

**CHRISTIAN SERVICE UNIVERSITY COLLEGE**

**THE IMPACT OF FOREIGN DIRECT INVESTMENT ON THE ECONOMIC GROWTH  
OF GHANA FROM 1997 TO 2017**

**BY**

**SIMON OPOKU – MENSAH**

**AUGUST, 2019**

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**DISSERTATION SUBMITTED TO THE DEPARTMENT OF ACCOUNTING AND  
FINANCE OF CHRISTIAN SERVICE UNIVERSITY COLLEGE IN PARTIAL  
FULFILLMENT OF THE REQUIREMENT OF THE AWARD OF THE DEGREE OF  
MASTER OF SCIENCE IN ACCOUNTING AND FINANCE**

**AUGUST, 2019**

**DECLARATION**

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature..... Date.....

Simon Opoku – Mensah

**Supervisor's Declaration**

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by Christian Service University College.

Supervisor's Signature ..... Date.....

Dr. Stephen Banahene

## **ABSTRACT**

The main objective of this study is to assess the impact of Foreign Direct Investment (FDI) on the economic growth of Ghana. To achieve the objective, this paper has carried out statistical analyses of the relationship between FDI and its impact on selected macroeconomic indicators such as Gross Domestic Product (GDP), Gross Domestic Product growth rate (GDPg), Gross National Income (GNI), Inflation rate, Balance of Trade (BOT), and Balance of Payment (BOP). The study has analyzed time series data over a period of Twenty – one years, from 1997 to 2017. Multiple Regression Analyses were used to evaluate the relationship between independent variable (FDI) and the dependent variables (macroeconomic indicators). It was discovered that there is a positive correlation between FDI and economic growth and may be a concern for the government of Ghana. The government might focus on needed reforms and policy implications to make foreign investment more useful and advantageous.

## **KEY WORDS**

Economic Growth

Foreign Direct Investment

Insignificant

Negative Effects

Positive Effects

Significant

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**DEDICATION**

To God be the glory.





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## **CHAPTER ONE**

### **INRODUCTION**

#### **1.1 Background of the Study**

The effect of Foreign Direct Investment (FDI) on economic growth is a highly discussed subject in academia. Some experts argue that there is a strong positive relationship between FDI and economic growth (Mengistu & Adams, 2007). It has been acclaimed that FDI is vibrant to aid capital formation for developing countries, to transfer knowledge and technology, and to create

employment which might have a direct affirmative impact on economic growth (Al-Iriani & Al-Shamsi, 2009). Moreover, Sylvester (2005) claims that FDI impacts domestic investment which further encourages economic development of the host country.

However, some researchers show that FDI might have adverse impact on economic development of the host country (Hermes & Lensink, 2003). The repatriation of profit by foreign firms risks the host country's balance of payments (BOP; Kentor, 1998). Fry (1999) argues that FDI has decreased the rate of national saving, domestic investment and, hence, economic growth in several developing nations.

A third view suggests that FDI can have a positive impact on the recipient country only if the recipient country has absorptive capacity in relation to the level of education, technology, infrastructure, human capacity, and political stability (Balasubramanyam, Mohammad, & Sapsford, 1996; Sanchez-Robles, 2003).

In Ghana and many other developing countries, FDI contributes immensely and has been main spur in terms of economic growth and development. This is because FDI has solved two main problems of insufficient technology and skills, and financial resources transfer. This has however made FDI an important instrument for many policy makers (Abdulai, 2005). Besides its ability to supplement domestic capital and aiding technological diffusion, FDI also plays other major roles in the economy of many countries including but not limited to effects on domestic productivity, output, employment, balance of payment, among others (Alfaro et al., 2006).

Many African countries including Ghana tend to view FDI as a way of supplementing their

insufficient capital and low technology level and therefore allocate a lot of resources both financial and human resource to attracting FDI to their countries. For example the Ghana Investment Promotion Centre (GIPC) was established under the GIPC Act, 2013 (Act 865) to promote and encourage investments in Ghana. It was also to ensure the creation of attractive incentive framework as well as predictable, transparent, and enabling atmosphere for investments in the country. As a result, FDI inflows have and continue to rise over the past few years. As at 2017, FDI net inflows (Balance of Payment, currency US\$) in Ghana was \$3,254,990,000. For the period under study, the figure hovered between \$3,254,990,000 in 2017 and \$81,800,000 in 1997 (source: world development indicators).

In spite of the above, documentation of the impact of this high amount of FDI flows in and out of the country has being very minimal over the years. Whiles Frimpong and Abayie (2006) could not find any causality between growth and FDI from 1970 to 2002 (period of pre SAP and post SAP), other researchers such as Antwi and Xicang (2013); Anokye and Tweneboah (2008); and Sackey et al (2012) found a strong direct link between economic growth and FDI as well as growth of the stock exchange market.

From the above discussion, it is clear that experts are sharply divided on the impact of FDI on the economic development of the host country. This study seeks to conclude whether FDI has a significant impact on economic growth by examining empirical evidence from Ghana.

## **1.2 Statement of the Problem**

Since the 1960s, Ghana has pursued a policy of enticing more foreign direct investment (FDI) to add up to its relatively low capital and technology level. Thus, Ghana has received and continues

to receive high inflow of foreign capital.

Certainly, Ghana has relied on FDI from the post-independence era till date and this has affected various economy sectors as well as growth and development of the country.

Many studies have considered the impact of FDI on economic growth. For example, Lyroudi et al, (2004) in United State, Khaliq and Noy, (2007) in Indonesia, Louzi and Abadi, (2011) in Jordan, Maji and Odoba, (2011) in Nigeria and Melnyk et al., (2014) studied the effect of FDI on economic growth. However, results from these studies are indecisive. For example, Ewe, (2001); Vo and Batten, (2006); Khaliq and Noy, (2007); Maji and Odoba, (2011); Tintin, (2012); Melnyk et al, (2014) found a direct impact of FDI on economic growth. Contrary, Alfaro, (2003); Adewumi, (2006); Louzi and Abadi, (2011); Djurovic, (2012) and Brenner, (2014) recognised an adverse and unclear impact of FDI on economic growth.

It can therefore be understood that there have been some works done but the results from these studies on the effect of FDI on economic growth are changing and unsettled. It seemingly shows that there is a need for additional study on the effect of FDI and economic growth to establish the impact in the case of Ghana and this is what this study seeks to accomplish.

### **1.3 Purpose of the Study**

The objective of this study is to assess the effect of FDI on the economic growth of Ghana to justify the need for more of FID inflows in Ghana. This was accomplished by conducting a historical and statistical analysis of the relationship between the trend of FDI inflow and its impact on selected macroeconomic indicators such as Gross Domestic Product growth rate, inflation rate, and balance of trade (BOT). The study determined the extent to which these

variables are related. Data sources for the empirical works were from UNCTAD, World Bank, IMF, and the IFS Database. The study focused on the period between 1997 and 2017 based on the available data.

#### **1.4 Research Objectives**

The principal objective of this study is to investigate the impact of foreign direct investment on economic growth in Ghana.

The specific objectives of the study are as follows:

- To determine effects of FDI inflows on GDPg, GDP, and GNI in Ghana.
- To find out the relationship between FDI and inflation in Ghana.
- To ascertain the relationship between FDI and BOT in Ghana.

#### **1.5 Research Questions**

- What are the effects of FDI inflows on economic growth in Ghana?
- Is there any relationship between FDI and Inflation in Ghana?
- What is the connection between FDI and BOT in Ghana?

#### **1.6 Research Hypotheses**

The following are the hypothesis of the study:

H1: There is a strong positive relationship between FDI and GDP growth in Ghana.

H2: There is a strong negative relationship between FDI and inflation rate in Ghana.



H3: There is a strong positive relationship between FDI and BOT in Ghana.

### **1.7 Significance of the Study**

The study is important in the sense that economic growth of Ghana relative to FDI inflows cannot be underrated. Ghana has committed a lot of resources to attracting FDI into the country over the years, and it will be helpful to governments, investors and policy makers to know the real impact of FDI which is being encouraged on economic growth in Ghana. This research provides this vital information to the various participants involved in handling the affairs of the country.

### **1.8 Scope and Delimitation**

A lot of macroeconomic variables including inflation, domestic investment, government expenditure and domestic savings impact on economic growth of Ghana but for the purpose of the study the variable FDI and its impacts on economic growth were considered while the other equally important variables were not looked at in this study. FDI was considered because Ghana through the Free Zones Act, 1995(ACT 503) and the Ghana Investment Promotion Act, 2013(ACT 865) has granted certain tax incentives and investor protection policies to attract foreign investors and also make the environment conducive for their operations. This initiative and policy taken in Ghana have increased the number of foreign direct investment and helped in economic growth. The study relied on time series annual data from 1997 to 2017.

### **1.9 Organisation of the Study**

The study is made of five chapters. The first chapter is the introduction and it covers the background of the study, statement of problem, purpose of the study, study objectives, research

hypotheses, the significance, the scope and the organization of the study. The second chapter reviews theoretical and empirical literature. The third chapter explains methods, and procedures that are used to analyse the data. It also identifies and discusses the models that were used for the study. The fourth chapter focuses on the data analysis, while the last chapter deals with summary of findings, conclusions and recommendations of the study

## **CHAPTER TWO**

## **LITERATURE REVIEW**

### **2.0 Introduction**

The central purpose of this section is to review the theories and research which are associated with the impact of FDI on economic growth. The section will begin by providing a definition of FDI and a discussion on the different types of FDI. This will be followed by the general impact of FDI on economy as well as a focus on the role of FDI in Ghana. The chapter covers theories that explain relationship between FDI and economic growth as well as summarizing empirical reviews on both the positive and negative relationships between FDI and economic growth, along with the arguments of those who claim that the effect of FDI is reliant on the absorptive capacity of the recipient country. The conclusion will be the final part of this section.

