

**IMPACT OF FOREIGN DIRECT INVESTMENT
ON ECONOMIC GROWTH IN GHANA**

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**THIS DISSERTATION IS SUBMITTED TO THE
UNIVERSITY OF GHANA, LEGON, IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE AWARD
OF THE MASTER OF SCIENCE IN DEVELOPMENT
FINANCE**

DECLARATION

I, Owusu Agyemang Kwabena Junior, hereby declare that this essay is the product of an original research, which I conducted under the supervision of Dr. Amin Karimu of the University of Ghana Business School. I also declare that I have not submitted this essay to any other institution for assessment or for any other purpose, and that all references have been duly acknowledged.

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This work is dedicated to my late grandmother, Comfort Akuamoah, who encouraged me
when I started the course and now in the bosom of the Lord

ACKNOWLEDGEMENTS

I thank the Almighty God for the successful completion of this dissertation.

My gratitude goes to my supervisor Dr. Amin Karimu for his encouragement and patience. I also wish to show appreciation to my mother, Miss Beatrice Appah for her undying support and guidance throughout this entire academic period.

I want to extend my warmest gratitude to Ms. Sika Danquah, Ms. Winnifred Coleman, Mr. Frank Amoako, Kojo Shuta, Ketu Ishmael and Emmanuel Obodai Laryea for their selfless effort and support in making sure that this academic journey was a success.

I would like show appreciation to the Research and Business Development team of Ghana Investment Promotion Centre for furnishing me with the relevant data for this work.

Finally, I would like to thank all those who helped me in diverse ways, but have not been specifically mentioned.

LIST OF ABBREVIATION

FDI	Foreign Direct Investment
GDP	Gross Domestic Product
WID	World Investment Directory
UNCTAD	United Nations Conference on Trade and Developing
GIPC	Ghana Investment Promotion Centre
GMM	Generalized Method of Moments
ARDL	Autoregressive Distributed Lags
WDI	World Development Indicator
ADF	Augmented Dickey Fuller
PP	Philip Peron
OLS	Ordinary Least Square
ECM	Error Correction Model

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ABSTRACT

The issue of economic growth has become a great concern for many economies. The growth of economies has been attributed to many factors. To contribute to this subject, the study investigated the impact of foreign direct investment (FDI) on economic growth using evidence from Ghana. It went further to determine which FDI impacted sector has a significant effect on economic growth. Using time series data spanning from 1980 to 2012, Autoregressive Distributed Lagged model (ARDL) is employed for the study. The study revealed a positive and significant effect for both FDI and Government Spending on economic growth. Inflation and trade openness had a negative and significant effect on economic growth. On the second issue, FDI inflows to Agricultural and Manufacturing Sector had a positive and significant effect on economic growth in both short and long run. Service however showed a positive and significant effect in the short run but a negative and insignificant effect on economic growth in the long run. Even though FDI inflows to agricultural and manufacturing sector had a positive and significant effect on economic growth, inflows to manufacturing sector had the highest effect.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF FDI

Since the 1970s, Foreign Direct Investment has grown as the need for economic relations and interdependence become important among countries all over the world. It was initially seen as a sense of domination and a threat to national security to permit investors from foreign lands to move beyond their political boundaries. The global FDI flow fell from 1.86 trillion dollars in 2016 to 1.43 trillion dollars; a 23% decline from 2016. This was a complete opposite on the accelerated growth in the macro economic variables such as GDP and trade. The decline was in part caused by 22% decline of the value in net cross- border merger and acquisition (WIR, 2018).

FDI projects economic growth in emerging economies since they are unable to drive growth with domestic savings. This is because domestic savings are woefully inadequate. Countries are therefore torn in between raising funds from foreign market such as issuing bonds among others which increases the public debt of the issuing country and creating a conducive environment to woo foreign investors into the country. This comes at no cost to the host country.

Various research has been conducted on FDI and varied observations have been arrived at. Findley (1978) argued that host countries can progress technically through knowledge diffusion from more advanced technologies in developed countries. It was further suggested in

1992 by Wang and Blomstrom that these knowledge diffusions can define as imitation of processes or organizational innovations and augmented competition can cause other firms to modernize by taking on new technologies. Kokko (1994) observed that the link between spillovers and local companies can differ across industries and argued all kinds of industries should not be expected to produce spillovers because foreign companies are likely to operate run in areas that offer minute opportunity for companies to benefit. This observation shows that not every host country enjoys the spillover effect from the inflows of FDI.

Ghana after independence has undergone a lot of political and economic transformation. Its first president Dr. Kwame Nkrumah led a socialist government where most of its businesses were created and run by government. After the Nkrumah era, it was faced with series of coup d'état. This era of political instability did not encourage foreign investment.

The fourth republic has experienced peace and stability in the country and a peaceful transition of different presidents coming in with different policies to attract foreign investment. In addition to these policies, there exist the Ghana Investment Promotion Centre Act 1994 and Free Zones Act 1995, established to protect the interest of investors to create a favorable atmosphere for investment. As Ghana 's public debt approaches the distress range, FDI may be seen to be an appropriate tool to be used in order to bring about economic growth hence policies like 'one district, one factory', 'planting for food and jobs' among others.

Attracting FDI into the Ghanaian economy is the focus of policy makers currently since it is believed to promote economic growth. A comprehensive review must be done on the extent of these inflows and the distribution to various sectors to determine the effectiveness of FDI to the country since it would not be meaningful to use the countries scarce resources to lure external investors if it will not be able to help tackle the problem of a decline in poverty and

income generation. (Abdulai, 2015). This study determines the impact of Foreign Direct investment on economic growth in Ghana.

1.2 RESEARCH OBJECTIVES

1. To ascertain the impact of FDI on economic growth in Ghana.
2. To ascertain which **FDI impacted sector** has significant effect on the economic growth in Ghana.

1.3 RESEARCH QUESTION

1. What is the impact of FDI on economic growth in Ghana?
2. Which FDI impacted sector has significant effect on the economic growth in Ghana

1.4 SIGNIFICANCE OF STUDY

Several researchers have come out with varied response pertaining to the study. Some researchers revealed a constructive and notable effect (Koojaroeprasit, 2012; Asafu- Adjaye, 2015; Borensztein, Eduardo, Jose de Gregorie & Jong-Wha Lee, 1995). Some of them also showed an ambiguous effect (Alfaro, 2003; Lund, 2010). Brenner (2014) used a GMM technique and observed that FDI impacts economic growth positively in more developed countries while a negative impact was observed in less developed countries.

Currently, developing countries compete for FDI because it is believed that FDI is able to bridge the gap between investment and domestic savings. It is also believed that FDI aims at

reducing poverty in the host country. Ghana for instance has designed policies and passed laws to protect investor interest so as to attract FDI. Variety of incentives are given to investors who register their business under the free zones enclave like income and profit tax for 10 years, income tax not exceeding a maximum of 8% after the 10-year tax exemption period among others. The incentives to investors are cost to the countries. It is however perceived that benefit in the form of economic growth that comes from FDI exceeds its cost to the host nation. This therefore creates the motivation to find out whether Ghana is indeed gaining in terms of economic growth from FDI more than it is actually giving out to foreign investors as incentives for investing.

1.5 RESEARCH DATA AND METHODOLOGY

The research data contains FDI net inflows in current US\$, GDP in current\$, inflation in consumer price index, government spending proxied as government final consumption expenditure as a percentage of GDP and trade openness which was proxied as the summation of export and import per GDP. These were collected from WID database and the inflows into the various sectors were collected from GIPC.

An Auto Regressive Distributed lag (ARDL) approach is employed ascertain long and short run association amongst the various variables. This is an appropriate econometric tool for the study because of the sample used as a result of limited availability of data.

1.6 RESEARCH LIMITATION

The research suffers from a limited availability of data. An ideal impact evaluation should be within the ranges of 30 to 35 years or above, however, data for the said period is not available

especially data on FDI inflows to the various sectors. This influenced the sample used for the study. Data for all sectors of the economy was not readily available. This limited the number of sectors to three however, major sectors of the economy.

1.8 ORGANISATION OF STUDY

Chapter One of the research would entail a general introduction which is narrowed down to the research problem, purpose, the research objectives and limitations and organization of study.

Chapter Two talks about the over view of FDI. It talks about the definition of FDI, the global trends FDI net inflows for a period of time that of FDI net inflows in Africa and of Ghana. It also looks at the FDI inflows to the agricultural sector, manufacturing and service sector of Ghana.

Chapter Three would cover the literature review. Here, a series of empirical literature, done in the area of research would be reviewed.

Chapter Four would entail both the data collection and the methodology of the research would be explained to show why I think my method is appropriate for my research and why I think the data used for the research is enough to be able to conduct the research

Chapter Five would entail the findings and discussions of findings from the research. This is where the findings of the analysis are discussed.

Chapter Six would entail the summary of the analysis as well as the conclusion of the research and recommendations to be made and policy implications from the research outcome.

CHAPTER TWO

OVERVIEW

2.1 INTRODUCTION

This section gives the various definition of FDI, trends of world FDI inflows, trends of Africa and Historical background of FDI in Ghana, trends and sectoral flows of FDI in Ghana.

