}$$

Where:

- GDP represents the growth the gross domestic product;
- β_1 is the constant;
- FDI is the ratio of foreign direct investment to gross domestic product;
- β_2 represent the coefficient of FDI
- $GFCF$ is the ratio of gross fixed capital formation to gross domestic product;
- β_3 represent the coefficient of GFCF;
- $\mathcal{E}t$ is the error term.

3. DESCRIPTION OF THE VARIABLES

The description of the variables is made in this section by first defining the different variables and then shows the transformation of the used data.

3.1. Gross Domestic Product

Gross domestic product is an economic indicator that serves as an assessment of a country's wealth production. It is a measure of the value of the final goods and services manufactured by a country over a given period (generally a year). Even if, it is considered as the most important macroeconomic indicator to represent the country's economic activities, it is not considered as a good measure of the well-being of society. Gross domestic product is only limited to measure people's goods and service (OECD, 2009: 16). The used data are from World Bank and in local currency.

The economic growth formula is given in equation below:

$$GDP\ growth = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} * 100 \quad \textbf{(3.3)}$$

3.2. Foreign Direct Investment

According to the OECD (2008), foreign direct investment represents a main factor in the rapid involve international integration and globalization. It is the indicator that create stable, long-lasting and direct relation between different economies and can be a great stimulator for the development of local entities with the help of the right policies environment. We apply FDI as a ratio to GDP in our model by using the local currency values.

$$FDI = \frac{FDI_t}{GDP_t} * 100 \quad \textbf{(3.4)}$$

3.3. Gross Fixed Capital Formation

Gross fixed capital formation (formerly gross domestic fixed investment) includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchase; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings (World Bank Database). Data are in current local currency and it is the ratio of GFCF to GDP as it can be seen from the equation 4.5.

$$GFCF = \frac{GFCF_t}{GDP_t} * 100 \quad \textbf{(3.5)}$$

4. METHODOLOGY

This part of the study is characterized by the empirical framework of the impact of foreign direct investment and gross fixed capital formation on the economic growth of the Republic of Guinea. The relationship between investment, whether foreign or domestic, and economic growth has been the basis of several other econometric analyzes and the various results obtained relate on the one hand to positive relationships and on the other to negative ones between these variables.

This part of the study is first of all characterized by the determination of the level of integration of the variables through the unit root test. The unit root test includes the analyses with Augmented Dicky-Fuller (ADF), Phillips Perron (PP), Kwiatkowski-Phillips-Schmidt-Shin (KPSS) and Ng-Perron. This determination of the level of

integration will make it possible to opt for the bound test procedure which is applicable with the level of integration I(0) and/or I(1). The bound test method consists first of all of the estimation of the model which will allow moving on to the optimum lag length selection. Following this, the long-run cointegration of the variables will be elucidated through the ARDL model and then the error correction model is applied to determine the impact of the independent variables on the dependent one in the short-run. Finally, Toda Yamamoto Causality test will be applied to identify directional causality between variables.

4.1. Stationarity and Unit Root Test

Unit root testing is applied to check up the stationary of variables. The non-stationary or stationary of variables in the fact that it can strongly affect its properties and behavior. Unit roots are defined as an autoregressive moving-average (ARMA) or a nonstationary autoregressive (AR) time series processes. They are better represented by following equation (Herranz, (2017: 1):

$$Y_t = Y_{t-1} + \mathcal{E}t \quad \textbf{(3.6)}$$

Where $\mathcal{E}t$ represents the error terms or random innovations and Y_t and Y_{t-1} represent the time series.

The problem of unit root is mentioned to the autoregressive first-order AR (1) if the coefficient Φ (-1$\leq \Phi \leq$ 1) of the time series Y_{t-1} in the equation 4.7. is equal to 1 (Nkoro and Uko, 2016: 69)

$$Y_t = \Phi Y_{t-1} + \mathcal{E}t \quad \textbf{(3.7)}$$

Φ = 1: The variable Y_t has a unit root or it is not stationary in level.

It seems obvious that most estimation methods are likely to be applied in any case to stationary variables. This stationary of variables can be defined at several levels by applying the unit root test.

A time series integrated of order zero is stationary in levels I (0). Some time series need to be appropriately integrated in order one I (1) to achieve stationary. From this

Engle and Granger, 1987 defined the integration: A variable Y_t is said to be integrated of order d, if it has unit root, invertible, non-deterministic autoregressive moving average (ARMA) representation after differencing d times , while for a time series integrated of order one, the first difference is stationary (Engle and Granger, 1987).