### **2.1 Foreign Direct Investment (FDI)**

According to the International Monetary Fund (IMF), FDI refers to investments made to acquire a lasting interest in enterprises operating outside of the economy of the investor (Ridgeway, 2004). The IMF also considers an investment to be classified as FDI if the investor holds a partial ownership share of at least 10% and exercises a significant amount of management control. This is similar to the way in which the Organization of Economic Co-operation and Development (OECD) defines FDI. According to the OECD (2012), "A foreign direct investment enterprise is an enterprise resident in one economy and in which an investor resident in another economy owns, either directly or indirectly, 10% or more of its voting power if it is incorporated or the equivalent for an unincorporated enterprise... An ownership of at least 10% of the voting power of the enterprise is regarded as the necessary evidence that the investor has sufficient influence to have an effective voice in its management. From the definitions of the

IMF and OECD, one common requirement in defining an investment as FDI is that the investor's ownership must be at least 10%, which is also a prerequisite for holding substantial control over the enterprise.

The international flow of financial resources into developing economies, takes three main forms; foreign direct investment and foreign portfolio investment; remittances of earnings by international migrants; and foreign Aid. In the first form, foreign direct investment (FDI) has a long-term nature (compared to portfolio investments) and it has been, in most cases, carried through Multinational Corporations (MNC) or transnational corporations (TC) and it tends to contribute more to economic growth than the portfolio investment.

An MNC, in simple terms, is a corporation or enterprise that conducts and controls productive activities in more than one country. Robert E. Lipsey (1999) said Internationalised production arises from foreign direct investment. According to him, this is the investment that involves some degree of control of the acquired or created firm which is in any other country apart from the investors' country. This involvement in the control of the investment is the main feature that distinguishes FDI from portfolio investment. The Balance of Payment Manual fifth edition defined FDI as Investment made to acquire a lasting interest in an enterprise operating outside of the economy of the investor. It further explains that the investor's purpose is to gain an effective voice in the management of the enterprise. Hence the investor must have 10% or more in the management. Based on this definition, the minimum contribution to management and control by the enterprise should be 10% for such to be considered as FDI. This definition is used for this paper and the data for FDI

used in this paper follow this convention.

### **2.1.1 Types of FDI**

FDI can be categorized into five different types which include: (1) greenfield investment, (2) merger or acquisition, (3) joint venture, (4) horizontal FDI, and (5) vertical FDI (Ball & McCulloch, 1999). They are discussed in the following sections:

#### **2.1.1.1 Greenfield Investment**

A company that wishes to own a foreign subsidiary outright may start from a greenfield investment by building new facilities or expanding existing facilities (Ball & McCulloch, 1999). The establishment of industrial plants and facilities at free zones locations are examples of greenfield investment in Ghana.

#### **2.1.1.2 Merger or Acquisition**

A merger or acquisition occurs when a foreign firm purchases the existing assets of a local firm (Ball & McCulloch, 1999). For example, in 2004, AngloGold, a gold mining company based in South Africa merged with Ashanti Goldfields Corporation (AGC) in Ghana and they are now called AngloGold Ashanti. Also, in 2008 Vodafone group plc acquired 70% of Ghana Telecom and they are now Vodafone Ghana.

#### **2.1.1.3 Joint Venture (JV)**

A joint venture can be established in several ways. A joint venture can be established when an international company joins with a local company (or with another international company) to

form a corporate entity. Alternatively, the international company could join with the government of the country of investment to form a corporate entity (Ball & McCulloch, 1999). For example, MODEC Production Services Ghana JV Limited is a joint venture company with JILMEC, an indigenous Ghanaian company with expertise in exploration, production and oilfield logistics services, to provide world-class operations and maintenance services in the oil and gas industry in Ghana.

#### **2.1.1.4 Horizontal FDI**

Horizontal FDI refers to the situation where a company invests in the same type of industry abroad that they are involved in at home (Foreign Direct Investment, 2009). In the Merger or Acquisition examples described above, AngloGold and AGC prior to the merger were all in the same industry (mining). Similarly, Vodafone group plc and Ghana Telecom were in the same industry (Telecommunication) prior to the acquisition.

#### **2.1.1.5 Vertical FDI**

Vertical FDI has two forms: (1) Backward vertical FDI involves investing in an industry which provides inputs for the investing firm's domestic production; and (2) Forward vertical FDI involves investing in an industry which sells the output of the investing firm's domestic production.

#### **2.1.2.0 The general impacts of FDI**

There are many benefits of FDI both to the host country and the home country, these benefits are noted by different authors. For instance, Alfaro (2003) said that in addition to the direct capital

financing it supplies, FDI can serve as a source of valuable technology and know-how to the host developing countries by fostering linkages with local firms. These technological innovations by MNCs play a vital role in the economy and they are some of the most important areas where MNCs serves as facilitator to growth in developing countries.

MNCs have the financial strength to invest in large plants. This might be very difficult for local investors due to their lack of huge investment funds which MNCs can afford. Through FDI, “scarce” capital can be made available to the developing countries. This is very critical to economic growth. Jones (1996) notes that the transfer of capital by MNCs can increase domestic savings and add to domestic capital formation for countries that are capital constrained and this can increase domestic investment. Some investments are better off if managed under foreign control. This will put the level of government interference at its minimal. More often than not, FDI brings along solid ownership and independent management. FDI also plays a role in reducing the domestic savings gap, foreign exchange gap, BOP deficit, unemployment rate, inflation rate, and level of poverty. FDI has also been linked with introducing corporate social responsibility, diversifying exports, and developing financial institutions. The secretary general of United Nations (Koffi A Annan) summarized the importance of FDI to the developing economies as follows “With the enormous potential to create jobs, raise productivity, enhance exports and transfer technology, foreign direct investment is a vital factor in the long-term economic development of the developing countries” (United Nations, 2003 page iii).

Despite the benefits that can be derived from FDI, it should be noted that it can also bring about some negative impact. For instance activities of MNCs can displace local firms that cannot cope with the competition from foreign firms, thereby reducing the growth of the local firms.

(Jones,1996). Also if proper guideline is not in place in the host country, FDI can serve as a source of capital flight from the developing countries to the developed ones. For instance due to some specific risks in the host country (economic and political risks), there could be large flow of capital from the host country to the home country if there is no legislation against such practice. This can have adverse effect on the host economy especially if such capital is sourced for within the host country. Finally, due to MNCs' higher production capacity, the activities of FDI can result in large scale environmental damage which sometimes is not well taken care of especially in the mining sector (Bora 2002). It should be noted that the net effect of FDI to growth can only be measured empirically. Some research works on the relationship between FDI and growth are discussed in the subsequent sections.

#### **2.1.3.0 FDI inflow in Ghana**

Foreign direct investment (FDI) in developing economies has increased rapidly as a result of financial and political transformation. To grow their portion of FDI inflows, most countries have reduced restrictions on foreign direct investment, strengthened macro stability, privatized state-owned enterprises, instituted domestic financial reforms, capital account liberalization and granted tax incentives and subsidies. Ghana for instance through the Free Zones Act, 1995 and the Ghana Investment Promotion Act 1994 has granted certain tax incentives and investor protection policies to attract foreign investors and also make the environment favourable for their operations. This initiative and policy taken in Ghana have improved the number of foreign direct investment and helped in economic growth.

Attracting FDI is a concern of Ghana's opening up policies and economic reforms. Various



Governments in Ghana have passed various legislations to improve investment conditions and the business environment in order to attract FDI, putting Ghana in the top ten reformers globally for the second year in a row, according to the World Bank's Doing Business team. Ghana's shares of FDI quadrupled from 2005 to \$636M in 2006 and represent 19.4% of gross fixed capital formation according to 2008 World Investment Report (WIR). In 2008, Ghana experienced increased global attention as a result of hosting the 2008's Africa Cup, the UNCTAD XII (United Nations Conference on Trade and Development) and WAIPA (World Association of Investments Promotion Agencies) meetings. This attention came at a time when the country had strong GDP growth and significant increases in FDI inflows.

In addition, stock markets have been established to intermediate funds towards investment projects. The Ghana Stock Exchange is not an exception to the inflow of direct foreign investment.

Ghana was West Africa's largest recipient of foreign direct investment in 2018, a new report by the United Nations Conference on Trade and Development (UNCTAD) has shown.

The report titled 'UNCTAD Global Investment Trends Monitor', which was released on Monday (February 11, 2019), said Nigeria recorded a 36% decline in FDI in 2018.

According to the report, "In West Africa, Ghana (\$3.3 billion) overtook Nigeria as the largest recipient of FDI in 2018. However, Nigeria reported a few significant greenfield project announcements in the oil and gas and chemical sectors, which could lead to a recovery in 2019."

Over the past 30 years, Ghana has made efforts to attract FDI into its main sectors of the economy; agriculture, manufacturing (Industrial) and services. This began from the

implementation of the Structural Adjustment programme (SAP) and the Economic Recovery programmes (ERP) from the 1980s and 1990s, and also the creation of the Mineral and Mining Law (1986), Ghana Investment Promotion Center (GIPC) Act (1994), the Free Zones Act (in 1995) and the privatization program (in the early 90s) which led to the privatization of about 300 state-owned enterprises. As a result, FDI rose from about \$20 million in 1990 to around \$200 million at the end 1999. Since then it has risen to about \$3.3 billion in 2017.

The encouragement of foreign investment in Ghana is seen as an integral part of Ghana's economic policy. The Ghana Investment Advisory Council (GIAC) was also established to help shape government policy; it aimed at creating an enabling investment environment. After 1992, at the inception of multi-party democracy, all governments have placed emphasis on the role of FDI in national development, and these have been captured in their various policy documents and political manifestoes. The current government is looking forward to a number of FDI inflows to complement its industrialization program, dubbed '1 district 1 factory'.

