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Foreign Direct Investment and its Impact on the Ghanaian
Economy

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Korea Advanced Institute of Science and Technology

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Finance MBA

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An Independent Research Paper submitted to the faculty of KAIST in partial fulfillment of the requirements for the KOICA-KAIST Scholarship Program's Master of Business Administration in Finance.

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Approved by

Professor Ji Soo KIM

Professor of Management Engineering

The study was conducted in accordance with Code of Research Ethics¹⁾.

- 1) Declaration of Ethical Conduct in Research: I, as a graduate student of Korea Advanced Institute of Science and Technology, hereby declare that I have not committed any act that may damage the credibility of my research. This includes, but is not limited to, falsification, thesis written by someone else, distortion of research findings, and plagiarism. I confirm that my research contains honest conclusions based on my own careful research under the guidance of my advisor.

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Abstract

Ghana has been implementing policies to attract and retain foreign direct investments into the country since the 1980s. These investments usually come along with the transfer of technology from which local industries may benefit. This research established that foreign direct investment inflow from 1980 to 2016 has had a positive and significant impact on economic growth of Ghana.

Keywords: Foreign direct investment, economic growth, export of goods and services, real effective exchange rate, government expenditure.

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List of Abbreviations

ADF	Augmented Dickey-Fuller Test
ARDL	Autoregressive Distributed Lag
EXPORT	Exports Of Goods And Services
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFZB	Ghana Free Zones Board
GIPC	Ghana Investment Promotion Centre
GOVEXP	General Government Final Consumption Expenditure
IMF	International Monetary Fund
INFL	Inflation Rate
LABOR	Labor Force Participation Rate
MIGA	Multilateral Investment Guarantee Agency
PP	Phillips-Perron Test
REER	Real Effective Exchange Rate
SAP	Structural Adjustment Program
SOE	State-Owned Enterprises
UNCTAD	The United Nations Conference On Trade And Development

1 Introduction

1.1 Background of the Study

Foreign direct investment (FDI) plays an essential role in the economy of Ghana. Policymakers generally believe foreign direct investment improves the production capacity of recipient countries and promotes economic growth and development. However, empirical research has found that these expected benefits from the inflows of FDI vary amongst countries. Balasubramanyam, Salisu, & Sapsford (1996) analyzed the “effects of foreign direct investment on the economic growth of developing countries”. They found that foreign direct investment has a positive effect on economic growth in host countries using an export promotion strategy, but not in countries using an import substitution strategy. With Ghana’s low domestic savings, low tax revenues and continuously reducing official development assistance from development partners, FDI provides a significant source of capital in the Ghanaian economy.

Ghana, like many developing countries, implemented a Structural Adjustment Program at the insistence of the World Bank and International Monetary Fund (IMF), in a bid to turn around its poor economic performance and improve growth through economy-wide liberalization. A key component of this program was adopting policies that reduce state control of economic activities and create an enabling environment for the private sector to lead economic growth. Cardinal objectives of the program were to implement reforms such as robust regulatory framework, stable trade regime, and property protection legislation which are necessary requirements to attract both foreign and local investments in the Ghanaian economy.

A divestiture program was implemented by the government to privatize state-owned

enterprises (SOE). As noted by Budwar & Debrah (2001), the main objective of privatizing the SOEs was to expose them to competitive market forces, which would inevitably require a more financially prudent management. Since the inception of the divestiture program in 1988, over one hundred SOEs have been sold to private investors in Ghana (UNCTAD, 1998). In addition, several programs have been instituted to attract FDI in order to take advantage of the rapid globalization.

Ghana, in a bid to become an investment destination of choice, made significant progress in opening its economy to world trade by abolishing exchange controls and nontariff barriers. Debrah (2002) observed that as Ghana's economy became highly competitive there were enormous opportunities to attract and retain high-value FDI. Consequently, two government agencies were set up to promote and attract FDI. These are the Ghana Investment Promotion Centre (GIPC) and the Ghana Free Zones Board (GFZB) through the Ghana Investment Promotion Centre Act, 1994 (amended in 2013) and the Ghana Free Zones Act, 1995, respectively. These Acts of Parliament offer several investor protection policies and tax incentives in a bid to attract foreign investors into the strategic sectors of the Ghanaian economy.