Granger (1986) lined up the principal differences between I (0) and I (1) proceedings. He mentioned that an I (0) series: (i) has a finite variance, which is not a function of time, (ii) has only a limited memory of its past behavior (i.e. the effects of a particular random innovation are only transitory), (iii) tends to fluctuate around the mean, and (iv). The increases of the lag make its autocorrelations decline spontaneously. Concerning I (1) series: (i) time only defines the variance and as time goes on, variance lies on it, (ii) contrary to I(O), I (1) has an unlimited memory (an innovation can permanently affect the proceedings over time), (iii) it drifts generally and (iv) the autocorrelations tend to one in magnitude for all time separations (Granger, 1986).

In general, the estimation methods used for econometric analyzes to determine co-integration between variables are those of Johansen (1988), and Johansen-Juselius (1990), which require that all variables must be stationary at first difference I (1) and not at level I (0) (Taşçı et al., 2009: 109).

Similarly, the ordinary least square method discovered by Carl Friedrich Gauss (1795), predicts that all variables must be stationary at level I (0). On the other hand, Pesaran et al. (2001) developed the bound testing. A method capable of combining the two levels of stationary, namely the level I (0) and the first-difference I (1) while not including the second difference I (2).

In the present study, the stationary tests are carried out by using four-unit root tests namely Augmented Dickey-Fuller (ADF), Phillips-Peron (PP), Kwiatkowski-Phillips-Schmidt-Shin (KPSS), and Ng-Peron tests.

4.1.1. Augmented Dickey-Fuller Unit Root Test (ADF)

Dickey and Fuller performed earlier the testing for unit root using the time series data. It examines the null hypothesis ($\Phi = 1$) of an Autoregressive Integration Moving Average (ARIMA) against stationary and other alternative. The basic equation of Dicker and Fuller is represented in following equation (Mushtaq, 2011: 6):

$$Y_t = \Phi Y_{t-1} + \mathcal{E}t \quad \textbf{(3.8)}$$

Against the one-side alternative: $\Phi < 1$.

We usually write the regression as followed:

$$Y_t - Y_{t-1} = \Phi Y_{t-1} - Y_{t-1} + \mathcal{E}t$$

$$\Delta Y_t = (\Phi - 1)\, Y_{t-1} + \mathcal{E}t$$

let's supposed that ($\Phi - 1 = \delta$)

$$\Delta Y_t = \delta Y_{t-1} + \mathcal{E}t \quad \textbf{(3.9)}$$

With the presence of the constant (intercept), it is written as bellow:

$$\Delta Y_t = \beta_0 + \delta Y_{t-1} + \mathcal{E}t \quad \textbf{(3.10)}$$

With the presence of the intercept and the trend term, the equation follows the model:

$$\Delta Y_t = \beta_0 + \beta_t + \delta Y_{t-1} + \mathcal{E}t \quad \textbf{(3.11)}$$

The Augmented Dickey-Fuller test extend the simple version of Dickey Fuller test because of the error term unexpected to be white noise. For this test extension, the extra lagged is added in term of dependent variables in order to eliminate the autocorrelation problem. It can be illustrated as bellow (Mushtaq, 2011: 9):

$$Y_t = \beta_1 + \beta_2\, Y_t + \mathcal{E}t \quad \textbf{(3.12)}$$

$$Y_t = \beta_1 + \beta_2\, Y_t + \beta_3\, Y_{t-1} + \mathcal{E}t \quad \textbf{(3.13)}$$

$$Y_t = \beta_1 + \beta_2\, Y_t + \beta_3\, Y_{t-1} + \beta_4\, Y_{t-2} + \mathcal{E}t \quad \textbf{(3.14)}$$

Now,

$$\Delta Y_t = \Upsilon\, Y_{t-1} + \beta_1\, \Delta Y_{t-1} + \mathcal{E}t \quad \textbf{(3.15)}$$

$$\Delta Y_t = \Upsilon\, Y_{t-1} + \beta_1\, \Delta Y_{t-1} + \beta_2\, \Delta Y_{t-2} \ldots\ldots\ldots\ldots + \beta_p\, \Delta Y_{t-p} + \mathcal{E}t \quad \textbf{(3.16)}$$

This formula is applied until obtaining a result without autocorrelation problem. So, this expression could be writing like the equation given below:

$$\Delta Y_t = \beta_0 + \beta_t + \Upsilon Y_{t-1} + \alpha_j \sum_{n=1}^{m} \beta_1 \Delta Y_{t-1} + \mathcal{E}t \qquad \textbf{(3.17)}$$

Notes:

Δ: represent the first difference operator

$Y(t)$: denotes the time series

β_0: represent the constant value

m: denotes the optimal lag

β_1: represent the coefficient of the time series

$\mathcal{E}t$: represent the error terms.

- **The hypotheses**

- H_0: variables has unit root test (Not stationary: $\Upsilon = 0$)
- H_1: variables has not unit root test (stationary $\Upsilon < 0$)

If the Probability < ð (5%) or |t-statistics| > |CriticalValue|:

- H_0 is rejected because of its non-support stationary hypothesis;
- H_1 is maintained because of its support stationary hypothesis.