2.2 DEFINITION OF FDI

FDI is the system whereby an investor obtains an asset with the motive of managing the productive activities of the firm in an economy outside the investor's home economy (Moosa, 2002). FDI is defined as an investment whereby an investor acquires a significant interest in a firm operating in an economy outside the investor's home economy (OECD, 2012). A direct investor is able to exert an influence in the management of the firm however it does not necessarily mean that he has absolute control over the firm. FDI is considered as an ownership or control of not less than 10 percent stake in an enterprise (Griffin & Pustay, 2007).

2.3 TYPES OF FDI

Greenfield investment where a new facility is either built or there is an expansion of existing facilities (Ball & Mc Cullochs, 1999). It also seen as a kind of investment that involves in complete developing of new asset (Meskerem, 2014). This is primary target of a host countries promotional efforts. It augments production capacity, jobs and technological transfer.

Merger and acquisition are where by a partial or total sale of control of an existing local business is acquired by the foreign business (Ball & Mc Cullochs, 1999). Merger is when two companies come together in their quest to self-assist financially and increase growth of the business without necessarily developing another asset or unit. With acquisition, the foreign business completely buys the local business and hold full ownership of the business. This cross-border acquisition would lead to operation

and asset control transferred to the foreign business by the local business making the local business an affiliate of the foreign business (Varghese, 2015). Joint Venture is established when a foreign business combines with a local business to form a corporate body. A foreign business and the government of the recipient country can come together to form a unified body.

Horizontal FDI is where a company replicates its operation and activities in the host country. Here the foreign business establishes a subsidiary in a similar sector in the recipient economy as it finds itself in its own country of origin. Horizontal FDI is readily utilized in place of exports to get around trade barriers like import tariffs (Helpman, Melitz & Yeaple, 2003). The Bulk of FDI globally takes the form of horizontal FDI.

Vertical FDI is defined as foreign firms investing in a business that plays the role of a supplier or a distributor. Here different stages of production process can be segmented into different economies. Every country partake in the whole production process. The end products are then sent to the final assembly place. It is beneficial because it takes advantage of the difference in international prices of inputs such as labour, raw materials among others.

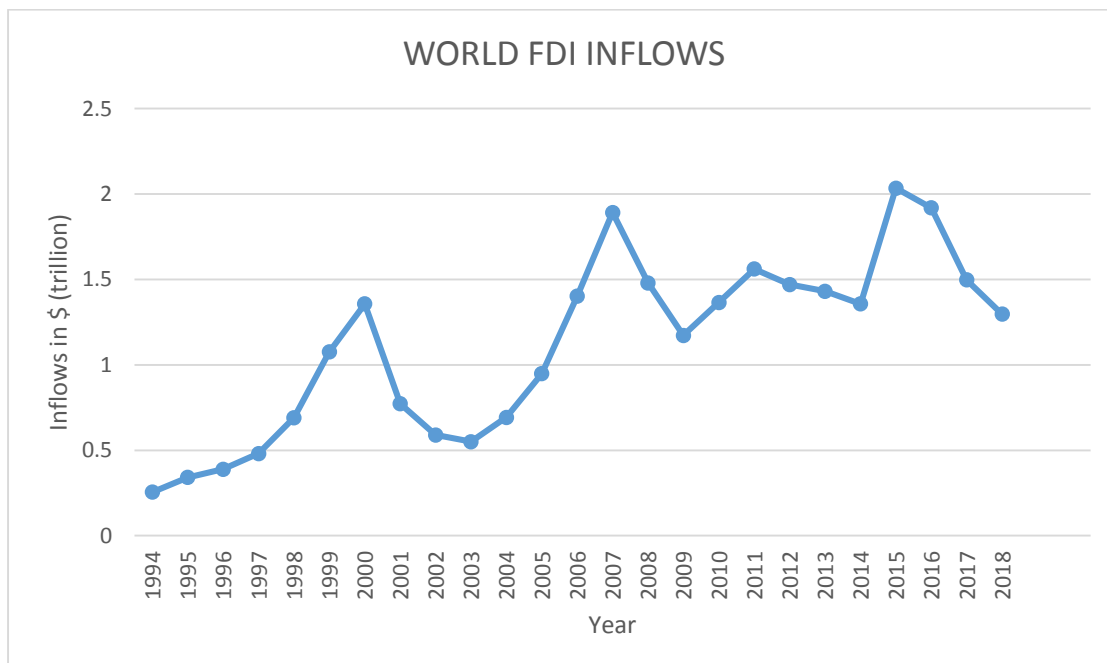
Foreign direct investment was previously viewed as unhelpful, negative and bring inappropriate technologies into developing countries. It was also views as a medium for foreign dominance in the host countries, a threat to national security and a form of neo colonization. As a result of that most countries initially implemented import substitution strategy as a tool for economic growth.

However, there has been major changes over the past three decades towards the way most governments initially viewed foreign direct investment into their home countries. Recent governments all over the world have shown interest in attracting foreign direct investment by liberalizing their FDI regime, though at different periods and time frame. Governments now see FDI as a vehicle by which technology transfer and capital injected into the country. FDI is now been competed for by countries both developing and developed. Investment policies have become more lenient than it used to be some decades ago. This shows good indications of countries' interest in attracting foreign direct investment

in national and regional level. Investment policies have been lenient across countries because governments have realized that it can attract more inflows of FDI as a result of that. Foreign investors also invests more in countries that have good economic basics such as market share and growth trajectory, relevant skills, infrastructure and local technological capabilities to ensure that their investment in the host countries are productive.

2.4 TRENDS OF FDI NET INFLOWS TO THE WORLD

FIGURE 2.1 FDI INFLOWS TO THE WORLD

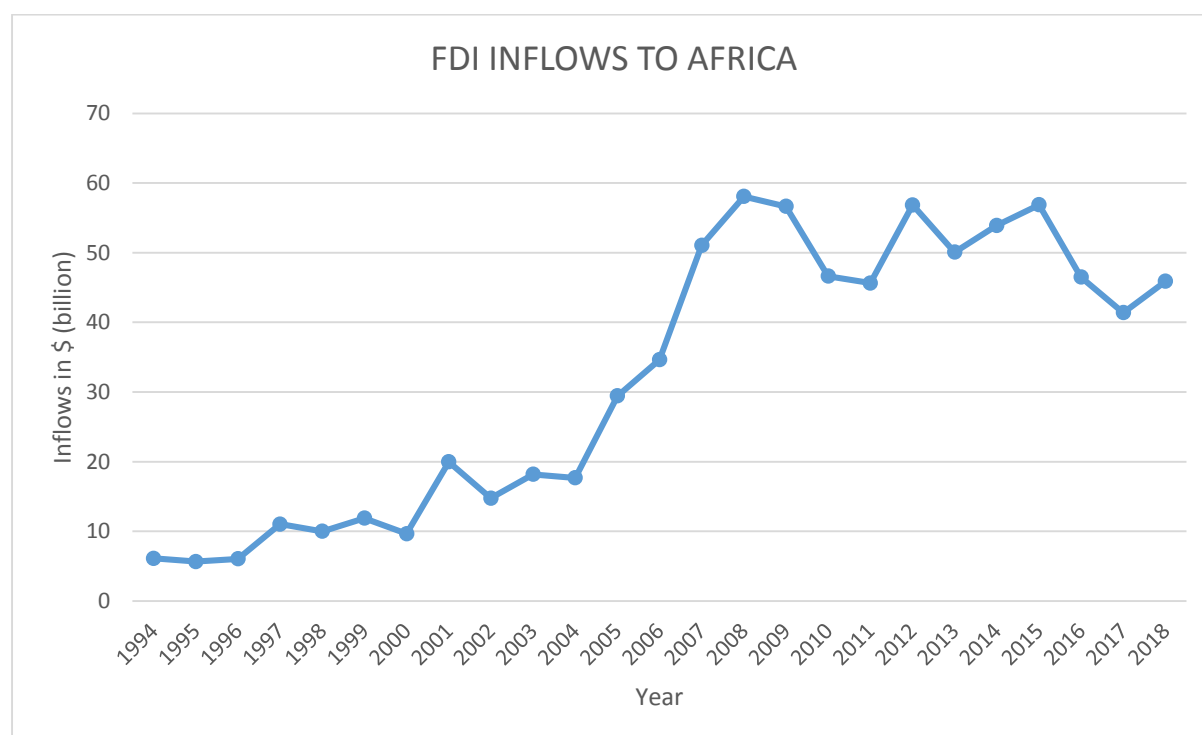


Source: Author's own computation (data from UNCTAD's database website)

Figure 2.1 shows the trends of the world FDI net inflows ranging from 1994 to 2018. The world FDI inflows in 1994 was around \$254.910 billion. It then showed an upward trend until 2000 when inflows of world FDI reached \$1.36 trillion (a growth rate of about 432% from 1994). After 2000, net inflows decline and leveled at \$692.325 billion in 2004 which indicated a decline of 48.97% from 2000. It then showed an upwards trend to 2007 where FDI net inflows reached \$1.89 trillion. World FDI inflows reached its highest value in 2015 at 2.03 trillion indicating an increase of about 697.85% from 1994 after which world FDI inflows has been declining to 2018. Currently world FDI net inflows is at \$1.29 trillion indicating approximately 36% decline from 2015.