Ghana does not have reliable data on FDI movements since 1980s, but researchers have observed some trends. Majority of foreign investments are concentrated in mining, oil exploration, telecommunication and manufacturing. Other minor recipient sectors also include; Services, Tourism, Building and Construction, Export Trade, Agriculture and General Trade. On regional basis, FDI flows have continued to be highly concentrated in Greater Accra Region. According to the GIPC report, in 2017, the Greater Accra region received about 83% of FDI, and with 6% going to the Ashanti Region. The three northern regions, in most times, receive little or nothing. Over the period, FDI to Ghana, in terms of value, have been from; United Kingdom, Netherlands, United States of America, France, Germany, Denmark, China and other emerging

markets economies. We have also occasionally received flows from Nigeria, South Africa and other developing economies.

### **2.1.3.1 The benefits of FDI to Ghana**

There are few empirical studies on the benefits of increasing FDI on economic growth and development in Ghana. But some researchers have observed that from the periods of Vision 2020; Growth and Poverty reduction strategies (I & II); to today, FDI through MNCs have contributed significantly to economic growth. Over the last 15 years, most of the foreign investments have concentrated in the mining subsector, although over period Ghana has made significant strides to attract FDI into the telecommunication, oil and the banking sector. Ghana is expecting higher inflows into the oil industry, as the Italy's ENI is currently undertaking a huge project on the Sankofa Gas field. FDI's contribute to economic growth through; its role in filling the resource gap between targeted or desired investment and locally mobilized savings; needed for infrastructural development; its role in filling the gap between targeted foreign-exchange requirements and those derived from net export (export – imports) earnings plus foreign Aid and others; its role in filling the gap between targeted tax revenues and locally raised taxes. Other benefits to Ghana are through; the transfer of technology and managerial skills to local managers; the utilization of productive resources efficiently; the transfer of modern infrastructure and production processes; human capital development, employment creation, the growing concept of Corporate Social Responsibility (CSR) and, research and development spillovers.

### **2.1.3.2 The side effects of FDI to Ghana**

Today, many academicians, political leaders and institutions have put forth the argument that

FDI flows in Africa are forms of neocolonialism, albeit disguised. Others have also argued against FDI on economic lines. The proponents of the former argument do not have much interest in the impact of FDI on economic aggregates like Gross Domestic Product (GDP), Investments, and growth rates of economic variables, but are keen on the philosophical or ideological basis of such flows through the MNCs. Hence, the issue of growing FDI in Ghana must also be analyzed within these two contexts.

From an economic viewpoint, the following negative impacts could befall Ghana; MNCs can undertake excessive repatriation of dividends, profits, interest, royalties, and management fees since Ghana does not have strict repatriations laws; without careful monitoring systems MNCs can take advantage of liberal tax concessions or incentives enshrined in the GIPC and Free Zones Act; the practice of transfer pricing, excessive investment allowances, disguised public subsidies, and tariff protection provided by a few elite cabal in government. All these actions would in turn reduce the targeted tax revenues, foreign exchange reserves and investments that government needs for economic development.

On the other hand, neocolonialism is the indirect method through which foreign powers control developing economies. A developing nation that is thought to be under the influence of neocolonialism has the following features; the export of raw materials at lower prices and import of manufactured goods at relatively higher price; goods from or produced by foreign powers have a competitive advantage in price and quality than traditional or local industries; colonized countries' economic life is solely dependent on the foreign powers; and the pervasiveness of cultural infiltration and economic exploitation in colonized nations.

It has been argued that multinational corporations are not in the development business; their objective is to maximize their return on capital. MNCs seek out the best profit opportunities and are largely unconcerned with issues such as poverty, inequality, employment conditions, and environmental problems. Others have argued that FDIs have given way to MNCs who could utilize their economic power, gained through the exploitative markets operations across the globe, to influence government policies and decisions on taxation and development. For example, earlier this year, AngloGold Ashanti, a South African gold mining MNC, received a \$250 million tax waiver from parliament, under the logic of employment creation. It must be noted that the AngloGold Ashanti is also the largest, by market capitalization, on the Ghana Stock Exchange (GSE). Could that be the case?

It has also been argued that FDIs would eventually weaken local production and competitiveness, thereby creating economic dependency, for developing nations. And as a concomitant of MNCs, foreign cultural infiltration (especially MNCs in media and advertising industry) would also affect social structures of Ghana.

### **2.1.3.3 Recommendation to government of Ghana on FDI**

Ghana, a middle income country with a GDP of about \$47 billion, relatively lags behind on the world's development ladder. Within this capitalist dominated economic systems, FDI inflows are needed, regardless, for national development. It is therefore necessary, arguably, for us to build strong adoptive capacity (requisite human capital, institutions, social systems etc.), political and macroeconomic stability (crucial variable - inflation pushed by excessive government spending

etc.), and infrastructure (eg. energy, transport systems, water etc.) in order to attract a substantial proportion of FDI coming to Africa.

Other strategies are;

- The Government of Ghana (GOG) should enforce a more stringent regulation of foreign direct investments.
- GOG ought to take tougher bargaining stance during negotiations. China has been successful in this because of its size and strong central government. Ghana, in the future, could take up such bold initiatives through the ECOWAS.
- GOG should seek for better deals, by not only looking at the MNCs in developed economies but also the emerging markets and some South economies.
- There must be adoption of performance standards, requirements, and effective monitoring of repatriations and transfer pricing deals.
- GOG must ensure gradual increase in domestic ownership and control of MNCs.

The debates and controversies about the benefits and evils of FDIs would still continue in the political and academic circles of Ghana, and these would often be discussed in the context of economic growth and development, and other philosophical or ideological sentiments.

### **2.2.0 Theories of Foreign Direct Investment and Growth**

There is no agreement in literature regarding how and to what degree does FDI affects economic growth in many countries. Whiles economic theories used to expound FDI and its determinants usually envisage a positive relationship between FDI and economic growth, empirical results on the topic tend to yield rather ambiguous results. Renewed interest in determinants of growth with the introduction of theories of endogenous growth has however eased the uncertainty in the literature by emphasizing on FDI as one of the long run growth determinants.

With accumulation of capital as well as introduction of new foreign technologies and inputs into the production activities in host countries FDI has been predicted to impact positively on growth. Several efforts to explain how FDI affects growth have taken inspiration from growth theories such as Theory of neoclassical growth, theory of endogenous growth, Harrod-Domar growth, modernisation theory and dependency theory.

### **2.2.1 Theory of Neoclassical Growth**

The Solow growth model following Solow (1956) and Swan (1956) is the start point for most growth studies of economies. Other growth models are even better understood when compared with Solow model which though move away from Solow model fundamentally.

The Solow model accepts a neoclassical production function which envisages that, an economy's output level and growth is a function that depends on the quantity of capital (K), labour (L) and knowledge as well as labour effectiveness (A). These inputs considered in Solow model are combined to produce output through a function of the form

$$Y(t) = F [K(t), A(t), L(t)],$$

where „Y“ is output and „t“ represents time which enters the function indirectly through capital, labour and technology (Romer, 2012).

Solow model predicts that, countries that start with lower level of GDP per capita as a result of lower aggregate capital level in relation to position of steady state tend to grow faster assuming a constant returns to scale, positive and smooth substitution elasticity between inputs, diminishing returns to each input and constant and exogenous savings rate. In other words, economies with small capital per worker in relation to long-run capital per worker are likely to experience growth

rate and returns (Salai-i-Martin, 2004; Salai-i-Martin and Barro, 1995). Since FDI encompasses the direct inflow of capital including physical capital into the host country which tends to add up to the existing aggregate capital stock of the host country, FDI is assumed to enter the production function through the capital stock (K) and thus promoting economic growth of recipient country.

However, according to Salai-i-Martin, (2004) the assumptions of diminishing returns to capital and prediction of the neoclassical model that, growth is due to exogenous factors including population growth, constant savings rate and technological progress, makes the standard neoclassical growth model theoretically inefficient in exploring the determinants of long-run growth. This inefficiency however led to the arrival of endogenous growth model which mainly predict that, growth is due to endogenous factors.

### **2.2.2 Endogenous Growth Theory**

Endogenous growth theory explains that economic growth is mainly generated by factors like economies of scale, increasing returns or induced technological changes which are within the production process. Romer (1990) and Grossman and Helpman (1991) developed growth models within the endogenous growth theory to explain the relationship between FDI and growth. These models accept that technological progress is the principal driving force of economic growth. The theories lay emphasis on the creation of technological knowledge and its transfer, and view innovation as major devices for growth. Therefore, these models place emphasis on human capital accumulation and externalities on growth. In these regard growth rate of developing economies is seen to be dependent on the extent to which these countries can accept and utilize innovative technologies available in highly developed economies. They argue that FDI is the



main channel for the process of advanced technologies by developing countries. Developing countries generally are not able to innovate and create new technologies. Therefore, they have to implement technology that is produced from advanced countries through the channel of FDI.

The new growth theories indicate bidirectional causality between FDI and growth. This is because FDI is expected to lend a hand in improving economic growth by encouraging the incorporation of new inputs and foreign technologies in the production function of the beneficiary country. In addition, FDI enhances growth by adding to the host country's existing knowledge base through human resource training and development. Also FDI increases competition in the host country by overcoming entry barriers and reducing the market power of existing firms (Dunning 1993; Blomstrom et al., 1996; Borensztein et al., 1998 and De Mello, 1999). Nevertheless, Dowling and Hiemenz (1982) and Lee and Rana (1986) contend that rapid economic growth also induces the FDI inflows. This is explained by the reason that high sustainable growth usually creates high levels of capital requirements in the recipient economy and as a result, the host country needs more FDI by creating the necessary macroeconomic climate to attract foreign investors. The speedy growth in the host nation also builds the self-assurance of foreign investors investing in the host country. Thus, both FDI and economic growth relate positively and leads to bidirectional causality.