4.1.2. Phillips-Perron Unit Root Test (PP)

Phillips-Perron (1988) propose a nonparametric method to correct for the presence of autocorrelation, without resorting to adding delayed endogens as in the augmented DF method. Phillips and Perron (1988) developed another test which is robust against an auto correlated error term and which relies on a "non-correction parametric" which eliminates the bias introduced by the autocorrelation of the error. It's about essentially to use the regression equation (4.19.) without modification, to calculate the usual t and F statistics, and then modify them to account for the possibility that the error term is auto correlated. Perron and Phillips demonstrate that the distributions asymptotic of the modified statistics

are the same as those of the model without autocorrelation of errors (Bouhadi and Ouahid, 2014: 8). The test procedure consists of testing the unit root hypothesis H_0: $\delta = 0$ in the following models:

$$\Delta Y_t = \beta_0 + \beta_t + \ \delta Y_{t-1} + \mathcal{E} \quad \textbf{(3.18)}$$

$$\Delta Y_t = \beta_0 + \ \delta Y_{t-1} + \mathcal{E} \quad \textbf{(3.19)}$$

$$\Delta Y_t = \beta_t + \ \delta Y_{t-1} + \mathcal{E} \quad \textbf{(3.20)}$$

Notes:

Δ: represent the first difference operator

$Y(t)$: denotes the time series

β_0: represent the constant value

δ: represent the coefficient of the time series

β_t: Deterministic trend

$\mathcal{E}t$: represent the error terms or the innovations process.

- **The Hypotheses**

Phillips-Peron (1998) evaluates that the time series data has unit root. The null hypothesis is that the data contains a unit root, and the alternative is that the variable is already bringing about a stationary process. While the augmented Dicky-fuller test uses additional lags of the first-differenced variable, Phillips-Peron performs Newey west (1987) standard errors term to reckon for serial correlation (Ertur, 1998: 13).

- H_0: variable has unit root test (Not stationary: $\delta = 1$)
- H_1: variable has not unit root test (stationary $\delta < 1$)

If the Probability < ð (5%) or |t-statistics| > |CriticalValue|:

- H_0 is rejected because of its non-support stationary hypothesis;
- H_1 is maintained because of its support stationary hypothesis.

4.1.3. Kwiatkowski-Phillips-Schmidt-Shin Unit Root Test (KPSS)

Kwiatkowski-Phillips-Schmidt-Shin is a model of unit root tests that analysis for the stationary of a selected series around a deterministic trend. Different from the previous analyses, KPSS test relies on the null hypothesis (H_0) of stationarity against the alternative

hypothesis (H_1) of unit root. The establishment of the test statistic is based beforehand on the decomposition of the underlying process of the series studied (Y_t) in a linear deterministic trend $\beta_0 t$, a random walk β_t , let $\beta_t = \beta_{t-1} + \varepsilon t$ and εt represent a white noise, and a stationary random component. It represents a model where the series of observations is represented as a sum of three components: deterministic trend, a random walk, and a stationary error term. The model is written as the following equation (EL Bouhadi and Ouahid, 2016: 284)

$$Y_t = \beta_0 t + \beta_{t-1} + \varepsilon t \qquad \textbf{(3.20)}$$

Where:

Y_t, ($_t$) =1, 2, …, X: represents the of observations of the studied variables

t: Denotes the deterministic trend

β_0: The coefficient of the deterministic trend

β_{t-1}: Represents the random walk process

εt : Represents the error terms.

- **The Hypotheses**

- H_0: var has not unit root test (stationary)
- H_1: var has unit root test (stationary)

If T-Statistic > Critical Value:

- H_0 is rejected
- H_1 is accepted

If T-Statistic < Critical Value: H_0 cannot be rejected.

4.1.4. Ng-Perron Unit Root Test

According to Ng-Perron (2001), despite the significant effect of the presence or absence of the unit root in the analysis, many scientists nevertheless remain unconvinced by the results obtained from these tests. However, these tests encounter two problems. First, many tests have low power when the root of the autoregressive polynomial is less than one even if it is close to it. Second, generally, the tests cause a strong deformation or distortion of error term when the negative moving average polynomial has a large negative root closer to -1. By modifying the Phillip Perron test and the value of deviation

or deformation observed, the Ng-Perron test obtains a more consistent result against the large distortion or deformation than the other unit root tests (Özgür, 2020: 20-21).