1.2 Statement of the Problem

The attraction of FDI comes at a cost. Countries may have to undertake financial and political reforms, privatize state-owned enterprises, offer tax incentives and in some cases subsidies. Zhang (2001) found that economic conditions such as a stable macro economy and trade regimes are important in ensuring FDI contributes positively to growth. Consequently, it is imperative that the benefits of FDI inflows to the Ghanaian economy outweigh the costs.

Foreign direct investment inflow is expected to positively improve several sectors of

the Ghanaian economy and ultimately result in economic growth and development. Some of these expected improvements are a transfer of technology, increased employment, upgrading the skills of the workforce, efficient allocation of resources to productive sectors, and financial stability of the economy amongst others.

1.3 Objective of the Study

This research seeks to find the resultant benefits of FDI to the Ghanaian economy and whether any such benefits adequately compensates for the policy measures undertaken to attract foreign investors. This study tries to find whether the expected positive impact on the economy has been realized and the necessary recommendations will be made to policymakers on the appropriate determinants and consequences of foreign direct investment attraction.

1.4 Significance of the Study

The research seeks to find through empirical analysis the causal effect of FDI inflows on economic growth of the Ghanaian economy. The research will test the significance of the hypothesis that FDI inflows from 1980 to 2016 positively contributed to economic growth in Ghana. The findings from the empirical research will help inform future policies on FDI promotion, attraction, and retention in Ghana. We will study whether the expected positive impact on the economy has been realized and if necessary recommendations will be made to policymakers on the appropriate determinants and consequences of FDI attraction.

1.5 Limitations of the Study

The research will be conducted with secondary data from the World Bank's World

Development Indicators database. The research seeks to assess the general impact of foreign direct investment on the economy as a whole and not specific economic indicators like employment and currency stability.

2 Literature Review

FDI is an investment made by a company or individual in one country for business interest in another country. It comes in the form of either establishing business operations or acquiring business assets in the other country such as ownership or controlling interest in a foreign company. Several researchers have studied the roles played by multinational companies in recipient countries, the determinants of FDI, the determinants of economic growth and the direction of the causality between growth and FDI. The literature on the implications of FDI inflows on economic growth presents mixed conclusions.

Romer (1993) finds that foreign investment facilitates the transfer of technological knowledge to host countries. These transfers, in turn, result in multiplier effects which positively benefit domestic companies. This finding is shared by Rappaport (2000) who notes that foreign investors may boost the productivity of companies in the economy and not just the firms directly receiving the investment.

Using cross-sectional data, Olofsdotter (1998), finds that increased FDI results in economic growth especially for countries with a high level of institutional capabilities, including the efficiency of the host country's bureaucracy and the property protection legislation enacted. In a study of the direction of causality between FDI and economic growth using data for eleven developing countries in East Asia and Latin America, Zhang (2001) finds that FDI enhances growth subject to the recipient country's important economic conditions such as macroeconomic stability and trade regimes. Borensztein, De Gregorio, & Lee (1998) studied data from 69 developing countries between 1970 to 1989 and concluded that FDI generally has a positive effect on growth but the level of impact significantly depends on the recipient country's human capital. Schneider & Bruno (1985) reported a positive and statistically significant relationship between FDI and economic growth. Their

study covered eighty less developed countries.

Similarly, other empirical macroeconomic studies suggest that a positive growth-effect of FDI depends on economic environment according to De Gregorio (1992); a highly educated workforce as noted by Borensztein, De Gregorio and Lee (1998); sufficiently developed financial markets according to Alfaro et al (2004); and trade openness according to Balasubramanyam, Salisu, & Sapsford (1999). According to Dritsaki and Emmanouil (2014), a study of the relationship between FDI, exports and economic growth in Croatia confirmed a bidirectional long and short-run causal relationship between FDI and growth.