Endogenous growth theory has the view that endogenous forces being the main cause of economic growth rather than external forces hence long term growth is the result of technological progress. Borensztein et al, (1998) argued that the technological advancement as advocated by the endogenous growth theorist occurs through the capital deepening process in the

form of new capital goods introduction. FDI therefore enters the theory by providing new varieties of capital. Models under the endogenous growth models include the AK model and the Romer model.

Stressing on human capital importance and technological developments in growth process, and the fact that, not only physical capital but technology and skill transfers are involved in FDI, the theory implicitly envisages a positive impact of FDI on economic growth especially in developing countries which has lower levels of human capital as well as aggregate capital.

### **2.2.3 Harrod – Domar theory of growth**

Harrod-Domar model has also been used to explain the growth of an economy. The model which was developed by Harrod (1939) and Domar (1946) combines the Keynesians and the Classical growth theories. The model expounds the efficacy and role of investment in economic growth of countries (Maji and Odoaba, 2011). The model demonstrates the requisite investment level that is necessary to achieve a certain level of output growth in an economy.

The Harrod-Domar model is specified as;  $(\Delta Y/Y) = (s/k) = g = (s/k) \dots \dots \dots (2.5.3)$

Where, g, s and k denote growth rate of national output, saving ratio and 5 capital-output ratio.

The model suggests that if saving (s) level is high, firms can borrow more for investment and hence more investment. Increase investment generates an increase in output which leads to economic growth. Again, if the capital output ratio (k) falls, the economy will be able to produce more with fewer inputs as a result of the economy being more productive and this will enhance economic growth. The implication of the Harrod-Domar model is that, if developing countries want to achieve economic growth then there is a need for the government to promote savings (s)

and also encourages technological advancement to reduce the capital output ratio, (k/y).

Technology transfer from developed countries to developing countries is also a form of FDI.

From the above, it can be deduced that FDI in the form of technological advancement can lead to economic growth and so government can really encourage technological transfer if economic growth is to be achieved. For this reason, economic growth can be specified as a function of FDI;

$$\text{Economic Growth} = f(\text{FDI})$$

Recent models of technological diffusion can also be used to clarify theoretically the importance of FDI to growth. Technological diffusion theory seek out to explain how, why, and at what rate do new technologies and ideas spread through cultures, societies, firms and nations as a whole. Most discussions of technology diffusion focused mainly on the slow speed at which firms assume new technologies and how such slow response are likely to affect growth of such firms as well as the economy's growth in general ( Geroski 2000; Blackman 1999).

Most of these technologies are developed by the most advanced technological countries and large Multi-National Companies (MNCs) who are more proficient of undertaken Research and Development (R & D). Developing countries and developed countries in some cases therefore gain from these technological innovations trough FDI by these MNCs which results in technological diffusion which finally leads to economic growth. However, according to Borensztein et al., (1998), technological diffusion sometimes takes time to take place resulting in differences in growth of firms and countries. Thus, growth in these countries can be explained in part by these catch up process in the level of technology.

Widely accepted theories of technological diffusion models as observed by Karshenas and Stoneman (1993), includes five categories: (i) epidemic models which is the oldest of diffusion

models and based on the ground that, prospective adopters would gain new technology upon obtaining information relating to its existence, (ii) rank models which is based on the assumption that potential adopters of a technology have different intrinsic characteristics (such as firm size) and in turn acquire different (gross) returns from the new technology usage which then generate different preferred adoption dates (iii) order models which is based on the assumption that firms' return from adopting new technology depends on its position with respect to the adoption order. High-order adopters turn to achieve greater returns compared to low-order adopters, (iv) stock models based on the assumption that marginal adopters' benefit from acquisition decreases with increasing number of previous adopters and (v) probit models which is based on the premise that, all consumers with exception of innovators, the pressure to adopt a new technology increases with number of other adopters.

#### **2.2.4 Modernization Theory**

Modernization theory originated from the ideas of German sociologist [Max Weber](#) (1864–1920), which provided the basis for the modernization paradigm developed by Harvard sociologist [Talcott Parsons](#) (1902–1979). The term modernization theory refers to a theory which states that development in developing worlds can be attained through following the processes of development that are used by currently developed nations (Rostow, 1960). Modernization theory is used to explain the process of modernization within societies. Modernization refers to a model of a progressive transition from a 'pre-modern' or '[traditional](#)' to a 'modern' society. The theory looks at the internal factors of a country while assuming that with assistance, "traditional" countries can be brought to development in the same manner more developed countries have been. (wikipedia)

Modernization Theory states that FDI can positively contribute to economic growth in developing countries. According to Modernization Theory, the demand for capital formation in developing nations can be met by FDI through capital investment which can supplement economic growth (Firebaugh, 1992). This concept is supported by Mello (1999) who concluded that foreign investment is an important element to fill the resource gap in many developing nations. For instance, FDI has enabled economic growth in South and East Asia by increasing capital formation (Fry, 1999). Moreover, Romer (1993) states that foreign investment is useful to build physical infrastructure such as roads and factories. Improved physical infrastructure, in turn, will increase the absorptive capacity of the host country, which may attract further FDI. Modernization Theory also suggests that FDI transfers knowledge, technologies, managerial skills, and ideas which can contribute to the economic development of the recipient country (Mengistu & Adams, 2007).

### **2.2.5 Dependency Theory**

Dependency Theory developed in the late 1950s under the guidance of the Director of the United Nations Economic Commission for Latin America, Raul Prebisch. Dependency theory is a sociological theory which holds that economic events in history have encouraged developing countries to depend upon the support of more advanced nations. Dependency theory is the notion that resources flow from a "periphery" of poor and [underdeveloped states](#) to a "core" of [wealthy states](#), enriching the latter at the expense of the former. It is a central contention of dependency theory that poor states are impoverished and rich ones enriched by the way poor states are integrated into the "[world system](#)". The theory arose as a reaction to [modernization theory](#), an earlier [theory of development](#) which held that all societies progress through similar stages of

development, that today's underdeveloped areas are thus in a similar situation to that of today's developed areas at some time in the past, and that, therefore, the task of helping the underdeveloped areas out of [poverty](#) is to accelerate them along this supposed common path of development, by various means such as [investment](#), [technology transfers](#), and closer integration into the [world market](#). Dependency theory rejects this view, arguing that underdeveloped countries are not merely primitive versions of developed countries, but have unique features and [structures](#) of their own; and, importantly, are in the situation of being the weaker members in a world [market economy](#). Dependency Theory claims that foreign investment has a negative impact on the economic development of the recipient country (Dutt, 1997). This theory is supported by Brecher and Diaz-Alejandro (1977) where they argue that FDI may have a negative effect on the economic growth of the host country if the FDI-financed companies repatriate excessive profits to the parent country. This circumstance is known as repatriation of profit, which adversely affects the BOP of the host country (Brecher & Diaz-Alejandro, 1977).

### **2.3.0 Empirical Review**

This section deals with the review of relevant empirical studies on the effect of FDI on economic growth and is organized into three sections; the studies that find positive impact; those that find negative or ambiguous effect of FDI on economic growth and those that say the effect of FDI on economic growth is reliant on the absorptive capacity of the recipient country.

#### **2.3.1 Studies that find a positive effect of FDI on economic growth**

Some empirical findings on effect of FDI on economic growth have been declared to be positive as suggested by economic theories.

Melnyk et al., (2014) in their search to find out the effect of FDI on economic growth in 26

developing and transition economies such as Ukraine, Russia, Slovenia, Bulgaria etc.

Using panel ordinary least square fixed effects technique for a period of 1998-2010, they recognised that FDI impacts positively on economic growth considering the selected countries.

Also, Djurovic (2012) undertook a study to examine the impact of FDI on economic growth in developing economies. Ordinary least square and deductive logic techniques were used for the analysis for the period of 2000-2010. She observed an independent positive relationship between FDI and economic growth. She added that, FDI has positive impacts on economic growth when combined with higher government spending.

Endorsing this idea, Borensztein et al. (1998) argue that foreign investment improves economic growth by transferring technology and knowledge to developing countries. Evidence also shows that foreign investment encourages domestic investment. In a study of 66 developing countries, Makki and Somwaru (2004) found that FDI encouraged domestic investment, which further advanced economic growth. Other research carried out by Agosin and Mayer (2000) concluded that foreign investment positively influenced domestic investment in Asian countries. Balamoune-Lutz (2004) found that that foreign investment has a positive impact on economic growth through improving exports. A similar view is shared by Kabir (2007), who claims that FDI increases the amount of exports and thus improves foreign currency earnings, which can be used to pay external debts. Zhang (2006) also observed that foreign investment has improved the economic growth of China by raising its export volume. Furthermore, FDI has been shown to increase GDP, GNP, and PPP (Islam, 2003; Ahmed, 2005; Khan, 2007; Haque, 2007; Gupta, 1999; Kabir, 2007)

Tintin (2012) in finding out the effect of FDI on economic growth conducted a study in 125 countries; 38 developed, 29 least developed and 58 developing countries. By means of panel ordinary least square and using data from 1980-2010, the results show a positive impact of FDI on economic growth in the selected developed, developing and least developed countries. Majid and Odoaba (2011) in their quest to ascertain the effect of FDI on economic growth in Nigeria from 1986-2006 used ordinary least square technique for their analysis. They established that FDI impact positively on Nigerian economy. Louzi and Abadi (2011) in their study in Jordan found a positive effect of FDI on economic growth. Using annual time series data from 1990-2009 and employing OLS and VAR techniques, they reported a dependent positive impact of FDI on economic growth. That is, the impact is recognized when it is combined with other factors like high human capital level, political stability and good developed infrastructure facilities. Adewumi (2006) also investigated the phenomenon in 11 countries. Positive impact of FDI on economic growth was reported employing OLS technique and using annual time series data from 1970-2003. However, it was insignificant.

Vo and Batten (2006) in their search to ascertain the impact of FDI on economic growth in 79 countries from 1980-2003 by means of panel data techniques; fixed and dynamic methods. They concluded that FDI has a positive but dependent impact on economic growth. The results further demonstrate that the combination of FDI and education produce positive economic growth.