According to (Anna, 2006: 26), Ng-Perron (2001) is composed of four test statistics established on the generalized least squares (GLS) detrended data y_t^d. They represent the modified forms of the Phillip Perron test. Before enumerating the four test statistics, the term is defined as follow:

$$k = \sum_{t-2}^{T} \left(y_t^d - 1 \right) /^2 T^2 \quad \textbf{(3.21)}$$

So, the four generalized least squares detrended statistic models can be written as followed:

$$MZ_a^d = \{T^{-1}(y_T^d) - fo\}/(2k) \quad \textbf{(3.22)}$$

$$MZ_t^d = MZ_a \text{ xMSD} \quad \textbf{(3.23)}$$

$$MSD^d = [k \ / \ fo]^{1/2} \quad \textbf{(3.24)}$$

$$MP_t^d = \begin{bmatrix} (C^{-2}K - C^{-}T^{-1}Y_T^d)^2 \ / \ fo \\ \\ \{(C^{-2}K + 1 - C^{-}) \ T^{-1} \ (Y_T^d)^2\} \ / \ f \end{bmatrix} \quad \textbf{(3.25)}$$

- **Hypotheses**

  Two hypotheses defined the analysis:

- H_0: var has unit root test (Not stationary)
- H_1: var has not unit root test (stationary)

➢ **MZa and MZt test**

If |t-statistics| > |Critical Value:

- H_0 is rejected because of its non-support stationarity hypothesis;
- H_1 is maintained because of its support stationarity hypothesis.

If |t-statistics| < |CriticalValue|: The null hypothesis (H0) is maintained.

- **MSB and MPT test**

If T-Statistic < Critical Value:

- H_0 is rejected because of its non-support stationarity hypothesis;
- H_1 is maintained because of its support stationarity hypothesis.

If T-Statistic > Critical Value: The null hypothesis (H_0) is maintained.

4.2. Bound Testing Procedure

The bound testing is a procedure to demonstrate the co-integration between variables. It explains the short-run and the long run relationship between the variables. The bound test is made up by adopting the following steps (Kızılgöl and Ipek, 2014: 48)

- The estimation of the Unrestricted Error Correction Model (UECM) which is demonstrated in equation 4.24.:

$$\Delta GDP_t = \beta_0 + \sum_{i=-1}^{m} \beta_{1i} \Delta GDP_{t-i} + \sum_{i=0}^{m} \beta_{2i} \Delta FDI_{t-i} + \sum_{i=0}^{m} \beta_{3i} \Delta GFCF_{t-i} + \beta_4 GDP_{t-1} + \beta_5 LFDI_{t-1} + \beta_6 LGFCF_{t-1} + \varepsilon_t \quad (\mathbf{3.26})$$

- From the equation 4.24., the determination of the optimum lag length (m) is essential. For this determination, the optimum lag length which makes information about selection criteria that stipules to choose the minimum Akaike or Schwarz and do not include autocorrelation problem is selected.
- In order to decide about cointegration relationship wald test is applied to the coefficients of one lagged dependent and independent variables.

This analysis is done under two hypotheses:

- H_0: $\beta_1 = \beta_2 = \beta_3 = 0$; There is no co-integration relationship between variables.
- H_1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq 0$; There is the co-integration relationship between variables.

Two asymptotic critical values bounds provide a test for cointegration when the independent variables are I(d): a lower value assuming the regressors are I(0) and an upper value assuming purely I(1) regressors. If the F-statistic is greater than the upper

critical value, the null hypothesis of no long-run relationship can be rejected irrespective of the orders of integration for the time series. Contrarily, if the test statistic falls under the lower critical value the null hypothesis cannot be rejected. Finally, if the statistic falls between the lower and upper critical values, the result is inconclusive (Fosu and Magnus, 2006: 2081).

4.3. The Autoregressive Distributed Lag (ARDL) Model

In the next step of the empirical analyses, the procedure announced by Pesaran and Shin (1995) and Pesaran et al (1996b) which is the Autoregressive Distributed Lag model (ARDL) is applied to highlight the long-run and short-run relationship between the dependent and the independent variables. The issue of showing the proper lag length value for dependent and independent variables is very important to estimate the dependent variable in the Equation 4.30.

$$GDP_t = \beta_0 + \sum_{i=1}^{m} \beta_1 GDP_{t-i} + \sum_{i=0}^{m} \beta_2 FDI_{t-i} + \sum_{i=0}^{m} \beta_3 GFCF_{t-i} + \varepsilon_t \quad \textbf{(3.27)}$$

$$\Delta GDP_t = \beta_0 + \beta_1 \mathrm{ECT}_{t-i} + \sum_{i=1}^{m} \beta_2 \Delta GDP_{t-i} + \sum_{i=0}^{m} \beta_3 \Delta FDI_{t-i} + \sum_{i=0}^{m} \beta_4 \Delta GFCF_{t-i} + u_t \quad \textbf{(3.28)}$$

The autoregressive distributed lag model analysis shows up the long-run relationship among the variables through the investigation of the long-run coefficients and their statistical significance. The use of ARDL model with the Equation 4.31. allows to achieve the detection of the short-run relationship between the different through the application of the error correction model. In this, the first difference of the dependent variable is to be estimated by applying the lagged value of all the variables. The error correction term that is supposed to be negative obtained from ARDL model is composed of one lagged error term. The negativity of that term prove the existence of the short-run relationship between the variables (Kızılgöl and Ipek, 2014: 48).