Other researchers have found an ambiguous or a negative causality relationship between growth and FDI inflows of recipient countries. Choe (2003) found little evidence that FDI inflows result in economic growth. Rather, there is a dual-directional causality between FDI and economic growth with a higher tendency of economic growth resulting in increased FDI inflows. In a study of panel data and time series of thirty-two developed and developing countries, De Mello (1999) tested the assumption that technology transfers because of FDI inflow improved management of organizations in host countries. They found weak evidence of spillover effect of technology transfers leading to better organizational management, which in turn improves productivity and economic growth.

Chowdhury & Mavrotas (2005) examined the causal relationships between FDI and economic growth using thirty-two years of time series data for Thailand, Chile, and Malaysia. All the three countries were developing countries that were major destinations of FDI inflows but with different macroeconomic policies and other socio-political characteristics. They found a bi-directional causality between FDI and economic growth in the case of Thailand and Malaysia. However, in the case of Chile, they found that economic growth rather results in increased FDI inflow and not vice versa. Carkovic & Ross (2002) researched whether

earlier macroeconomic studies point to the fact that FDI plays a positive role in economic growth. They use cross-sectional data from seventy-two developed and developing countries from 1960 to 1995 and found that FDI inflows did not yield an independent and robust influence on economic growth.

Crespo & Fontoura (2006) noted that the FDI impact on economic growth can be non-significant, positive or negative depending on the technological, institutional and economic circumstances of the recipient country. They found mixed results of empirical evidence about FDI spillovers to local companies. Their research surveyed arguments by several other researchers on arguments for and against the effects of FDI spillovers. Using panel data on Venezuela, Aitken & Harrison (1999) found that FDI does not boost economic growth. They tested the productivity of joint ventures to local companies with no foreign interest and found that foreign investment negatively affects the local companies' productivity. They concluded that the much expected positive technological spillovers from foreign-owned firms do not occur. Alfaro (2003) showed that the benefits of FDI vary greatly across sectors by examining the FDI effect on growth in the primary, manufacturing, and services sectors. An empirical analysis using cross-country data for the period 1981 to 1999 suggested that total FDI exerts an ambiguous effect on growth. FDI in the primary sector tended to have a negative effect on growth, while in the manufacturing sector it yielded growth. The effect on service sector was bi-directional, thus ambiguous.

Current literature, therefore suggests FDI per se does not lead to accelerated economic growth. For any country to harness the growth benefits of FDI inflows, its political, economic, social and technological fundamentals must be effective and efficient. Unless the particular circumstances of host countries are in such a good state, FDI inflows could result in insignificant and in some cases negative consequences for economic growth.

In conclusion, the literature overwhelmingly points to the fact that there is a positive relationship between FDI inflow and economic growth given that political, economic, social and technological fundamentals are strong and effective. There is also vast evidence that increased FDI inflows facilitate the transfer of technological expertise that has a multiplier effect on other domestic companies. In addition, institutional capabilities, macroeconomic stability, and trade regime stability are improved by the inflow of FDI. For some countries, FDI did not prove to have contributed significantly towards economic growth even with the existence of the controlling conditions. These countries, however, are in the minority and do not reflect the general usefulness of FDI for national economic development.

3 Overview of Foreign Direct Investment Inflow in Ghana

3.1 Overview

The history of Ghana has been checkered in terms of political and economic development resulting from several military coups d'état since independence in 1957. However, from the 1980s, Ghana began the implementation of World Bank and IMF sponsored programs in a bid to reverse the economic decline since independence, to resolve its debt crisis and to attract FDI inflows. The successes of such programs such as the Structural Adjustment Program (SAP) in 1983 are as follows:

- They abolished prohibitory tariff barriers to facilitate FDI inflow;
- They abolished foreign exchange controls and thereby reduced opportunities for black market trading;
- They abolished some licensing requirements and improved the transparency of the existing licensure regime;
- They opened up closed sectors to foreign investors; and
- They reduced inflation and improved financial stability.