Borensztein et al. (1998) analyzed the effect of FDI on economic growth within the context of a cross country regression framework. FDI inflows data from 69 developing countries for the period of 1970 to 1989 was used. Positive and significant relationship between FDI and



economic growth was concluded. They further found that FDI contributes much to economic growth when it is compared with domestic investment due to transfer of technology.

De Mello (1999) observations also agree with theories which suggest positive impact of FDI on economic growth. He further found that, though FDI is expected to boost host country economic growth in the long run through technological diffusion and knowledge spill overs, this can only occur or depends on the extent of complementarity and substitution between domestic investment and FDI. Annual time series and panel data from 1970 to 1990 from sampled OECE and non OECD countries was employed.

Berthélemy and Démurger (2000) also studied the effect of FDI on economic growth in China. General Method of Moments (GMM) simultaneous equation estimation model was employed. By means of 24 Chinese provinces for the period 1985-1996, positive relationship between FDI and economic growth was observed and continued that the foreign technology transfer is a major determinants of growth of economies which further results in more FDI inflows. Bengoa and Sanchez-Robles (2003) also investigated the relationship between FDI and economic growth for a group of 18 Latin American countries. Panel fixed and random effect methodology was used. Using data from 1970 to 1999, positive effect of FDI on economic growth in the host country was reported. They added that economic freedom also produces FDI inflows. Economic stability, liberalized markets and adequate human capital are vital in host countries in order to have long run capital flows benefits.

Hermes and Lensink (2003) carried out a study to find out the role of financial development in enhancing the theoretically believed direct connection between FDI and economic growth. By

means of data from 67 LDC's mostly in Latin America, Asia and South Saharan Africa for the period 1970- 1995, they found a positive relationship between FDI and growth in more financially developed market economies. They further observed that, 37 out of the 67 countries have a more developed financial market and they equally experience a positive effect of FDI on economic growth. However, the remaining economies with weak financial markets did not experience positive effect of FDI.

Alfaro et al, (2006) did an inspiring study on the impact of FDI on economic growth. Methodology that emphasize on the importance of local financial market in FDI flows was employed. They modelled their work on the assumption of a small economy which is open and the final goods production is carried out by both foreign and domestic firms which strive for both unskilled and skilled labour as well as intermediate goods. Their findings show that, higher growth rate are connected with economies that are financially well developed relative to economies that are not financially well developed. Again, FDI share increase produces more growth in financially well developed countries than countries which are financially under-developed given the extent of foreign presence. Their study further exposed the role of domestic conditions including human capital, market structure, and absorptive capacities for a more significant effect of FDI on economic growth. Koojaroenprasit (2012) employed annual time series data from 1980 to 2009 and OLS methodology within a multiple regression framework and reported that, FDI has statistically positive significant effect on economic growth of South Korean.

### **2.3.2 Studies that find negative or ambiguous impact of FDI on economic growth**

Some empirical findings on the effect of FDI on economic growth support dependency theory. Most empirical literature finds weak support for the importance of FDI in growth whiles Micro literature that focused on either firm level studies or country specific studies tend to produce unclear results. Experts assert that FDI has an adverse effect on economic development by crowding out domestic investment. For instant, in a study on eleven Central and Eastern European countries, Eller, Haiss, and Steiner (2005) found that foreign investment crowded out domestic capital. In another study, Bornschier and Chase-Dunn (1985) concluded that in addition to crowded out domestic investment, FDI would be accountable for creating a monopoly. Moreover, Quazi (2004) states that FDI might have an adverse impact on the host country due to capital flight, which is the outflow of domestic capital, resulting in an adverse effect on the country's current account and foreign exchange account. FDI increases the host country's imports because FDI-financed companies often need high-tech capital machinery and intermediate goods that are often not accessible in the host country (Rahman, 2008). Increasing imports may have an adverse impact on economic growth due to the resulting trade deficit (Fry, 1999). Biersteker (1978) and Helleiner (1989) are skeptics about the role of FDI on the economic growth of developing nations. They argue that FDI is a mechanism for exploiting and controlling developing countries by western industrialized nations.

Brenner (2014) in his study reported a mix result of the effect of FDI on economic growth. The research was conducted in 112 less and more developed countries excluding oil exporting countries for the period of 1974-2010. Employing General Method of Moment technique he reported positive effect of FDI on economic growth in more developed countries compared to negative impact in less developed countries.

Noormamode (2008) reported an unclear effect of FDI on economic growth. Vector Autoregressive Regression technique was used for the study in 58 countries and annual time series data from 1980-2004. She concluded that the inflow of FDI do not necessarily improve economic growth and further added that there is uncertainty concerning the effect of FDI on economic growth. Ciftcioglu et al. (2004) also recognised a mixed result in their study. They used panel ordinary least square fixed effects and pooled classical regression technique using nine central and east European countries for the period 1995-2003. They further stated that FDI impacts positively on share of export in GDP, negatively on economic growth, unemployment and the share of manufacturing and agriculture in GDP.

Konings (2001) uses panel data from firms' level to find out the impacts of FDI on performance of productivity in local firms in 3 emerging economies namely Poland, Romania and Bulgaria. By means of data for the period 1993-1997 and the GMM methodology, he observed no evidence of positive spill overs of FDI on domestic firms. He further found that, FDI has negative spill over effects on domestic firms in Bulgaria and Romania but no spill over effects on domestic firms in Poland.

Carkovic and Levine (2002; 2005) did an inspiring work on significance of FDI in accelerating economic growth. By means of panel data from 72 countries including Ghana as well as the Generalized Moment Method (GMM) panel estimator they find that, FDI inflows exert a dependent effect on growth which is contrary to theory. These results were centred on a cross country data from 1960-1995.

Alfaro (2003) also concludes with a result that goes contrary to theoretical expectation of positive relationship between FDI and economic growth. System of GMM equations on a cross sectional data from 47 countries was used and covering the period from 1981-1999, he finds that, there is an ambiguous effect of FDI on growth. Further on sectorial level, it was discovered that FDI impact adversely on growth in the primary sector, while there was a positive and ambiguous impact on manufacturing and service sectors growth respectively.

Lyroudi et al., (2004) on their part also studied the effect of FDI in transition economies such as Russia, Ukraine, Latvia and Albania. By means of the Bayesian estimation technique on data from 17 transition economies for the period 1995 -1998, they find no significant connection between FDI economic growth. They further achieved same result when the data was split into high income and low income countries.

Khaliq and Noy (2007) also found result that queries the proposition of the FDI led growth hypothesis. Sectorial annual FDI flows data for the period 1997-2006 within the context of a panel fixed effects methodology was employed to examine the effect of FDI on growth. It was observed that there is a significant positive effect of FDI on economic growth on aggregate level. On sectorial level, it was found to be varied with FDI having an adverse effect on growth in manufacturing sector in Indonesia.

Lund (2010) also did a study on the relationship between FDI and growth by means of panel data from selected countries in Latin America and East Asia for the period 1980-2003. An ambiguous connection was observed between economic growth and FDI in both developing and developed

countries. Concentrating on the causal relationship between economic growth and FDI and by means of Pedroni Tests which is a Test of Panel Co-integration and also conducting a unit root test, he observes that, there is much proof of a GDP to FDI causal relationship in the long run in most countries while evidence of a short run FDI to GDP relationship exist especially in higher income countries.

### **2.3.3 Studies that suggest the effect of FDI on economic growth is reliant on the absorptive capacity of the recipient Country**

A third view claims that the impact of FDI on economic growth depends on the absorptive capacity of the recipient country. In this regard, Buckley, Clegg and Wang (2002) state that FDI would be helpful to economic development if the economic, political, and social conditions of the host country are complimentary. However, if a country does not have the appropriate business environment to benefit from a positive spillover effect from the presence of foreign firms (i.e., have the appropriate business environment to facilitate transfer of technological and managerial skills), FDI may have negative impact on economic development (Toulaboe, Terry, & Johansen, 2009). For instance, the impact of FDI on economic growth would be more significant in East Asian and Latin American countries than in sub-Saharan African countries because East Asian and Latin America have relatively higher levels of development compared to sub-Saharan Africa (Toulaboe, Terry, & Johansen, 2009). The benefit from foreign investment is not automatic. The advantages of FDI depend on skilled human resources, improved technology, developed infrastructure, open trade policy, macroeconomic and institutional reforms, and FDI

friendly policies (Borensztein et al., 1998; Makki & Somwaru, 2004). For example, in a study of 46 countries, Balasubramanyam, Mohammad, and Sapsford (1996) found that FDI had a stronger impact on economic growth when the host countries had a more highly educated workforce. In another study, Sun (1998) found that a liberalized trade policy stimulated the effect of foreign investment on the economic growth of China through capital formation, raising export volume, and reducing the unemployment rate. Corruption and lack of transparency, on the other hand, tend to discourage foreign investment (Kaufmann & Wei, 1999).

#### **2.3.4 Empirical review on Ghana**

Andinuur (2013) in his search to investigate the effect of FDI on economic growth in Ghana used annual time series data from 1980 – 2011. Ordinary least squares and Vector Autoregressive regression techniques were used for the analysis. The result reveals that there is a positive impact of FDI on economic growth.

Asafu-Adjaye (2005) carried out a study in Ghana to establish the relationship between economic growth and FDI. Using ordinary least square technique and by means of annual time series data spanning from 1973 to 2003, he concluded that there is a positive effect of FDI on economic growth. Nuworkpor (2016) using time series data from 1980-2012 found that there is significant positive impact of FDI on economic growth in both short and long run.