4.4. Toda Yamamoto Causality Test

The Toda-Yamamoto Granger Causality approach adopted a revised Wald test for restriction on each parameters of the Vector Auto Regression VAR (k), where the lag length is k. The actual order of the system (k) is supplemented by the highest order of integration (dmax). The VAR (k + dmax) is estimated with the coefficients of the last lagged dmax vector being ignored. The Wald statistic adopts a chi-square allocation of a function with degrees of freedom that corresponds to the number of eliminated lagged variables. Carry out the cointegration is not enough to outline the direction of the causality flow among the variables. In order to determine the direction through Toda Yamamoto Test for Granger Causality, the maximum order of integration (dmax) has to be determined by the use of ADF unit root test. Then you can generate the VAR representation of equation to obtain the optimal lag (k) of the variance. The lag length of the variables is at the end obtain by adding the maximum order of integration and the optimal lag (Ekeke, 2020: 2).

5. EMPIRICAL RESULTS

The empirical results section allows us to analyze and explain the results obtained through the statistical data collected. It is composed as followed: (i) the result of the unit roots test, which defines the level of stationarity of each variable; (ii) the result of the bound test, which deduces the cointegration between the dependent and independent variables; (iii) the long-term outcome from ARDL model; (iv) the result of the error correction model, which explains the relationship between the variables in the short-term; (v) and the result of Toda Yamamoto Causality Test, that explains the direction of causal relationship between variables. The applied variables in our study are the growth of GDP and the ratio of FDI and GFCF to GDP by using the local currency value from the period 1987-2019.

5.1. Result of Unit Root Test

The analysis through the unit root demonstrated that the variables namely gross domestic product, foreign direct investment and gross fixed capital formation are respectively stationary at the level I (0) and I (1), which highlights that the procedure of bound test is applicable because it supports integration in order I(0) and I(1).

Table 3.1: Unit Root Test Results

Variable	ADF	PP	KPSS	NG-PERRON				Decisions
				MZa	MZt	MSB	MPT	
GDP	**-3.89^{C}(0)*** -3.65(1%) -2.95(5%) -2.61(10%)	**-3.89 ^{C}(0)*** -3.65(1%) -2.95(5%) -2.61(10%)	**0.26^{C}(0)*** 0.73(1%) 0.46(5%) 0.34(10%)	**-11.39 ^{C}(0)**** -13.80(1%) -8.10(5%) -5.70(10%)	**-2.38^{C}(0)**** -2.58(1%) -1.98(5%) -1.62(10%)	**0.20 ^{C}(0)**** 0.17(1%) 0.23(5%) 0.27(10%)	**2.15 ^{C}(0)**** 1.78(1%) 3.17(5%) 4.45(10%)	**I(0)**
FDI	**-6.35^{CT}(2)*** -4.29 (1%) -3.56 (5%) -3.21(10%)	**-5.54 ^{CT}(13)*** -4.27 (1%) -3.55 (5%) -3.21 (10%)	**0.22^{C}(12)*** 0.73 (1%) 0.46 (5%) 0.34 (10%)	**-17.76 ^{C}(4)*** -13.80(1%) - 8.10(5%) 5.70(10%)	**-2.97^{C}(10)*** -2.58(1%) -1.98(5%) -1.62(10%)	**0.16^{C}(10)*** 0.17(1%) 0.23(5%) 0.27(10%)	**1.39^{C}(10)*** 1.78(1%) 3.17(5%) 4.45(10%)	**I(0)**
GFCF	**-4.68 ^{CT}(0)*** -4.27 (1%) -3.55 (5%) -3.21(10%)	**-4.80 ^{CT}(3)*** -4.27 (1%) -3.55 (5%) -3.21 (10%)	**0.17^{CT}(3)**** 0.21 (1%) 0.14 (5%) 0.11 (10%)	**-19.15^{C}(3)**** -23.80(1%) -17.30(5%) -14.20(10%)	**-3.09^{C}(0)**** -3.42(1%) -2.91(5%) -2.62(10%)	**0.16^{C}(0)**** 0.14(1%) 0.16(5%) 0.18(10%)	**4.76 ^{C}(0)**** 4.03(1%) 5.48(5%) 6.67(10%)	**I(0)**

Notes: The parenthesis value shows the lag lengths determined by Schwarz Criterion in ADF test. Bartlett Kernel estimation method is used in PP, KPSS and NG-Perron tests, bandwidth is determined as Newey-West; C: represent constant; CT: represent constant and trend; (*), (**): represent respectively the stationarity at 1% and 5% level.