2.5 TRENDS OF FDI NET INFLOWS TO AFRICA

Figure 2.2: FDI INFLOWS IN AFRICA



Source: Author's own computation (data from UNCTAD's database website)

Figure 2.2 shows the net inflows of FDI trends in Africa. A close observation shows that Africa is not doing well in relation to the attraction of FDI into the continent. One of the most populated continent as well as a continent with a lot natural resources happens to be one of the lowest recipient foreign direct investment. In 1994, world's FDI net inflows was at \$254.910 billion, that of Africa was at \$6.105 billion indicating a 2.39% share of world FDI net inflows. Currently world FDI net inflow is at \$1.297 trillion while Africa is at \$45.902 billion indicating 3.5% share of world's FDI net inflow. Though, Africa has increased its share of world FDI inflows, the increase cannot match up to the continent's effort to attract FDI. This clearly shows that the continent's approach to attracting FDI needs to be revised (Asiedu,2002). The inflows of FDI to Africa grew from 1994 to 2005 amidst fluctuating effects to reach \$29.438 billion in 2005 indicating a growth of approximately 382% from 1994. It further increased to attain its highest value within the period of review at \$56.874 billion in 2015 indicating an increase of about 831.597% from 1994. It then declined from 2016 to 2017 where FDI inflows was at \$41.390 billion which indicates a decline of 27% from 2015. Currently FDI net inflows stand at \$45.902 billion which shows an increase of 10.9% from 2017.

2.6 HISTORICAL BACKGROUND OF FDI IN GHANA

Ghana has undergone a lot of transformations which has either promoted or undermine the flow of FDI in the country. Its first president, Dr. Kwame Nkrumah led a socialist government where businesses were owned and controlled the government. He moved the country into an era of industrialization which was accentuated on participation of the state, import substitution and a less open economy. He focused on building an industrialized economy at the expense of agriculture because he believed that an industrialized economy would serve as a medium for creating a market for other sectors and also create more jobs. Unfortunately, cocoa prices went down as well as production of cocoa which really affected the country.

The Busia government made efforts at opening up the economy by encouraging private participation and promoting economic policy of making Ghana an investor- friendly environment for foreign

investors. The government at the time, increased cocoa producer prices in order to increase exports and also loosened the restriction on imports. However, as world prices for cocoa went down, the country was then faced with balance of payment problems which made the government brought back stringent measures to reduce imports and also restrict foreign exchange transfers to help solve the problem it faced.

The Acheampong led government reversed the trend towards liberal economy. He led an expanded state participation in economic activity and regularized imports which discouraged FDI into the Ghanaian economy leading to the lowest FDI flows during this period. Under the Acheampong era, public investment and input subsidies were channeled towards projects which increased agricultural production. This led to the formulation of “Operation Feed Yourself”, a government socialist project which favored rural communities and state sector employees.

In the PNDC era, the government designed an economic reform program with aid from IMF and World Bank. This was to bring about infrastructural development, fiscal discipline, shift economic controls towards market forces, move artificially fixed exchange rate to reflect real costs in order to engender productivity and exports and a structural and institutional reforms to improve economic efficiency and encourage investment. The effective application of financial recovery, trade liberalization and structural adjustment programs brought the domestic economy from the verge of complete collapse, restored the confidence of Ghanaians in their home economy and restored global trust in Ghana as an opportune area for investment. FDI which had plateaued at 1% from 1970-1982 increased to 6% in 1992. Between 1984 and 1990, GDP showed an average growth of 54% (UNCTAD, 2003). FDI flows became stagnated in the years immediately following the start of the reform. However, the period of 1991 to 1995 saw Ghana as the front runner falling within Africa’s best ten investment locations (UNCTAD, 2003).

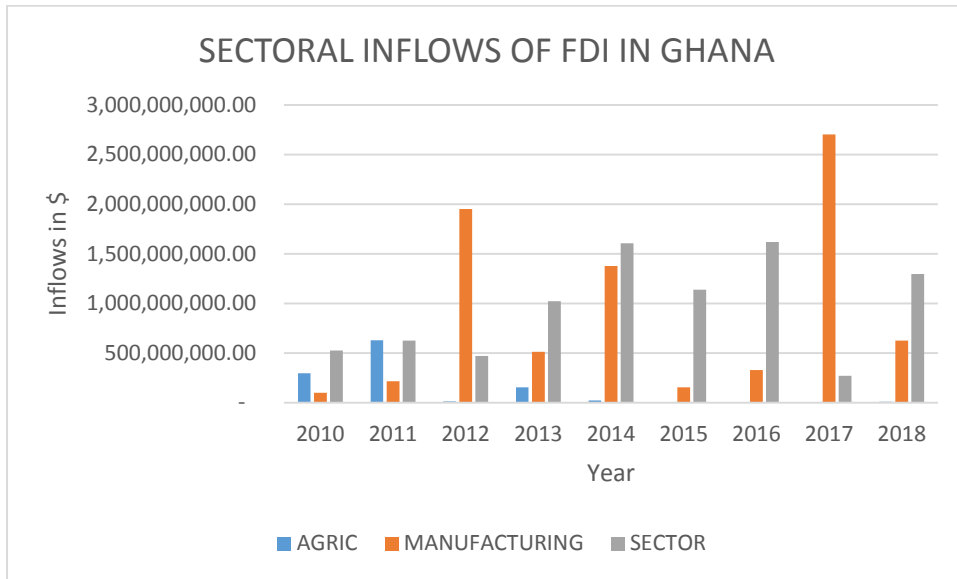
To increase FDI, an investment code was enacted which sought to foster a conducive environment for external investment. The code sought to cancel the need for prior project approvals, create a flexible process of establishing a company as well as providing incentive and guarantees to investment. The investment code is where Ghana Investment Promotion Centre (a body set up to serve as a promotion body draw its mandate from). The establishment of the investment code, together with political stability brought about the increment of FDI flows into the country. Since the beginning of the fourth republic, Ghana has experience has experience peace and stability. This has led to the inflow of FDI into the various sectors of the economy bringing development and job creation to the citizens of the country.

2.7 SECTORAL FLOW OF FDI

Figure 2.3 presents inflows of FDI to agriculture, manufacturing and service sector in Ghana from 2010 to 2018. This data was collected from Ghana Investment Promotion Centre. The FDI inflows into agricultural, manufacturing and service sectors totaled to about \$17.674 billion, averaging \$1.964 billion a year for the 9-year period under study. The service sector happens to be highest recipient of FDI among the three sectors and on its tail is the manufacturing sector and finally the agricultural sector. Total FDI inflows into the service sector is about \$8.571 representing approximately 48.50% of total FDI inflow. Manufacturing sector which follows the service sector had \$7.965 billion representing 45.07% of total FDI inflows. The Agricultural sector which is the least recipient amongst the three sectors had \$1.138 billion representing 6.43% of total FDI inflows. The agricultural sector attained its highest value of FDI inflow in 2011 with an amount of about \$ 626.763 million. The service sector also attained its highest inflow in 2016 with an amount \$1.617 billion. Manufacturing sector reached \$2.703 billion in 2017. This happens to be its highest inflows within the 9-year period under study.

The average value of FDI for each of the sectors were \$952.387 million for the services sector, \$885.026 million for manufacturing and \$126.406 million for agricultural sector.

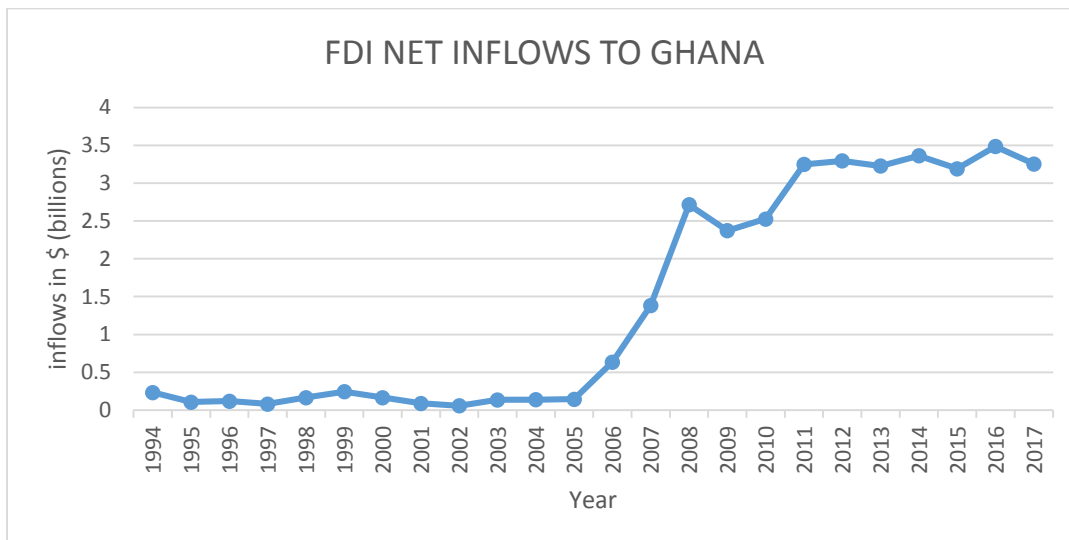
FIGURE 2.3: SECTORAL INFLOWS OF FDI IN GHANA



Source: Author’s own computation (data from Ghana Investment Promotion Centre)

2.8 TRENDS OF FDI NET INFLOWS TO GHANA

FIGURE 2.4: FDI NET INFLOWS (GHANA)



Source: Author’s own computation (data from UNCTAD’s database website)

Figure 2.4 shows FDI net inflows to Ghana. A general observation of the net inflows of FDI trends shows that Ghana has improved following the establishment of GIPC in 1994. From 1994 to 2005 net inflows fell within the range of \$58 million to \$250 million. In 2002, Ghana hit the lowest value of FDI net inflows which was \$58.93 million. This may be attributed to the era where Ghana had to join HIPC because it was highly indebted and could not pay its debts. This did not show a good indication of a conducive atmosphere for investment. FDI net inflow increase in 2006 at \$636.010 million and further increased until 2008 where it reached \$2.715 billion, which is about 326.89% increase from the 2006 value. In 2009, FDI net inflows declined to \$2.373 billion. FDI net inflows to Ghana hit its highest so far in 2016 where it reached \$3.485 billion, after which it declines to \$3.255 billion showing a 6.6% decline from 2016.