#### **2.4.0 Conclusion**

Studies that considered the impact of FDI on economic growth have been reviewed under this section. Based on the empirical review above, it can be realized that indeed some studies have

been carried out for the period ranging from 1960 – 2012. These studies have been carried out in developing countries, least developed countries as well as developed countries. The findings of these studies are however not conclusive and due to the role of FDI as well as the effect on economic growth, there is the need for additional investigation.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter consists of the econometric methods that are employed to achieve the objectives. Specifically, it consists of the model specification, the hypotheses, diagnostic testing, and description of the variables as well as the type and source of data used for the study.

#### **3.1. Model Specification and Estimation**

This section describes the econometrics method that was used to access the relationship between FDI and economic growth. The study follows Afzalar Rahman (2014) work on the effect of FDI on economic growth in Bangladesh. The study employed simple Ordinary Least Square (OLS) multiple regressions analysis and Pearson correlation with the aid of Stata to describe the strength and direction of the linear relationship between independent FDI and each of the



dependent selected macroeconomic data that measures economic growth over the periods 1997 to 2017. The study used Stata to process and analyse the data. Stata is a data analysis and statistical software which provides a solution for data science needs, retrieves and manipulates data, visualises data model, and generates or produces useful reports.

The study used OLS approach because its parameters have several desirable properties such as unbiasedness and minimum variance. OLS is largely used extensively in regression analysis because it is intuitively appealing and mathematically simple. It has some attractive statistical properties that have made it one of the most powerful and popular methods of regression analysis. The properties of OLS are acronym BLUE. This means OLS is Best, Linear, Unbiased and Efficient. It is best because it has minimum variance among the class of linear unbiased estimators. This is proved by Gauss – Markov theory that OLS has the smallest variance among class of linear estimators. The Gauss – Markov theorem states that given the assumption of Classical Linear Regression Model, the least – square estimators, in the class of unbiased linear estimators have the minimum variance. Therefore, OLS is described as efficient estimator.

The research is explanatory in nature because it seeks to establish cause and effect relationship between FDI and economic growth using selected macroeconomic data. Explanatory research is typically concerned with understanding the relationship things and how they are in the past and the future. This often takes the form of a quantitative approach so that statistical tests can be conducted.

### **OLS framework**

- $GDP_g = \beta (FDI + \text{Control Variables})$
- $GDP = \beta (FDI + \text{Control Variables})$

Where control variables are GNI, BOT, INF, and BOP

Dependent variables are:

GDP= Gross Domestic Product

GDPg= Gross Domestic Product growth rate

GNI= Gross National Income

BOT= Balance of Trade

BOP= Balance of Payment

INF= Inflation, Consumer Prices

Explanatory variable is:

FDI = Foreign Direct Investment inflows

## **3.2 Hypotheses**

To test the hypotheses, multiple regression analyses were conducted using FDI inflow as the independent variable, and GDPg, GDP, GNI, BOP, CPI inflation, and BOT as the dependent variables.

### **3.2.1 Hypothesis 1:**

This study expects that FDI inflows should have a positive effect on economic growth as measured by Gross Domestic Product, Gross Domestic Product growth rate, Gross National Income and Balance of Payment in this study . If there is an increase in FDI inflow, then, it will

lead to or enhance the economic growth in Ghana. In contrast, if the FDI is negative correlation to economic growth, it will not help in GDP growth in a country.

### **3.2.2 Hypothesis 2:**

There is a strong negative relationship between FDI and Inflation rate in Ghana. High inflation is an indication of economic instability and it destroys the value of money. Value destruction implies a negative impact on economic growth and it can infer that the impact of FDI is negative.

### **3.2.3 Hypothesis 3:**

There is a strong positive relationship between FDI and BOP. The study expects FDI to increase BOP.

## **3.3. Diagnostic Testing**

The study also applies the diagnostic testing to test the series whether the series are free from autocorrelation, heteroscedasticity and normality problem.

### **3.3.1 Hypothesis 4:**

H0: There is no serial correlation in the residuals.

H1: There is serial correlation in the residuals.

### **3.3.2 Hypothesis 5:**

H0: Residuals are homoscedastic

H1: Residuals are heteroscedastic

### 3.3.3 Hypothesis 6:

H0: Residuals are normally distributed

H1: Residuals are not normally distributed

For Hypothesis 4, 5 and 6 if the computed p-value is greater than 0.05 at significant levels, then the null hypothesis will be accepted and conclude that there is no serial correlation in the residuals, residuals are homoscedastic and residuals are normally distributed.

Conversely, if the computed p-value is less than 0.05 significant levels, then we reject the null hypothesis and conclude that there are existing autocorrelation heteroscedasticity and normality problem

## **3.4 Variable description and the expected signs**

This section describes the dependents and independent variables.

### **3.4.1 Gross Domestic Product (GDP)**

The GDP of every economy is simply the total volume of all goods and services produced over specified period of time. GDP is used as a measure of economic growth in this study and it is measured in per capita terms. Some studies which considered the effect of FDI on economic growth have measured economic growth in per capita terms (See Djurovic, 2011, Alfaro, 2003 and Carkovic and Levine 2002). In relation to this study, GDP (economic growth) is the dependent variable. The annual data were extracted from UNCTAD STAT (2018) The graph below shows the annual trend of Gross Domestic Product ( GDP ) in Ghana from 1997 to 2017.

**Figure 3.1:** GHANA'S GDP TREND FROM 1997 - 2017

**Source: Author's own constructs using annual data from UNCTAD, 2018**

### **3.4.2 Gross Domestic Product growth rate (GDPg)**

The GDP growth rate measures how fast the economy is growing. GDP measures the economic output of a nation. Economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Development of new goods and services also creates economic growth. High GDPg rate is good for a country and its people. Growth of gross domestic product (GDP), is essential to a country's stability and prosperity. The annual data were extracted from UNCTAD STAT (2018). The annual trend of Ghana's Gross Domestic Product growth ( GDPg ) rate from 1997 to 2017 is graphically shown below.

**Figure 3.2: GHANA'S GDPg TREND FROM 1997 - 2017**

**Source: Author's own constructs using annual data from UNCTAD, 2018**

### **3.4.3 Gross National Income (GNI)**

Gross national income (GNI), is the sum of a country's gross domestic product (GDP) plus net income (positive or negative) from abroad. It measures the total economic output of a country, including earnings from foreign investments. GNI per capita is a good measure of a country's level of development or welfare. GNI per capita better reflects people's living standards uniformly. The annual data were extracted from UNCTAD STAT (2018) The graph below shows the pattern of Ghana's Gross National Income per Capita (GNI ) from 1997 to 2017.

**Figure 3.3: GHANA'S GNI TREND FROM 1997 - 2017**

**Source: Author's own constructs using annual data from UNCTAD, 2018**

#### **3.4.4 Balance of Payment (BOP)**

The balance of payments is the record of all international trade and financial transactions made by a country's residents. The current account measures international trade, net income on investments, and direct payments. Keeping a record of these transactions helps the country to monitor the flow of money and develop policies that would help in building a strong economy. Balance of Payments is a very important record of financial transactions and status of any nation and its economy. It highlights the direction of economic growth or otherwise of any country and is a ground on which many important policy decisions are based. Balance of payments and international investment position data are critical in formulating national and international economic policy. Certain aspects of the balance of payments data, such as payment imbalances and [foreign direct investment](#), are key issues that a nation's policymakers seek to address. The annual data were extracted from UNCTAD STAT (2018). The graph below illustrates annual trend of Ghana's Balance of Payment (BOP) from 1997 to 2017.

**Figure 3.4: GHANA'S BOP TREND FROM 1997 - 2017**

**Source: Author's own constructs using annual data from UNCTAD, 2018**

### **3.4.5 Balance Of Trade (BOT)**

The balance of trade is the difference between the value of a country's imports and exports for a given period. It is the largest component of a country's balance of payments. It is also referred to as the trade balance or the international trade balance. Trade balance is important for the development and growth of national economies because not all countries have the resources and skills required to produce certain goods and services. The annual data were extracted from UNCTAD STAT (2018). The annual trend of Ghana's Balance of Trade ( BOT) from 1997 to 2017 is graphically shown below.

**Figure 3.5: GHANA'S BOT TREND FROM 1997 – 2017**

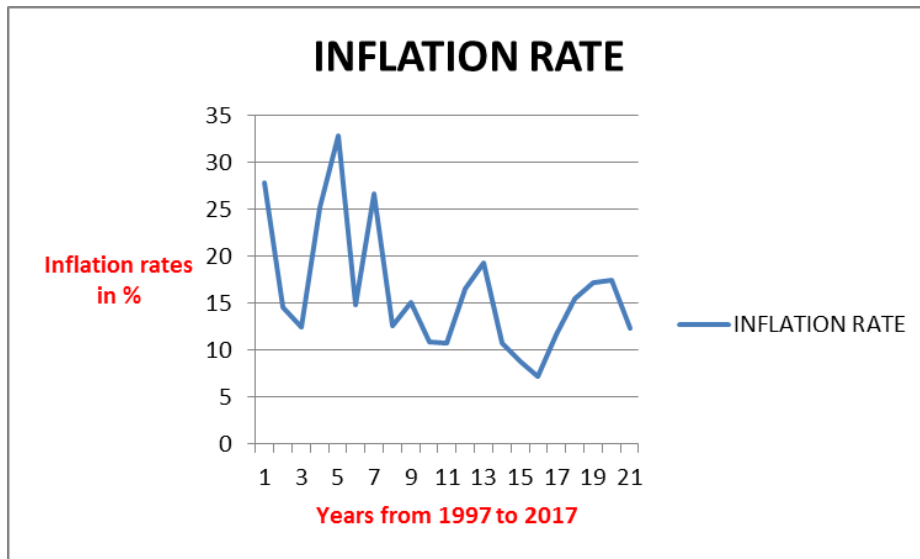


**Source: Author's own constructs using annual data from UNCTAD, 2018**

### **3.4.6 Inflation**

This is the persistent and continuous rise in general price level of goods and services over specified period of time. For this study consumer price index (CPI) is considered for inflation. Studies conducted by Andinuur, 2013, Alfaro, 2003 and Carkovic and Levine, 2002 have measured inflation in terms of CPI. In theory, when there is a rise in price levels, it causes the purchasing power of consumers to decline hence causing domestic production to reduce resulting in negative effect on GDP. Therefore the sign of is expected to be negative. The annual data were extracted from World Development Indicators (2018). The graph below shows the trend of annual Inflation rate or Consumer Price Index (CPI) in Ghana from 1997 to 2017.