5.2. Bound Test Result

The result of bound test is obtained after the selection of the optimum lag which will allow us to obtain the F-statistic through the analysis. The Table 4.2. includes the information about the optimal lag selection process for unrestricted error correction model. The optimal lag is selected by choosing the minimal Akaike or Schwarz criteria, and does not include an autocorrelation problem. The optimal lag length is determined as 3. Because this length makes Schwarz criteria minimum and also does not create an autocorrelation problem.

Table 3.2: Results of Optimum Lag Selection

lags	Akaike	Schwarz	Auto-correlation (X^2 Breusch-Godfrey (2))
1	4.138	4.554	6.26 (0.04)
2	4.224	4.784	2.53 (0.28)
3*	3.772	**4.480**	4.91 (0.08)
4	**3.716**	4.572	1.50 (0.47)

Notes: X^2 BREUSCH- GODFREY is autocorrelation test statistics. The numbers in parenthesis are probability values; **(*)** shows the selected lag length.

The unrestricted error correction model is estimated with '3 lag', with which the Wald test is applied to the one lagged dependent and independent variable in UECM. The result from Wald test shows that the F- statistic is 7.706.

The result from unit root test shows that the variables of the model are I (0), so the F- statistic is compared to the lower bounds which are calculated by Pesaran et al. (2001). Since this F-statistic exceeds lower critical value 6.34 at 1% level, the null hypothesis of no co-integration relationship is rejected. Hence, the results from bound test support a co-integration relationship between the given variables.

Table 3.3: Results of Bound Test

k	F-Statistic	Critical value	
2	7.706	1% Significance level	
		Lower bounds	Upper bounds
		6.34	7.52

Notes: **k** shows the number of independent variables in the model. Critical values are taken from Table C1 (v) in Pesaran et al. (2001:300).

5.3. Result of Long Run Coefficients from ARDL (3, 4, 4) Model

The long run coefficients from ARDL model are represented in Table 3.4. The results from ARDL (3, 4, 4) Model show that foreign direct investment has a statistically significant negative long run effect on economic growth while the long run impact of gross fixed capital formation is statistically significant and positive. Cusum and Cusum SQ test results which are represented in Figure 3.1 put forth the stability of the parameters of the model.

Table 3.4: Long Run Coefficients from ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	-0.307437	0.098756	-3.113086	0.0071
GFCF	0.546905	0.089031	6.142841	0.0000
C	-6.485991	1.704718	-3.804729	0.0017

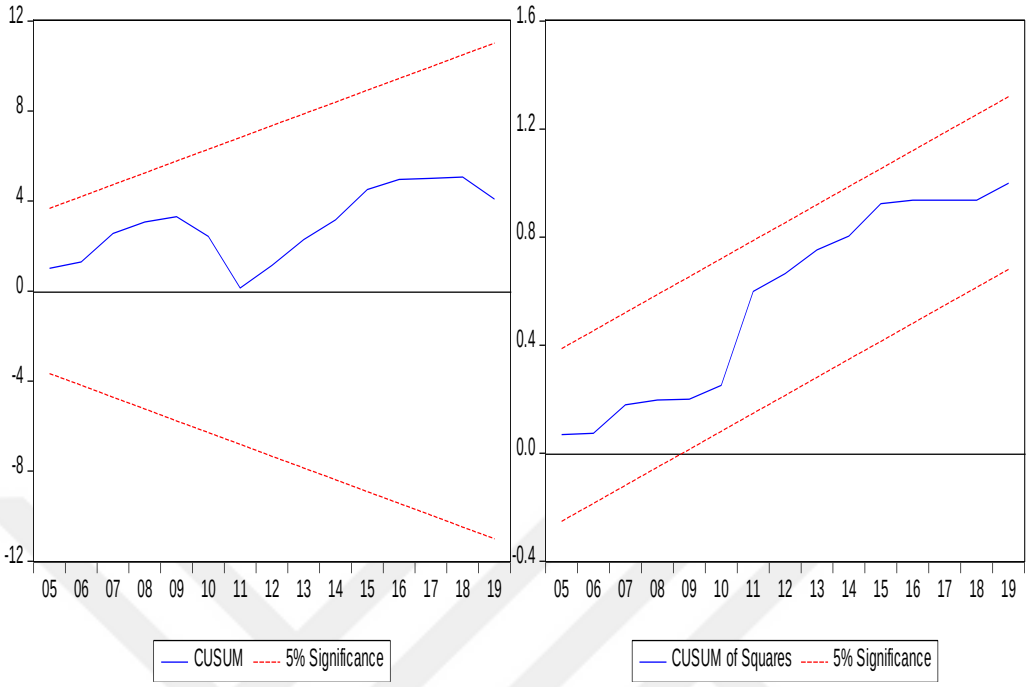

Figure 3.1: **The Results from CUSUM Tests**

The estimation results for long-run relations are represented in equation 3.28.

$$GDP = -6.485 - 0.3074\,FDI + 0.5469\,GFCF + \varepsilon_t \quad \textbf{(3.28)}$$

Keeping the other variable constant in the long run:

- If foreign direct investment increases at 1%, the gross domestic product decreases at 0.3074%;
- If the gross fixed capital formation increases at 1%, the gross domestic product increases at 0.5469%.