CHAPTER THREE

LITERATURE REVIEW

3.1 INTRODUCTION

There have been varied outcomes when it comes to how FDI impacts economic growth. Some study reports a positive trajectory while others report negative findings. Other study indicate an ambiguous interactions, revealing at some point a seesaw relationship.

In this chapter, I review various studies done in relation to the study. I review related papers done globally, in Africa and Ghana. Specifically, I look at the general outcomes of various studies. I also review related studies looking at the world and in Africa that established a positive association and the ones that establish a negative or ambiguous association. I also review sectoral impact of FDI in the world and Africa. I further review literature on FDI and economic growth in Ghana.

3.2 GENERAL EMPIRICAL REVIEW OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH

Borensztein et al (1998) in their study found that FDI influence on growth is dependent on the availability of human resources. They also found that foreign investment contributes to growth more than local investment and has the ability of increasing domestic investment. Li & Liu (2005) used random effects model and 3 SLS on 21 developed countries and 63 developing from 1970- 1999. The study affirms the need for human resource availability in order to ensure relation between FDI and economic growth. Though Benzoa & Sanchez (2003) agrees the

previous studies, they further states that a significant level of a stable economy and a more liberalized capital market also ensures the positive influence of FDI on growth.

However, Kentor (1998) disagrees with Borensztein et al (1998) on their findings that foreign investment leads to more growth than domestic investment. In his research, he found that countries that depend highly on foreign investment exhibit slower than countries that are less dependent on it. This is supported by Dixon & Boswell (1996) who postulate a positive relation of FDI on economic growth in the short run while in the long run, a negative relation is exerted. A further support of foreign investment by infrastructure and institutions lead to negative externalities like unemployment among others. Kentor & Boswell (2003) also found a negative effect of foreign investment concentration on growth in the long run.

Foreign direct investment is believed to crowd out domestic investment. Adams (2009) in his study on the relationship between foreign direct investment, private investment and economic growth in 42 sub-Saharan countries from 1990 to 2003 found that FDI has a negative impact on domestic investment. This sought to suggest a crowding out effect on domestic investment. Similarly, Meskerem (2014) argued that domestic investment has a positive impact on economic growth however the impact reduces as FDI assumes a positive impact. Zeckarias (2016) sees no significant crowding out effect on domestic investment in his study of the impact of FDI on economic growth in 14 East African countries. He further added that Foreign Direct investment and domestic investment are complement and not substitutes. Ndikumana & Verick (2008) postulates that foreign direct investment crowds in domestic investment and further adds that domestic investment encourages foreign direct investment.

Studies on the directional causality of FDI and Economic growth lead to different findings. Hansen & Rand (2006) found a bi-directional causality between Foreign Direct Investment and Economic Growth. Meaning that FDI causes Growth and growth causes FDI. This was agreed by Omri, Nguyen & Rault (2014). Basem & Abeer (2011) however found a unidirectional causality from GDP to FDI which indicates that the growth of the domestic economy attracts FDI inflows. Ugwegbe & Okore (2013) supports these findings but Sunday & Ango (2017) establish a unidirectional causality from FDI to economic growth indicating that FDI causes Growth and not the other way around.

3.3 EMPIRICAL REVIEW THAT FOUND A POSITIVE IMPACT OF FDI ON ECONOMIC GROWTH BOTH IN THE WORLD AND AFRICA

Sokang (2018) used a correlation matrix and multiple regression analysis techniques to analyze the collected data in order to find the impact of FDI on economic growth in Cambodia from 2006 to 2016. The results showed a positive impact of foreign direct investment on economic growth. Ugochukwu, Okore & Onoh (2013) used a growth model with an ordinary least squares model on a similar phenomenon focusing in Nigeria and found a positive but insignificant effect of FDI on economic growth in Nigeria.

Hong (2014) analyzed how FDI promote economic growth. He applied a generalized method of moment on a panel data of 24 Chinese prefecture cities from 1994 to 2010. He found a positive impact of FDI on economic growth. Solomon (2011) used the same model on a panel data of 111 countries from 1981 to 2005 to analyse the impact of FDI on economic growth and found a positive and significant impact.

Meskerem (2014) researched on the impact of foreign direct investment on economic growth in Ethiopia. Ordinary Least Squares technique was used to analyse a time series data from 1974 to 2001 and found a positive and significant impact of FDI on economic growth in Ethiopia. Ugwuebe & Okore (2013) used an ordinary least squares method on the same phenomenon in Nigeria from 1981 to 2009 and found a positive impact of FDI on economic growth but not significant.

Asiedu (2002) found that FDI has had during a ten-year period between 1988- 1997 positive impact on both sub Saharan countries and non-sub Saharan countries. Using ordinary least squares model, she found a positive and significant impact of FDI in non-sub Saharan countries while a no impact was found for sub Saharan countries even though there has been huge inflows of Chinese FDI into the region. Zhang, Alon & Chen (2014) agrees with Asiedu (2002). According to them, neither Chinese FDI nor FDI net inflows have significant effect on economic growth in the sub Saharan region. By testing other economic growth determinants in sub Saharan countries based on growth accounting theory, they find that change in capital stock per labor has a persistent and significant positive impact on growth in this region. Modou & Liu (2017) disagree with both findings. They argued that Asian FDI contributes positively to economic growth in Africa. They studied on the impact of Asian FDI on Africa's economic growth. This study was based on a panel data of 13 West African countries including Ghana. A weighted fully modified ordinary least squares was used to analyse the data.

3.4 EMPIRICAL STUDY THAT FOUND A NEGATIVE OR AMBIGUOUS EFFECTS OF FDI ON ECONOMIC GROWTH BOTH IN THE WORLD AND AFRICA

Brenner (2014) in his study of examining the effect of Foreign Direct Investment on economic growth, used a GMM panel regression to analyse data of 112 countries consisting of developed and less developed countries excluding oil exporting countries for the period of 1974 to 2010. He found a positive impact for developed countries while a negative impact was established for less developing countries.

Carbonell & Werner (2018) studied on whether foreign direct investment enhances growth. The focus of the study was on Spain, a country that is among the highest receivers of foreign direct investment and also has above average GDP level. The period for the study was from 1984 to 2010. Using a GETS methodology, they found no evidence of foreign direct investment enhancing economic growth in Spain. Rahman (2015) also conducted a study on the relationship of foreign direct investment and its impact on selected macro-economic variables. Using a multiple regression to analyse a time series data from 1999 to 2013, found a negative correlation between FDI and economic growth and further suggest that FDI led growth is dependent of the absorptive capacity of human capital. This happen to support findings from Borensztein et al (1998).

An autoregressive Distributed Lag model and a vector error correction model were used by Sunday & Ango (2017) to analyze the impact of foreign direct investment on economic growth in Nigeria. A quarterly time series data of Nigeria was analyzed from 2009 to 2016. They consequently found that FDI has a negative impact on economic growth.

3.5 SECTORAL IMPACT OF FDI ON ECONOMIC GROWTH FOR BOTH THE WORLD AND AFRICA

Alfaro (2003) studied the effect of FDI on Economic growth focusing on the various sectors of developing countries. The author utilized a cross country data covering 47 developing countries from 1981 to 1999. Alfaro found that FDI in the primary sector had a negative effect on growth. That of manufacturing sector has a positive and significant effect on economic growth whiles FDI in services also had a positive but an insignificant effect on growth.

Wang (2009) observed a positive and significant effect of Manufacturing FDI on economic growth in twelve Asian economies whiles non-manufacturing FDI does not play an important role in enhancing the economy. Landry Chabe (2015) in his study on the impact of foreign direct investment on economic growth in Cameroon, used a regression analysis to analyse a time series data from 1977 to 2010. He found that FDI in both manufacturing and service sector had a negative impact on economic growth whiles FDI in the primary sector exhibited a positive effect on economic growth.

3.6 RESEARCH ON FDI AND ECONOMIC GROWTH IN GHANA

Tee, Larbi & Johnson (2017) in their pursuit to finding the relationship between foreign direct investment and economic growth in Ghana reported a positive and significant impact of foreign direct investment on economic growth. A time series data from 1980 to 2012 was used. A linear regression was applied to analyse the data. They further added that for foreign direct investment to contribute hugely to economic growth, the host country must have a better initial GDP and

human capital. Similarly, Nuworkpor (2016) found a positive and significant impact of foreign direct investment in both long and short run as he investigated similar phenomenon for the same period using an autoregressive distributed lagged model to analyse his data. Owusu (2016) however argues that though FDI contributes to economic growth and development, the impact is less if the investment is not channeled to poverty reduction.