**Figure 3.6: GHANA'S INFLATION RATE FROM 1997 – 2017**



**Source: Author’s own constructs using annual data from WDI, 2018**

### **3.4.7 Foreign Direct Investment (FDI)**

FDI is the long term involvement of a source country’s management, joint venture, transfer of technology and expertise in a particular host country. In other words, it refers to the situation whereby individual of a particular country, (source country) obtained ownership of investment in another country (host country) for production control and distribution purposes and other related activities of a firm(s) found in the host country. In this study, FDI is calculated as the net FDI inflows as a percentage of GDP. Studies conducted by Brenner, 2014, Alfaro, 2003 and Carkovic

and Levine, 2002 measured FDI as percentage of GDP. Since FDI is envisaged as investment theoretically and considering the trend of inflow into the country over the years which show an increasing trend, the impact on economic growth is expected to be positive. That is, is expected to be positive. The annual data were extracted from UNCTAD STAT (2018). The annual trend of Foreign Direct Investment inflow in Ghana from 1997 to 2017 is graphically shown below.

**Figure 3.7:** GHANA'S FDI INFLOW NET FROM 1997 - 2017

**Source: Author's own constructs using annual data from UNCTAD, 2018**

### **3.5 Type and sources of data**

Secondary data were used for the purpose of the study. Secondary data are information relevant to researches collected by other individuals and documented that are already available. The historical data (from 1997 to 2017) on FDI inflow, GDPg, GDP, GNI, BOP, and BOP were collected from United Nation Conference on Trade and Development ( UNCTAD ) database to find out the relationship between the variables in the case of Ghana. The historical data on CPI

Inflation for the study were obtained from World Development Indicators. The macroeconomic variables used were purposefully selected because they form core indicators of economic growth. Although secondary data is very useful to the research, the researcher using these data has no knowledge on errors made by the original researcher. This limitation was considered when the secondary data were used. The appendix A contains tables of the historical data used for the study.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.0 Introduction**

This chapter presents the results obtained from data analysis and their respective interpretations. It analysed relationships between the independent variable (FDI) and each of the dependent variables (GDP growth rate, GDP per Capita, GNI, BOP, Inflation rate, and Balance of Trade) using time series data from 1997 to 2017. Pearson correlation was used to describe the strength and direction of the linear relationship the independent (FDI) and dependent economic growth which is represented by each of the selected macroeconomic variables.

#### **4.1 FDI and GDP Growth**

Table 4.1 at the appendix illustrates the regression result of the test obtained from the relationship between FDI and GDPg using historical data from 1997-2017

The correlation coefficient is 0.0006923, indicating a moderate positive correlation between FDI and GDP growth, but the significance level is 0.097, suggesting that the relationship between FDI and GDP growth is not statistically significant. Since, the p-value is greater than 5% (0.05) at significant level, the null hypothesis of the diagnostic tests will be accepted and conclude that

there is no serial correlation, residuals are homoscedastic and are also normally distributed. The regression result can be represented by the equation below:

$$\text{GDPg} = 4.698568 + 0.0006923\text{FDI}$$

This means an increase (eg 1%) in FDI net inflow resulted in 0.0006923% increase or growth in GDPg between 1997 and 2017 in Ghana. This confirms hypothesis 1 that FDI has positive impact on economic growth although it was not significant. It implies that Ghana economy went up by 0.0006923% from 1997 to 2017 as a result of the activities of foreign direct investment. Also, the result shows the constant term that indicates the coefficient (4.698568) at which FDI is zero. The constant coefficient of 4.698568 indicates that holding the FDI constant, growth will increase by 4.698568.

#### **4.2 FDI and GDP per Capita**

Table 4.2 at the appendix depicts regression result obtained from the relationship between fdi and gdp using historical data from 1997 – 2017

The correlation coefficient is 12.00042 and this suggests a strong positive relationship between FDI and GDP per Capita. Thus, hypothesis 1 again is confirmed by this outcome. The R square is 0.9327, indicating that 93.27% of the variance in GDP per Capita is explained by the variance in the amount of FDI inflow. The probability value is 0.000 showing that the relationship between FDI and GDP per Capita is statistically significant. Since the p-value is less than 0.05 at significant level, the null hypotheses of no serial correlation, homoscedasticity, and normal distribution of the residuals will be rejected. This result can be represented as follow:

$$\text{GDP} = 14042.96 + 12.00042\text{FDI}$$

This result shows FDI had strong positive and significant impact on GDP of Ghana between 1997 and 2017, and this is demonstrated by 1% increase in FDI net inflow resulted in over 12% increase in GDP. The result obtained from the test implies that total volume of goods and services produced in Ghana from 1997 to 2017 grew by over 12 percent as a result of the activities of foreign direct investment. This had positive economic outlook for Ghana.

### **4.3 FDI and GNI**

Table 4.3 at the appendix shows the result of the test obtained from relationship between FDI and GNI using historical data for the same period.

The coefficient is 11.57188 and this suggests a strong positive relationship between FDI and GNI. This outcome also confirms hypothesis 1. The R square is 0.9340, indicating that 93.40% of the variance in GNI is explained by the variance in the amount of FDI inflow. The probability value is 0.000 showing that the relationship between FDI and GNI is statistically significant. Since the p-value is less than 0.05 at significant level, the null hypotheses of the diagnostic tests will be rejected. Thus, the regression result can be represented by this equation:

$$\text{GNI} = 13907.32 + 11.57188\text{FDI}$$

The equation explains that FDI has positive and significant effect on economic growth measured by GNI. It implies that between 1997 and 2017 in Ghana, an increase in FDI net inflow resulted in over 11.5% increase in GNI. GNI per capita is a good measure of a country's level of development or welfare. GNI per capita better reflects people's living standards uniformly. Thus, positive and significant effect of FDI on GNI means the activities of FDI improved the people's living standard.

#### **4.4 FDI and Balance of Payment (BOP)**

Table 4.4 at the appendix indicates the result of the test obtained from the relationship between FDI and BOP using historical data for the period.

This result shows there is a strong negative relationship between FDI and BOP which is supported by large and significant coefficient of -0.9803683. The R square is 0.7702, thus, 77.02% of the variance in the BOP is explained by the variance in the amount of FDI inflow.

The probability value is 0.000 at significant level depicting that the relationship between FDI and BOP is statistically significant. The p-value of 0.000 rejects the null hypotheses of the diagnostic tests stated in previous chapter. The regression equation below represents the regression result.

$$\text{BOP} = -383.684 - 0.9803683\text{FDI}$$

This result disconfirms hypothesis 3 that there is a positive relationship between FDI and BOP. The equation shows that an increase (eg 1%) in FDI net inflow resulted in an approximately 0.98% decrease in BOP in Ghana during the research period.

#### **4.5 FDI and Inflation Rate**

Table 4.5 at the appendix gives the regression result for the relationship between FDI and inflation rate using historical data for the period.

The coefficient reads -0.0020801, suggesting a negative relationship between FDI and Inflation rate. This outcome confirms hypothesis 2. The R square is 0.2045, indicating that 20.45% of the variance in Inflation rate is explained by the variance in the amount of FDI inflow. The probability value of 0.04 shows the relationship between the two variables are statistically

significant. This p-value rejects the null hypotheses of the diagnostic test that residuals are not serially correlated; residuals are homoscedastic and are normally distributed. This outcome can also be represented by the regression equation below:

$$INF = 19.56845 - 0.0020801FDI$$

This result communicates that an increase (eg 1%) in FDI net inflow resulted in an approximately 0.002% decrease in inflation in Ghana during the research period. Inflation decline is important for economic growth because it increases the purchase power which ensures increased production and has positive effect on GDP.

#### **4.6 FDI and Balance of Trade (BOT)**

Table 4.6 at the appendix gives the outcome of the test obtained from the relationship between FDI and BOT using historical data for the period.

This result depicts a negative relationship between FDI and BOT which is supported by coefficient of -0.35993. The R square is 0.1319, thus, 13.19% of the variance in the BOT is explained by the variance in the amount of FDI inflow. At significant level the probability value reads 0.106 which indicates the relationship between the two variables are not statistically significant. The p-value of this regression result accepts the null hypotheses of no serial correlation, homoscedastic, and normal distribution of the residuals. The result can be represented by this regression equation:

$$BOT = -1570.223 - 0.35993FDI$$



This equation indicates an increase (eg 1%) in FDI net inflow resulted in 0.35993% decreases in BOT in Ghana during the research period.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter presents the summary of major findings, policy recommendations and conclusion of the study.

#### **5.1 Summary of Findings**

The statistical findings exhibited an insignificant positive correlation between FDI and GDP growth, significant positive correlation between FDI and GDP as well as FDI and GNI. Also, the empirical findings showed a significant negative correlation between FDI and inflation rate, and a strong negative correlation between FDI and BOP as well as between FDI and BOT.

Therefore, the results obtained in this research suggest that growth in FDI has been associated with positive economic growth in Ghana. FDI was linked with decreases in the inflation rate, and a negative balance of payment and trade balance.

A lower inflation rate increases the purchasing power of people and it is good for economic growth. On the other hand, a negative trade balance occurs when a country's imports are higher than exports and this creates a resource gap for the nation. In contrast, FDI appears to have a small positive, but not statistically significant, impact on GDP growth, and a strong positive significant impact on GDP and GNI as well as significant negative impact on INF.

Since this research found negative correlations between FDI and two out of the six macroeconomic indicators, these results may be a concern for the government of Ghana.