5.4. Results of Error Correction Model

The estimation results from Error Correction Model is represented in Table 3.5. The error correction model obtained from ARDL (3,3,4) model provides knowledge about the short run effects of variables on economic growth. The results demonstrate that the short run effect of foreign direct investment on economic growth is significantly positive. The short run effect of gross fixed capital formation on economic growth cannot be commented since its significant coefficients have both positive and negative signs.

Furthermore, it is showed that the error correction term's coefficient is significantly negative; this evidence gives support to the co-integration relationship between variables.

Table 3.5: Error Correction Model (Unrestricted Constant and No Trend)

Variable	Coefficient	Standard Error	T-Statistic	Prob.
C	-0.119704	0.021478	-5.573330	0.0001
D(GDP(-1))	0.433673	0.248027	1.748492	0.1008
D(GDP(-2))	-0.290323	0.186381	-1.557688	0.1402
D(FDI)	-0.003118	0.001634	-1.907758	0.0758
D(FDI(-1))	0.006373	0.001346	4.734412	0.0003
D(FDI(-2))	0.003333	0.001087	3.065340	0.0079
D(FDI(-3))	0.004048	0.001223	3.310877	0.0048
D(GFCF)	0.003193	0.000978	3.265557	0.0052
D(GFCF(-1))	-0.007649	0.001684	-4.542093	0.0004
D(GFCF(-2))	-0.005828	0.001435	-4.061472	0.0010
D(GFCF(-3))	-0.006395	0.001363	-4.690124	0.0003
CointEq(-1)*	**-1.845571**	0.330336	-5.586944	**0.0001**

5.5. Results of Toda Yamamoto Causality Test

The Autoregressive Distributed Lag Model estimation results demonstrate the relationship of the variables by indicating the short and long run impacts, but do not specify the direction of the causality among the variables and these results make the estimation incomplete. The causal relationships between the variables are investigated by Toda Yamamoto Causality Test. Toda Yamamoto test starts with the estimation of a VAR Model with optimal lag. The information about optimal lag selection for VAR Model is represented in Table 3.6. Optimal lag is determined as 4 according to Akaike Criteria. Since the maximum order of integration for variables is found to be 0, VAR (4+0) is estimated by SUR (Seemingly Unrelated Regression) method for Toda Yamamoto Causality Test. According to the causality test results that are given in Table 3.7., there is bidirectional causality between foreign direct investment and economic growth.

Additionally, the empirical findings put forth a unidirectional causality from gross fixed capital formation to economic growth and foreign direct investment.

Table 3.6: Optimal Lag Selection for VAR Model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-231.1041	NA	2062.260	16.14511	16.28655	16.18941
1	-219.4470	20.09828	1725.968	15.96187	16.52764	16.13906
2	-198.4812	31.81024	774.4533	15.13664	16.12675*	15.44673
3	-193.4408	6.604652	1079.748	15.40971	16.82416	15.85270
4	-171.5812	24.12097*	500.0944*	14.52284*	16.36162	15.09872*

Notes: (*) represents the selected optimum lag at every test.

Table 3.7: Results of Toda Yamamoto Causality Test

HYPOTHESIS	**Chi-square**	**Result**
FDI is not Granger cause of GDP	9.55*	FDI↔ GDP
GDP is not Granger cause of FDI	19.35*	
GFCF is not Granger cause of GDP	38.88*	GFCF → GDP
GDP is not Granger cause of GFCF	4.89	
GFCF is not Granger cause of FDI	17.45*	GFCF → FDI
FDI is not Granger cause of GFCF	8.97	

Note: ↔ denotes bidirectional causality, → denotes unidirectional causality, * represents 1% significance level.

CONCLUSION AND RECOMMENDATIONS

By the 1980s, the birth of globalization which resulted to trade and foreign business inflows is known as the form of foreign direct investment between developed and undeveloped nations. Since then, foreign direct investment is represented as the main source of foreign trade through which economic growth is stimulated by the regulation of the balance of payment. It also represents a macroeconomic indicator that can be used for the growth of the rate of domestic investment hence the gross fixed capital formation as well as the increase of the export rate of the host country.