Antwi & Zhao (2013) studied the relationship between foreign direct investment and economic growth in Ghana for the period of 1980 to 2010. A Johansen's multivariate co integration test and Granger causality test was applied to analyse the data. They found a negative long run relationship between GDP and foreign direct investment and that unidirectional causality existed between GDP and FDI.

Abdul- Aziz, Baba & Babamu (2015) looked into the impact of FDI on the performance of the industrial sector in Ghana. Using a time series data from 1980 to 2013, a Johansen co integration test was applied to analyse the data. The result showed that Foreign Direct Investment has a positive and significant long run effect on the performance of the industrial sector in Ghana.

3.7 CONCLUSION

The various literature reviewed is inconclusive as to whether foreign direct investment impact growth or not. This leads to the need for further research into the area to add to literature to be able to find a more conclusive decision on the subject matter. Also, very little has been done on the sectoral impact of foreign direct investment on economic growth. Therefore, creating a gap in the literature to which I can contribute to filling it.

Chapter Four

Methodology

4.0 INTRODUCTION

This page opens with a discussion on the models and econometric technique employed in examining the giving data. It then proceeded with the discussion of the variables chosen for the research, the sample and the origin of data, highlighting the dependent and the independent variables.

4.1 RESEARCH DESIGN

The exercise deployed a quantitative approach in analyzing the study. Quantitative research approach is dependent on objective facts, numerical data, and its use helps researchers to generate statistics which can be generalized, and to look at relationships between variables to determine cause and effect. This approach has been adopted by several researchers who studied similar topic on foreign direct investment (Habanabakize & Meyer, 2018; Dellis et al., 2017; Bokpin, Mensah & Asamoah, 2015; Gul et al., 2012; Djokoto, 2012). For instance, Dellis et al. (2017) investigate the role of economic structures by adopting quantitative and statistical artifacts like financial round tripping. Bokpin et al. (2015) quantitatively demonstrate that natural resources influence foreign direct investment inflow to Africa. Djokoto (2012) investigates the factors attracting FDI into the Agricultural sector of Ghana between 1970 and 2009. The author uses quantitative approach to establish an exponential growth equation for foreign direct investment and other influential variables.

4.2 DATA SOURCE

The data used for this analysis is dependent on a time series data of Ghana from 1994 to 2018 to explain the association between FDI and economic growth. It further goes ahead to ascertain the relationship between inflows of FDI to the various sectors and economic growth. Significant proportion of the data used are from the WID database and the inflows of FDI to the various sectors were collected from Ghana Investment Promotion Centre for the said period. GDP was measured as Gross domestic product (at constant US). This was collected from UNCTAD's world investment directory database. Inflation was measured as Inflation at consumers price index and this was collected from UNCTAD's world investment directory database. Government Spending was proxied by general government final consumption as a ratio of GDP. This was collected from World Bank's world development indicator database. Trade openness is also proxied as the summation of imports of goods and services and exports of goods and services (both at constant US\$) divided by GDP (in constant US). This was also collected from UNCTAD's WDI database.

4.3 SAMPLE

The sample chosen was as a result of difficulty in getting relevant data for the study. Even though some of the data are available as far back as the time Ghana had independence, others are difficult to come by due to improper documentation of data. This therefore led me to choose the sample which could get me all the relevant data. The sample chosen is from 1994 to 2018.

4.4 DIAGNOSTIC TESTS

The results obtained would be checked for auto correlation and heteroskedasticity to ascertain whether the standard error of the regression is biased giving rise to a spurious result. A model that has issues of heteroskedasticity and serial correlation would have an untrusted coefficient.

In using the Breusch- Godfrey Serial Correlation LM test to test for auto correlation. An f statistics' probability, above 5% critical value would mean that the regression is free of auto correlation and that the co efficients can be trusted.

A Breusch-Pagan-Godfrey test is undertaken to verify the existence of heteroskedasticity in the regression. An f statistics' probability, above 5% critical value, it means that the model is free from heteroskedasticity and that the co efficients of the variables can be trusted. test for heteroscedasticity is used to check whether there is heteroscedasticity in the regression.

4.5 DATA ANALYSIS

In analyzing the data, the variables are first transformed into natural log. This is necessary because it brings about consistency in the variable.

4.5.1 STATIONARITY TEST

A stationarity test is performed after the natural log of the variable. This is to check for stationary of each of the variables. A stationarity test is done to avoid reporting spurious regression results by determining if the variables in the model are related. In checking for stationarity of the variables, an ADF test is used whiles a Philip Peron test is undertaken to confirm the results.

4.5.1.1 AUGMENTED DICKEY FULLER TEST

This was put forward by Dickey & Fuller (1976) to ascertain that the characteristics of a time series is added to the model. The ADF test is performed to ascertain the point at which the variables are stationary. If the absolute value of the t statistics is higher than that of the 5% confident level, we can accept stationarity of the variable.

4.5.1.2 PHILLIP PERON TEST

The Philip Peron test would serve as a confirming approach to the outcomes from the ADF test. a consistency of the results from the PP test and ADF test would ascertain stationarity of variables whether at level ,first difference and second difference. The PP test is seen as a modification of the ADF test. This helps check and correct issues of heteroskedasticity and serial correlation.

4.5.2 BOUNDS TEST

It is necessary to ascertain whether there exists co integration in the model. In this research, a bounds test would be performed to verify whether or not there exist an association in the long run. There are different forms of co integration method however the bounds test is seen as important for the purpose of this study because: 1) It analyses variables with combinations of I(O) and I(1) 2) it is efficient in situations where the sample size is small and finite. 3) It establishes an unbiased estimate for the long run model. It is for these reasons; I choose the bounds tests as the method for co integration in this study. In bounds test, there are two hypotheses. The null assumption asserts no co-integration while the alternative hypothesis asserts that there is co-integration. The bounds test decision rule states that once the value of

the F-statistics is lower than the I(0) bounds, it means no association in the long run. However, if the values of the F-Statistics are greater than the limit of I (1), this means that there exist an association in the long run.

4.5.3 ARDL MODELLING APPROACH

The study found an estimation approach as well as vast models in analysing the research. The study chanced upon significant works that employed either OLS based multiple linear regression or the residual based Engle-Granger test approach, incorporation with Johansen (1991) maximum likelihood tests. However, for developing economies with data series not available for longer periods, the study found the Autoregressive Distributed Lag (ARDL) approach to be popular (Pesaran & Smith, 1998).

According to Pesaran & Pesaran (1997), one importance of ARDL model is that the model is flexible. This is because it analyses variables that are integrated at both I(0) and I(1) Additionally, it is able to take adequate lags to help capture the relationships among the variables in time series. More so, an error correction term (ECT) can be found using a simple linear transformation. Pesaran & Smith (1998) explain that, the ARDL model aids in establishing the relationship in both the long and short run. It also deals with the issue of stationarity in time series data.

4.5.4. ESTIMATION OF THE SHORT- RUN RELATIONSHIP

A prior run of model one, established no association in the long term, therefore only short run relationship can be established for the model. The short term relationship would be established using the simple ARDL model.

4.5.5 ESTIMATION OF THE LONG-RUN RELATIONSHIP

The model two estimates the association in the long term on how inflows of FDI into agricultural, manufacturing and service sector impact economic growth with GDP being the dependent variable and the three sectors representing the independent variables including other control variables. In the estimation, the independent variable explains the dependent variable by testing for association in the long term.

The study used the bounds test to investigate the association between variables in the long term. The reason for co integration test in this work is to investigate whether the variables in model one as well as that o model share a common stochastic trend.

4.6 MODEL SPECIFICATION

In addressing the two objectives set out at the beginning of this study; the study adopted the model specified below. (Gohou and Soumaré, 2012) and (Ucal, 2014) used this model in assessing FDI and economic growth relations:

MODEL ONE

$$\text{LnGDP}_t = \beta_0 + \beta_1 \text{LnFDI}_t + \beta_2 \text{LnINF}_t + \beta_3 \text{LnGS}_t + \beta_4 \text{LnTO}_t + \varepsilon_t$$

Where the dependent variable= log of Gross Domestic Product

The explanatory variables

LnFDI = log of Foreign Direct Investment

LnINF = log of Inflation

LnGS = log of Government Spending

LnTO = log of Trade Openness

β_{1-4} = co efficient of the explanatory variables

β_0 = Constant

ε_t = error term

$$\text{LnGDP}_t = \beta_0 + \beta_1 \text{LnAGRIC}_t + \beta_2 \text{LnMANF}_t + \beta_3 \text{LnSERV}_t + \beta_4 \text{LnINF}_t + \beta_5 \text{LnGS}_t + \beta_6 \text{LnTO}_t + \varepsilon_t$$

Where LnGDP= the log of Gross Domestic Product

LnAGRIC= log of FDI inflows to Agricultural sector

LnMANF= log of FDI inflows to Manufacturing sector

LnSERV= log of FDI inflows to Service Sector

LnINF = log of Inflation

LnGS = log of Government Spending

LnTO = log of Trade Openness

β_{1-6} = co efficient of the explanatory variables

β_0 = Constant

ε_t = error term

4.7 VARIABLES DESCRIPTION

The first model looks to establish the association between FDI and economic growth in Ghana.

The main variables used in analyzing model one are GDP in current values, and net inflows of FDI including a number of control variables.