A middle income country like Ghana cannot ignore the importance of foreign investment for sustainable growth. Evidence suggests that the impact of FDI on economic growth is reliant on the absorptive capacities of the recipient country, which takes into account factors such as skilled human resources, technology, infrastructure, trade policy, institutional reform, and political conditions (Borensztein et al., 1998; Makki & Somwaru, 2004).

## **5.2 Recommendation to government of Ghana on FDI**

The findings have significant policy implication where the government has to be concerned with the contribution of FDI to economic growth. Economic development of a country can be achieved by encouraging more foreign direct investments.

Ghana, a middle income country with a GDP of about \$47 billion, relatively lags behind on the

world's development ladder. Within this capitalist dominated economic systems, FDI inflows are needed, regardless, for national development. It is therefore necessary, arguably, for us to build strong absorptive capacity (requisite human capital, institutions, social systems etc.), political and macroeconomic stability (crucial variable - inflation pushed by excessive government spending etc.), and infrastructure (eg. energy, transport systems, water etc.) in order to attract a substantial proportion of FDI coming to Africa.

Additionally, the following recommendations to GOG are endorsed to help increase the contribution of FDI to economic growth of the country:

- The Government of Ghana (GOG) should enforce a more stringent regulation of foreign direct investments.
- GOG ought to take tougher bargaining stance during negotiations. China has been successful in this because of its size and strong central government. Ghana, in the future, could take up such bold initiatives through the ECOWAS.
- GOG should seek for better deals, by not only looking at the MNCs in developed economies but also the emerging markets and some South economies.
- There must be adoption of performance standards, requirements, and effective monitoring of repatriations and transfer pricing deals.
- GOG must ensure gradual increase in domestic ownership and control of MNCs.

### **5.3 Conclusion**

The study investigated the impact of foreign direct investment on economic growth in Ghana. It examined the relationship between foreign direct investment and economic growth using

macroeconomic indicators such as GDP, GDPg, GNI, INF, BOT and BOP. The research used 21 – year time series data from 1997 – 2017. The study employed simple Ordinary Least Square linear regression approach to examine the relationship between foreign direct investment and the macroeconomic variables. In conclusion, the analysis of the empirical results obtained from the study suggested that there was a positive relationship between FDI and economic growth in Ghana between the periods 1997 - 2017, which the relationship was found to be significant. The robustness of the result has been tested using macroeconomic indicators such as GDP, GDP growth rate, GNI, INF, BOP, and BOT as dependent variables.

The results have policy implications. It implies that it is important to strictly monitor FDI – utilizing projects. It helps to prevent misapplication and mismanagement of foreign capital resources. Beside, projects that benefit SMEs in the consumer goods sector have a comparatively high potential for increasing employment and reducing poverty, as this sector helps individuals in both urban and rural areas. Therefore, it will be appropriate to allocate more FDI projects to such sectors.

Accordingly, FDI may be very beneficial in boosting economic growth especially under the auspices of prudent monetary, fiscal and trade policies. Government must ensure that policies to boost FDI are properly implemented to motivate foreign investors to continue their investment in the country.

The debates and controversies about the benefits and evils of FDI would still continue in the political and academic circles of Ghana, and these would often be discussed in the context of economic growth and development, and other philosophical or ideological sentiments.

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## APPENDIX A

### Table of historical data used for the study

The table contains time series data of Ghana (1997 - 2017): FDI inflow and selected macroeconomic indicators.

YEAR	GDPg	GDP	GNI	INF	BOT	BOP	FDI Inflow net
1997	4.198244162	14618.19288	14334.37099	27.88520864	-691.66	-403.4	81.8



						6	
1998	4.693749762	15871.06535	15548.93025	14.62416667	-769.2	-521.7 3	167.4
1999	4.428504323	16371.91763	16024.29819	12.40866891	-1763.29	-964.3	243.7
2000	4.205554694	10569.78795	10258.0554	25.19321937	-1305.03555 2	-386.4 2	114.9
2001	4.539051892	11274.08558	11044.81955	32.9054089	-1438	-427.4 7	89.3
2002	4.793642529	13079.94604	12805.3788	14.81624006	-870.114	-105.2 4	58.9
2003	5.224148505	16190.78527	15840.82602	26.67494973	-885.864	101.69	110.02
2004	5.353000815	18839.56712	18419.17932	12.62457406	-1623.942	-590.1 9	139.27
2005	6.19575442	22764.8335	22486.9803	15.11818572	-2545.103	-1104. 6	144.97
2006	4.551880635	27016.17336	26847.0289	10.91516997	-3027	-1056. 1	636.01
2007	4.345873585	32770.28594	32586.41093	10.73272807	-3866.6	-2378. 8	855.4
2008	9.150527717	37761.13094	37415.35908	16.52214331	-4998.786	-3327. 4	1220.42
2009	4.844160721	34385.60571	33990.42718	19.25071443	-2206.55	-1897. 2	2897.1
2010	7.902041548	42587.4188	41882.50152	10.70756812	-2962.02	-2747. 3	2527.36
2011	14.04506037	52369.94034	50739.7272	8.726836831	-3052.3	-3541. 3	3237.39
2012	9.292003203	55512.76998	52693.48233	7.12635006	-4210.82	-4911. 7	3293.43
2013	7.313423245	63278.83605	61490.01672	11.66619231	-3848.32	-5704	3226.33
2014	2.897438833	53601.58878	51217.76169	15.48961603	-1383.43	-3694. 6	3356.99
2015	2.178206803	49181.51959	48322.77864	17.1499695	-3143.97	-2823. 6	3192.3
2016	3.447792977	55009.73059	53662.68401	17.45463471	-1781.76	-2832. 1	3485.3
2017	8.143446494	58996.32423	57043.82595	12.37192155	1187.67	-2002. 6	3255

GDPg and Inflation figures are in percentage but the rest of the numbers under the column of GDP, GNI, BOT, BOT and FDI inflow net are currency expressed in millions of US Dollars. All the data were obtained from UNCTAD except CPI Inflation figure were obtained from World

Development Indicators.

## **APPENDIX B**

**List of Output Tables**

**Table 4.1** reg GDPg FDI inflow net

Source	SS	df	MS	Number of obs = 21		
-----+-----				F( 1, 19) =	3.05	
Model	20.6769331	1	20.6769331	Prob > F	=	0.0970
Residual	128.891639	19	6.78377047	R-squared	=	0.1382
-----+-----				Adj R-squared	=	0.0929
Total	149.568572	20	7.4784286	Root MSE	=	2.6046
-----						
GDPg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
fdiinflownet	.0006923	.0003965	1.75	0.097	-.0001377	.0015222
_cons	4.698568	.8564034	5.49	0.000	2.906095	6.491041
-----						

**Table 4.2** reg GDP FDI inflow net

Source	SS	df	MS	Number of obs = 21		
-----+-----				F( 1, 19) =	263.28	
Model	6.2133e+09	1	6.2133e+09	Prob > F	=	0.0000
Residual	448389083	19	23599425.4	R-squared	=	0.9327
-----+-----				Adj R-squared	=	0.9291
Total	6.6617e+09	20	333085525	Root MSE	=	4857.9
-----						
gdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
fdiinflownet	12.00042	.73958	16.23	0.000	10.45246	13.54838
_cons	14042.96	1597.326	8.79	0.000	10699.72	17386.2
-----						

**Table 4.3 reg GNI FDI inflow net**

Source	SS	df	MS			
-----+-----				Number of obs =	21	
Model	5.7775e+09	1	5.7775e+09	F( 1, 19) =	268.87	
Residual	408273108	19	21488058.3	Prob > F =	0.0000	
-----+-----				R-squared =	0.9340	
Total	6.1858e+09	20	309287868	Adj R-squared =	0.9305	
-----+-----				Root MSE =	4635.5	
-----						
gni	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
fdiinflownet	11.57188	.705721	16.40	0.000	10.09479	13.04897
_cons	13907.32	1524.198	9.12	0.000	10717.14	17097.5
-----						

**Table 4.4 reg BOP FDI inflow net**

Source	SS	df	MS			
-----+-----				Number of obs =	21	
Model	41467661.1	1	41467661.1	F( 1, 19) =	63.68	
Residual	12371610.8	19	651137.412	Prob > F =	0.0000	
-----+-----				R-squared =	0.7702	
Total	53839272	20	2691963.6	Adj R-squared =	0.7581	
-----+-----				Root MSE =	806.93	
-----						
bop	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
fdiinflownet	-.9803683	.1228488	-7.98	0.000	-1.237494	-.7232428
_cons	-383.684	265.3256	-1.45	0.164	-939.0168	171.6489
-----						

**Table 4.5 reg inflation FDI inflownet**

Source	SS	df	MS	Number of obs = 21		
-----+-----				F( 1, 19) = 4.89		
Model	186.686592	1	186.686592	Prob > F = 0.0395		
Residual	726.023793	19	38.2117786	R-squared = 0.2045		
-----+-----				Adj R-squared = 0.1627		
Total	912.710385	20	45.6355192	Root MSE = 6.1816		

inflation	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
fdiinflownet	-.0020801	.0009411	-2.21	0.040	-.0040499	-.0001104
_cons	19.56845	2.032551	9.63	0.000	15.31427	23.82263
-----						

**Table 4.6 reg BOT FDI inflow net**

Source	SS	df	MS	Number of obs = 21		
-----+-----				F( 1, 19) = 2.89		
Model	5589425.59	1	5589425.59	Prob > F = 0.1056		
Residual	36773985.8	19	1935472.94	R-squared = 0.1319		
-----+-----				Adj R-squared = 0.0863		
Total	42363411.4	20	2118170.57	Root MSE = 1391.2		

bot	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
fdiinflownet	-.35993	.211801	-1.70	0.106	-.8032346	.0833746
_cons	-1570.223	457.4424	-3.43	0.003	-2527.661	-612.7853
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