However, the influence of foreign direct investment may appear to be different depending on the level of economic growth of the host country and / or the type of investment, on the periods and policies pursued by the host countries. Some countries are excluded from the negative impacts of foreign direct investments that benefit greatly from the repercussions thanks to the quality of their institutions, to their political and economic stability, to their human capital and to the quality of their infrastructures.

Unfortunately, most of the developing countries, especially those of Africa, benefit little from the advantages of the inflow of foreign direct investments because of the orientation of capital towards mining or oil productions that are most often the basis of civil conflicts or political instabilities.

This study focuses on developing countries more specifically on the Republic of Guinea, a country in West Africa. The impact of foreign direct investment and domestic investment on the economic growth of the Republic of Guinea is empirically evaluated by time series methodologies. The time series consist of annual data covering the period of 1986-2019. The empirical analyses are utilized by Autoregressive Distributed Lag Model through which the bound testing procedure is applied. Additionally, the causality relations are examined by application of Toda-Yamamoto Causality Test.

According to the empirical results, there is a co-integration relationship among economic growth, foreign direct investment and gross fixed capital formation in the Republic of Guinea during the period under review. The long run coefficients from ARDL Model indicate negative impacts of foreign direct investment and positive impacts of domestic investment on economic growth. The short run influence of the independent

variables is determined by the estimation of Error Correction Model. The results put forth that foreign direct investment affects economic growth positively in the short run which results in an increase in the country's economic growth rate.

The analysis through Toda-Yamamoto Causality Test demonstrated that there is bidirectional causality between foreign direct investment and economic growth and unidirectional causality from gross fixed capital formation to gross domestic product and to foreign direct investment. Gross domestic product and foreign direct investment influence each other in the case of Guinea while gross fixed capital formation influence foreign direct investment and gross domestic product and not vice versa.

The weakness of the positive impact of foreign direct investment inflow on economic growth in Guinea during the period of the study can be explained according to the reasons given by the International Monetary Funds (IMF) in March 2018:

- Political instability: Since the seizure of power by the president of the second republic in 1984, Guinea has always experienced political unrest that prevents foreign investors from entering its territory.
- The low quality of infrastructure: The low margin of Guinean economic growth through foreign direct investment is also due to the low quality of infrastructures in Guinea, namely roads, public buildings, low access to electricity permanent and others.
- The weakness of institutions: The low quality of Guinean public and private institutions such as justice represents a major element in the non-attractiveness of foreign investors because it ensures the guarantee and the credibility of the country in the face of foreign and even local investors.
- The weakness of capital or human development: The Republic of Guinea with its low literacy rate less than 50% of the population recorded a decline in per capita income (2011-2015) which then led to the increase in the rate of poverty while reinforcing inequalities and the fragility of human development.

The Republic of Guinea on the political way with its major problem which is instability should first of all infiltrate in the establishment of social cohesion between the inhabitants of the different natural regions of Guinea through the acts going in the sense

of acceptance of each other despite ethnic and cultural differences. Following this, the establishment of true democracy which results in the acceptance of the power of the people by the people and for the people by the various Guinean political actors. All these political reforms should lead to a lasting peace that could attract more foreign investors to the country.

In the institutional framework, despite all the reforms adopted in the Republic of Guinea in previous years, it would be more useful to put in place, (as US President Barack Obama said during his visit to Ghana in 2009 that "Africa does not need strong men, but strong institutions) strong institutions and not strong men while eradicating the scourge of high corruption. This eradication would be possible if the executive power did not exert pressure on the judiciary. The judiciary in its full accomplishment could make the Republic of Guinea more credible in the face of foreign investors for their establishments.

Following the empirical analysis of this study, it is revealed that foreign direct investment is not an economic indicator that leads to the growth of gross domestic product in the Republic of Guinea as indicated by the result obtained by Johnston and Ramirez (2015) on the Ivory Coast. This non-stimulation of FDI can be caused by the repatriation of net income of foreign investors and sometimes national investors outside the country. In that fact, the authority of the country has to establish policies and institutions related to FDI that prevent resources from being drawn away from economic growth. According to the study conducted by Dunning and Narula (1996) on investment development paths, the Republic of Guinea would be at the first level out of five in its evolution with respect to foreign investment. According to Dunning and Narula, at this level of development, it is a priority for the Guinean government to put in place basic infrastructure and improve human capital through education and training. Following this first commitment, it should embark on a variety of economic and social policies that will affect the structure of local markets. Import protection and export subsidies are examples of such intervention at this stage of development.

To add to these recommendations, the Republic of Guinea should also opt for the type of foreign investment that could allow financing and also promote the professionalism of local companies. This type of investment is the Joint ventures. With the enumeration of a good management policy and the respect of the rules on both sides,

the two parties, namely the foreign investors and the host country will be able to benefit from this investment.

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