The second model the second model explains how the fdi inflows to the various sectors used in this study impact the growth of the economy in Ghana. The main variables are FDI inflows in agricultural, manufacturing and service sector in current values, GDP in current values and a number of controls.

4.7.1 GROSS DOMESTIC PRODUCT

It is the market worth of production of goods and services within a specified time period in the border of a country. GDP is used to measure economic growth in this research. This is measured in its current values. It is believed that the likely attraction of FDI can lead to growth in the economy (Moosa, 2005). GDP is the dependent variable in both models. .

4.7.2 FOREIGN DIRECT INVESTMENT

It is the investment used to obtain a controlling interest (at least 10% stake) in a business operating outside the investor's home economy. FDI serves as a complement to domestic investment which are woefully inadequate to bring about economic growth in the host country. It is believed to bring about the transfer of technology as well as reduces poverty in the home economy. This impacts growth. FDI is measured by FDI net inflows as a ratio of GDP is used for the research. A positive β_1 is expected

4.7.3 INFLATION

It is the continuous rise in the level of price of products and services over a specified time period. Inflation in CPI is used for the research. If the price of products and services constantly increases, consumers' ability to buy purchase domestic products would decrease, this would be a disincentive to growth in the economy. This means that as inflation increase, GDP would fall as a result. Therefore a negative β_2 is expected.

4.7.4 TRADE OPENNESS

The summation of export and import divided by GDP is used to estimate the openness of trade. Its impact on FDI is dependent on the investment type. This is because a market seeking investment would impact FDI positively while an investor who seeks to produce for the local market would invest more in a country where there are restrictions on its imports. There would be an increased market size in the home economy. For the purpose of the research, trade openness is believed to impact economic growth positively. Therefore β_3 is expected to be positive.

4.7.5 GOVERNMENT SPENDING

This is proxied as the government general final consumption expenditure. This comprises of all government expenditure made on products and services, which includes employee compensation. It also encompasses expenditure on defense and security of the country but excludes from spending made on the military. It is expected to boost the economy hence a positive β_4 is expected.

4.8 REASONS FOR USING THESE SECTORS IN THE ANALYSIS

Despite the limitation in getting the data on inflows of fdi to sectors, the sectors obtained and used for the analysis are the major contributors to Ghana's economy. Data from statistical service shows that in 2017, the share of agriculture to GDP was 19.7%, manufacturing (industry) was 30.78% and the service sector contributed about 42.35%. This collectively forms about 92.83% of share of GDP. The agriculture sector is perceived to be an engine of growth and job creation. It provides income to a significant number of the population. It serves as a major contributor to export earnings and also as an input for the manufacturing sector. In terms of FDI it is the sectors that receives the lowest inflows among the three sectors even though it is capable of employing more than any of the sectors in review. The manufacturing sector is also a vital contributor to a nation's economy. It also serves as a source of job creation to the population. An improved manufacturing sector would also improve the country balance of payment deficit. Commodities exported would be in its semi-finished form or finished form. In terms of FDI inflows to the country, it attracts a higher value as compared to agricultural sector. Service sector contributes more to GDP more than any of the two other sectors in review. The service sector attracts more FDI cumulatively among the three sectors. Even though it serves as a source of employment for the population, it is mostly centered in the urban areas.

These sectors are impacted by FDI as considerable inflows are channeled these major sectors. It is therefore necessary for find how significant these FDI impacted sectors are to the growth of the economy in order to channel attentions to the significant ones to boost economic growth. For the analysis, FDI inflows to agricultural, manufacturing and service sector was used. Data was obtained from Ghana Investment Promotion Centre.

CHAPTER FIVE

RESULTS AND DISCUSSION

5.1 Introduction

This chapter proffers a comprehensive analysis and detail-oriented results of the models described in the preceding chapter. This chapter begins with the presentation of the stationarity tests and further discussions on the results. The findings and deliberations of the bounds tests are presented. The briefly discussed long and short-run dynamics of the model, including the error correction model is as well presented.

5.2 Discussion of Time series properties

A major characteristic of most economic variables is that, they are not stationary at their plane form thus likely to generate coefficients inconsistency and hence produce spurious empirical results. To resolve this peril, the PP and ADF tests were adopted to check the stationarity of the variables. Both PP and ADF tests are complementary, however the PP test is less restrictive and its results are accurate even if the absence of autocorrelation and heteroscedasticity of the errors are not met (Pesaran 2001). Outcomes derived from the stationarity tests are displayed in Table 5.2.

5.2.1 Unit Root Test Results

Table 5.1 presents the outcomes from the stationarity tests.

Table 5.1 Results of the Unit Root Test

Levels				
Variable	Augmented Dickey Fuller		Philip-Perron	
	Constant	Constant with trend	Constant	Constant with trend
LnFDI	-0.460787	-1.908392	-0.565334	-2.316333
LnGDP	-0.240216	-1.726274	-0.287818	-1.823627
LnINF	-2.273319	-3.222842	-2.216744	-3.222842
LnGS	-3.342832**	-4.387946***	-3.346565**	-3.528122**
LnTO	-1.930522	-1.944169	-1.919026	-1.940434
LnAGRIC	-3.034573**	-2.830110	-3.025236**	-2.811942
LnMANF	-2.653070*	-3.319487*	-2.653070*	-3.608679*
lnSERV	-3.471206**	-4.373551**	-3.457617**	-4.397033***
First Difference				
Variable	Augmented Dickey Fuller		Philips-Perron	
	Constant	Constant with trend	Constant	Constant with trend

Variable	Constant	Constant with trend	Constant	Constant with trend
LnFDI	-4.000734***	-3.817140***	-3.995779***	-3.804729**
LnGDP	-4.088830***	-4.028975**	-4.088830***	-4.028975**
LnINF	-5.793190***	-5.724111***	-5.891450***	-6.283890***
LnTO	-4.393498***	-4.305712***	-4.393575***	-4.307114***
LnAGRIC	-6.397205***	-6.325620***	-6.490877***	-6.436542***
LnMANF	-5.418892***	-5.171530***	-7.003382***	-6.838310***

Note: *,,*** denotes significance at 10%,5% and 1% respectively**

Source: Author's Computation

From Table 5.1, both the PP and ADF tests reveals that LnGS and LnSERV were stationary at level. this means that the t statistics is higher than 5% critical value. This further suggests that LnGS and LnSERV are integrated of I(0).

However, the PP and ADF tests from Table 5.1 revealed that lnFDI, lnGDP, lnINF, lnTO, LnAGRIC and LnMANF are not stationary at level. This notwithstanding, lnFDI, lnGDP, lnINF, lnTO, LnAGRIC and LnMANF became stationary after first differencing for both the ADF and PP tests. At first difference, lnFDI, lnGDP, lnINF, lnTO, LnAGRIC and LnMANF is stationary at 1% level of significance. This denotes that lnFDI, lnGDP, lnINF, lnTO, LnAGRIC and LnMANF are integrated of I(1).

From the discussion, none of the variable is of I(2) and have clearly shown a case of mixed order of integration. it becomes appropriate to apply the bounds test

5.3 Cointegration test results

The bounds test is preferred to other test because it applies to variables of different order of integration and it also estimates the long and short run coefficients simultaneously.

The Bound test is estimated based on the F-statistic test. An f statistics greater than the I(1) bound, it implies availability of co integration in the equation while an f statistics lower than the I(0) bounds, this implies no co integration.

Table 5.2 Results of the Co-integration relationship

LNGDP= f(LNFDI, LNINF, LGS, LNT0)			LNGDP=f(LNAGRIC, LNMANF, LNSER, LNINF, LNGS, LNT0)		
F-Statistic	K		F-Statistic	K	
0.550765	4		70.932***	6	
Critical value bound			Critical value bound		
Significance	I0 bound	I 1 bounds	Significance	I0 bound	I 1 bounds
10%	2.45	3.52	10%	2.12	3.23
5%	2.86	4.01	5%	2.45	3.61
1%	3.74	5.06	1%	3.15	4.43

Note: *** denotes significance at 1%

Source: Estimated from Eviews 9.0

From Table 5.2, the computed F-statistic can be verified of 0.550765 for the first model which is lower than the I(0) bounds at all the significant levels implying no co integration. The second model however finds an f statistics of 70.932 which exceeds the upper bound 1% value of 4.43 implying an existence of co integration. Furthermore, the bounds test show a long run association amongst the variables for model two while no long run association is established for the variables in the first model. We then proceed to estimate both the long and short run relationship between variables for the second model while a simple ARDL model is used to estimate the short run relationship for the first model. The co-efficients of the long run equation

of the second model are estimated using the ARDL approach. Subsequent findings for the bounds test proved the existence of long run amongst the variables in the second model. The selected models are ARDL (1, 2, 2, 2, 2, 2, 1) for ln GDP and its covariates. Table 5.3.1 provides the estimated co-efficient of the short run model, while Table 5.4 present the estimated long-run model.

5.4 ANALYSIS ON MODEL ONE

5.4.1 Discussion of Short run results in the first model

As a result of no long run association in model one, a simple ARDL model is used to ascertain an association of short run in model one. The outcome of the ARDL model showed that FDI relates to GDP positively. This is significant 5% level of confidence. This met the expectation of the model. The results indicates that a one unit increment in FDI would cause a 0.13% rise in GDP. Government spending also relates to GDP positively. This is significant at 5% level of confidence. This is consistent with the expectation of the model which show that as government spends more, gross domestic product also increases. The result shows that a unit rise in Government spending would cause a 0.31% increase in GDP.

However, inflation relate to GDP negatively. This is significant at 5% level of confidence. This is in line with the expectation of the model. It indicates that as prices of commodities increases, GDP declines. The result showed that a unit rise in inflation would cause a decline of about 0.13 % in GDP. The immediate level of trade openness relateson GDP negatively. It is significant at at 1% level of confidence, whereas previous level of trade openness (2 periods) shows positive effect on growth. This outcome did not meet the expectation of the model. It is believed that as the market is opens up, gross domestic product would increase. The outcome

asserts that the direction of association between economic growth and trade depend on the time of trade (immediate or two period level of trade openness). This can be seen in table 5.3 below.

Table 5.3: Short run relationship using the ARDL Model in Model ONE

Dependent Variable: D(LNGDP)				
Selected Model: ARDL (1, 0, 0, 0, 2)				
22 observations used for estimation from 1994 to 2018				
Variable	Coefficient	Std. Error	t-Statistic	Prob
DGDP(-1)	0.043	0.156	0.276	0.787
D(LNFDI)	0.135**	0.050	2.671	0.019
D(LNINF)	-0.128**	0.047	-2.694	0.018
DLNGS	0.313***	0.097051	3.220851	0.007
DLNTO	-1.099***	0.151	-7.290	0.000
DLNTO (-1)	0.147	0.181	0.808	0.434
DLNTO (-2)	0.257*	0.135	-1.897	0.080
C	0.075***	0.025	3.057	0.009

Note: **, *** denotes significance at 5% and 1% respectively

Source: Estimated from Eviews 9.

5.5 ANALYSIS ON MODEL TWO

5.5.1 Long-run relationship

The preceding section tested and ascertained the presence of a long run association among variables in model two hence the long-run coefficients are discussed herein. The outcomes generated through ARDL approach are shown in Table 5.4.

Table 5.4.: Estimated Long run coefficient using the ARDL Approach

Dependent Variable: LNGDP			
Selected Model: ARDL (1, 2, 2, 2, 2, 1)			
22 observations used for estimation from 1994 to 2018			
Variable	Coefficient	Std. Error	t-Statistic

LNAGRIC	0.153**	0.028	5.379
LNMANUF	0.744***	0.081	9.206
LNSERV	-0.093	0.037	-2.478
LNINF	0.813**	0.193	4.214
LNGS	0.043	0.019	2.230
LNT0	0.970**	0.186	5.206
C	-2.719663	1.574	-1.728

Note: **,* denotes significance at 5% and 1% respectively**

Source: Estimated from Eviews 9.

5.5.2 Discussion of Long-run Results in Model TWO

This section discusses the outcome of model two. Table 5.4 revealed that both agricultural sector and manufacturing sector established a positive and significant association on gross domestic product. Also, a positive and significant association exists for both inflation and trade openness on gross domestic product. In addition, a negative and insignificant relationship was established between FDI inflows to the service sector and gross domestic product. Government spending although positive had no significant impact on gross domestic product. The significant results are discussed below;

FDI inflows to the agricultural sector had a co efficient of 0.15 at 5% critical value while that of manufacturing sector showed a co efficient of 0.74 at 1% level of significant. FDI inflows indisputably performs a pivotal role to bring about economic growth in Ghana. Aside taxes, FDI provides revenue for the development of the country. Hence, an increase in FDI to these productive sectors of the economy will undoubtedly bring about an increment in gross domestic product.

From Table 5.4., the co-efficient of inflation in the long-run was 0.81 at 1% significance level. The positive sign of the co-efficient implies that a percentage increase in inflation will cause gross domestic product to increase by 0.81%

The coefficient of openness to trade was about 0.97, which means that, a percentage increase in trade openness will result in a 0.97% increment in GDP confirming to what the theory posits since trade is assumed to be growth enhancing. International trade leads to specialization and exchange which broadens the productivity base of a nation. Thus, an increase in the productivity base of a country tends to boost economic growth. From Keynesian's principle, high net export (trade openness) increases national income which eventually increases growth in the economy.

5.5.3 Results of the Short Run ARDL Model in Model TWO

Although a long run relationship ascertained using the bounds test to cointegration was established in the second model, findings from the ECM in the second model revealed a positive and significant ECM value which contradicts the assumption underlying the ECM model. The result implies that when there are any deviations from equilibrium in the short run the variables cannot be adjusted to reach equilibrium in the long run.

5.5.4 Discussion of Short-run Results in Model Two

The current level and first lag of AGRIC relates to gross domestic product positively at 1% critical value. Also, first lag of MANF relates to gross domestic product positively at 1% level of significance whilst the current level of MANF relates to gross domestic product positively at 1% level of significance.

The current level of FDI inflows to the service sector is related to gross domestic product positively at 1% significance level. However, the first lag of FDI inflows to the service sector was negatively and insignificantly relative to gross domestic product. Also, the current level of INF was negative but significant relative to gross domestic product at 5% significance level. Again, the first lag of inflation although positive had no statistical significance on gross domestic product.

Additionally, the current and first lag of government spending was positively related to gross domestic product and was significant at 5% and 1% significance level respectfully. The current level of trade openness was negative and significantly related to gross domestic product at 1% level of significance.

Table 5.5. Estimates of the Short-run Error Correction Model

Dependent Variable: LNGDP			
Variable	Coefficient	Std. Error	t-Statistic
D(LNAGRIC)	0.024***	0.002	10.882
D(LNAGRIC(-1))	0.014***	0.002	6.878
D(LNMANUF)	-0.046***	0.006	-7.673
D(LNMANUF(-1))	0.094***	0.003	27.150
D(LNSERV)	0.016**	0.003	5.309
D(LNSERV(-1))	-0.010	0.003	-3.010
D(LNINF)	-0.052**	0.011	-4.541
D(LNINF(-1))	0.026	0.016	1.589
D(LNGS)	0.005**	0.001	4.126
D(LNGS(-1))	0.0205***	0.001	20.083
D(LNTO)	-0.528***	0.022	-24.422
CointEq(-1)	0.155***	0.022369	6.918

Cointeq = LNGDP - (0.1525*LNAGRIC + 0.7436*LNMANUF -0.0929 *LNSERV + 0.8130*LNINF + 0.0428*LNGS + 0.9697*LNTO -2.7197)

Note: **,*** denotes significance at 5% and 1% respectively

Source: Estimated from Eviews 9.

5.6 Model Diagnostics

The model is free of issues including the serial correlation, the heteroscedasticity, normality and correct functional form as presented in the table below. This is because, none of the test were significant at the 5% level of significance. This is shown in Table 5.6. Based on these probability statistics from the regression, the model is considered as good for both analysis and policy implications.

Table 5.6: Model Diagnostics

Diagnostics	Test Statistic	
	LNGDP= f(LNFDI, LNINF, LNGS, LNT0)	LNGDP=f(LNAGRIC, LNMANF, LNSER, LNINF, LNGS, LNT0)
F_{Auto}	0.05731 [0.9447]	4.525535 [0.3154]
F_{RESET}	0.553825 [0.5900]	0.726124 [0.6386]
χ^2_{Norm}	2.06e-05 [0.99990]	0.395645[0.8205]
F_{HETERO}	1.908632 [0.1491]	0.472973 [0.8659]

F_{Auto} , F_{Reset} , χ^2_{Norm} and F_{HETERO} are Breusch-Godfrey Lagrange multiplier statistics for test of serial correlation, Ramsey Reset test for functional form misspecification and stability, Jacque- Bera test for non-normal errors and Breusch-Pagan-Godfrey test for heteroskedasticity, respectively. These statistics are distributed as F- statistic values. Values in parentheses [] are probability values.

Finally, the CUSUM (Cumulative Sum) and the CUSUMSQ (Cumulative Sum of Squares) was applied to testing the stability of both model. As stated by Pesaran et al, 2001 the stability test shows whether or not the parameter estimates are stable over time. The null assumption of the CUSUM and CUSUMSQ indicates that the coefficient vector remains the same in all periods. The t statistics are plotted against the critical bound at the 5% confidence level. If the plots remain within the critical bounds at the 5% confidence level, then there is no rejection of the null assumption and we conclude that all the coefficients are stable. Diagrams to support the various model diagnostic tests are shown in the appendix A and B.

5.7 Limitation of the Study

This study is not without limitations. The major challenge encountered in this research was data. Secondary data was needed from 1980 but was not available. Although some of the variables had series from 1980 others did not have hence, reducing the sample size of the study. Although this did not affect the results in model two, it affected the ECM coefficient. However, this problem seems not to have significantly affected the findings presented in this study due to the predictive ability of the ARDL model. Future studies should therefore look for samples dating beyond the period specified in this work if only available.

CHAPTER SIX

CONCLUSION

6.1 INTRODUCTION

The section comprises of summarized findings, an ending and recommendation dependent on the outcome of the study.

6.2 SUMMARY OF FINDINGS

The core purpose was to determine the impression of FDI on economic growth in Ghana. The study further investigates which FDI impacted sector affected growth in Ghana.

A PP and ADF tests were conducted to ascertain stationarity of all variables. Results from both test showed that Government Spending and FDI inflows to the service sector were stationary at level or integrated at I(O)whiles the rest of the variables were stationary at first difference or integrated at I(1).

This made it suitable to use the bounds test to check for co integration for both models. The results of the first model showed that no association exist in the long term. Therefore a simple ARDL model would be employed to ascertain association in the short time period. The second model showed that an association exists in the long term therefore a long and short run relationship was established for the model. Regression from both models were free from issues of serial correlation and heteroskedasticity. They were both normally distributed. The model was also stable.

Results of short run relationship from the first model indicated significance amongst the variables at either 5% or 1% confidence level. FDI and Government Spending showed a direct relationship to GDP whiles inflation and

trade openness showed an adverse relationship to GDP. The current level of trade openness showed an adverse and significant relation to GDP, whereas the second lag of trade openness was direct and significant.

The results for the second model showed that FDI inflows to both agricultural and manufacturing sector has a direct and significant impact on economic growth in both long and short run. FDI inflows to service sector showed a direct and significant impact on economic growth in the short run and a adverse and insignificant impact in the long run.

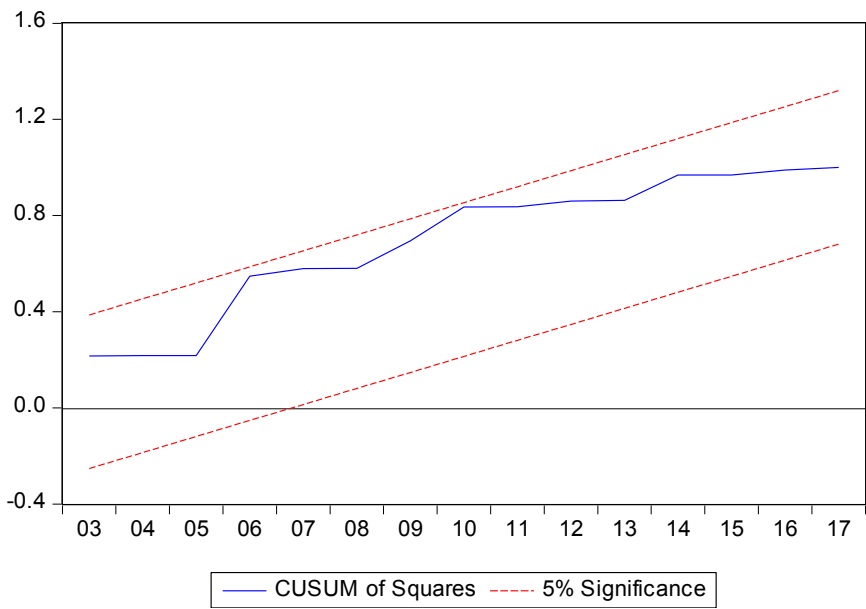
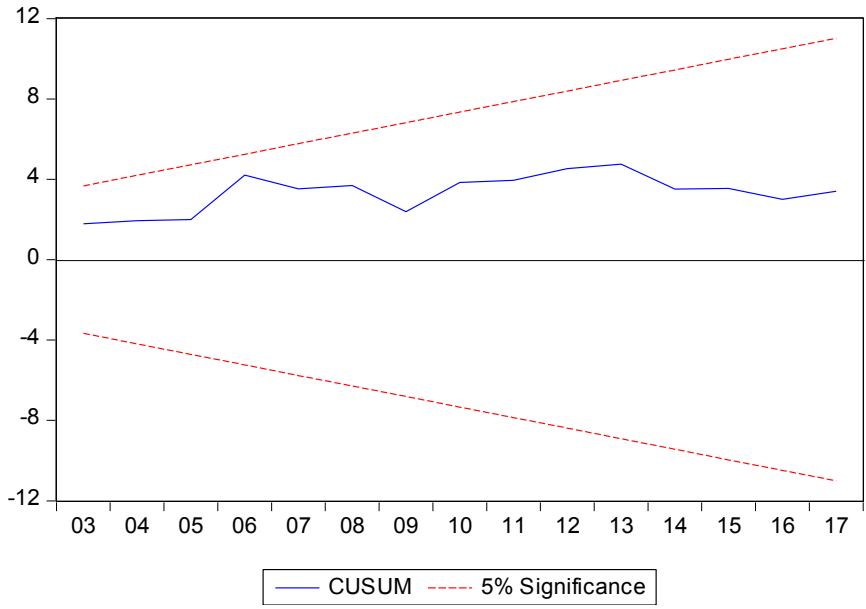
6.3 CONCLUSION

This study adds to literature that FDI has a direct short run impact on economic growth. Also FDI inflows to agricultural and manufacturing sector shows a direct effect on economic growth however, the manufacturing sector has higher effect on economic growth than agricultural sector. FDI in service sector shows an ambiguous effect on economic growth.

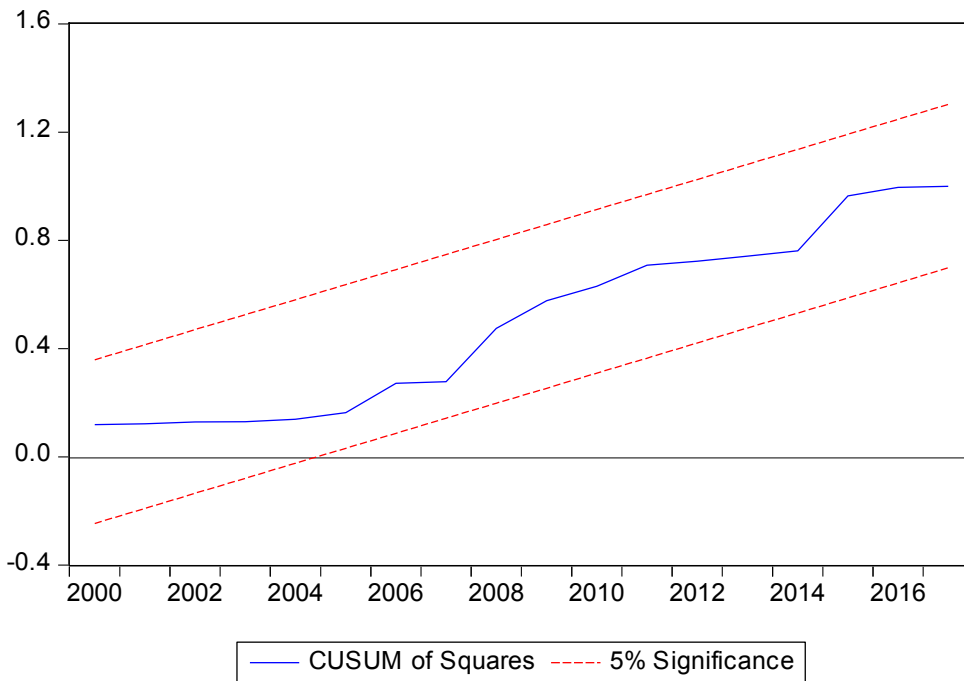
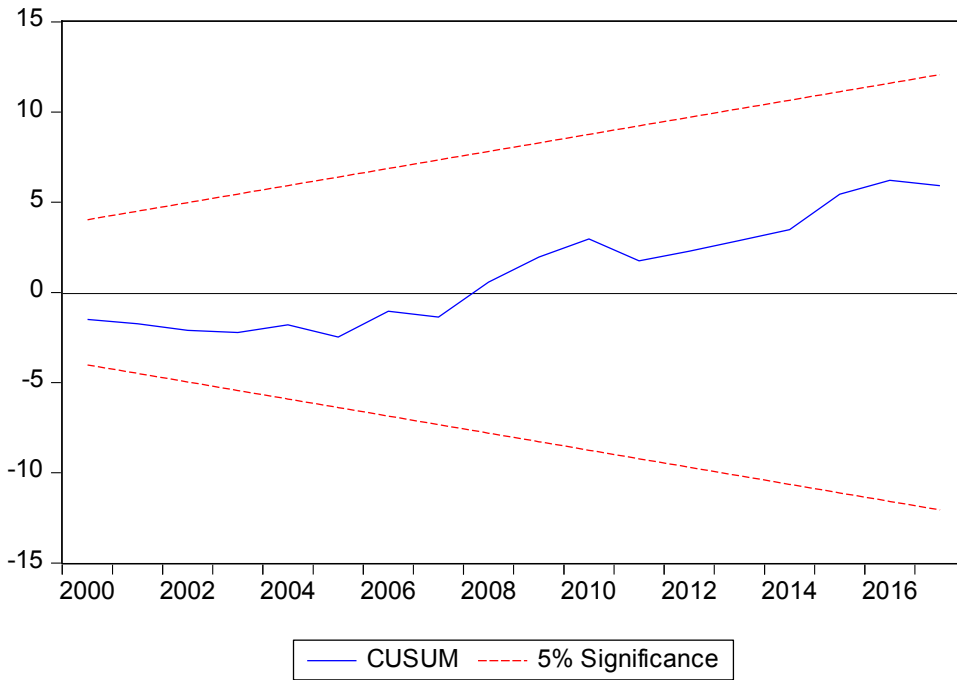
6.4 RECOMMENDATION

Policy makers should re align policies towards attracting more FDI into the country. FDI inflows into the country should be channelled towards improving agricultural and manufacturing sectors. This can be done when infrastructure needed to boost productivity of these sectors are put in place. This would lure investors to invest more in these sectors. Also investors coming into these sectors must be gives investment incentive in order to increase FDI inflows to these sectors.

APPENDIX A



APPENDIX B



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