3.2 Trends of FDI Inflow to Ghana

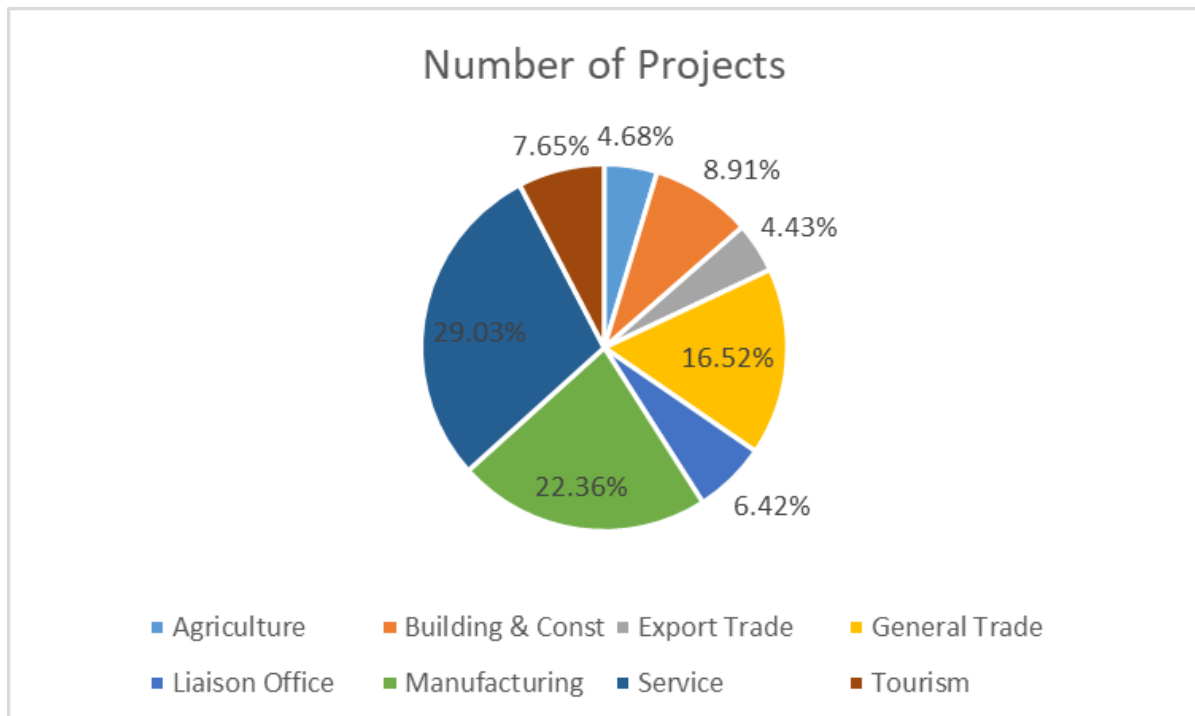
Since 1983, the trend of FDI inflows in Ghana can be shown in three main phases according to Tsikata, Asante, & Gyasi (2000). The period from 1983 to 1988 recorded sluggish inflows with an average of about \$4 million per annum. The lowest inflow during the period was \$2 million in 1984, while the highest inflow was \$6 million in 1985. The period from 1989 to 1992 witnessed moderate inflows averaging about \$18 million per annum with the highest being \$22 million in 1992 and lowest being \$14.8 million in 1990. The years 1993-1996 were a period of significant inflows, which peaked in 1994 at \$233

million, but fell by more than 50% to \$107 million the year after. Since 1994, the GIPC has kept detailed information on the FDI inflows into Ghana and these are analyzed below.

3.2.1 Sectoral Breakdown of FDI

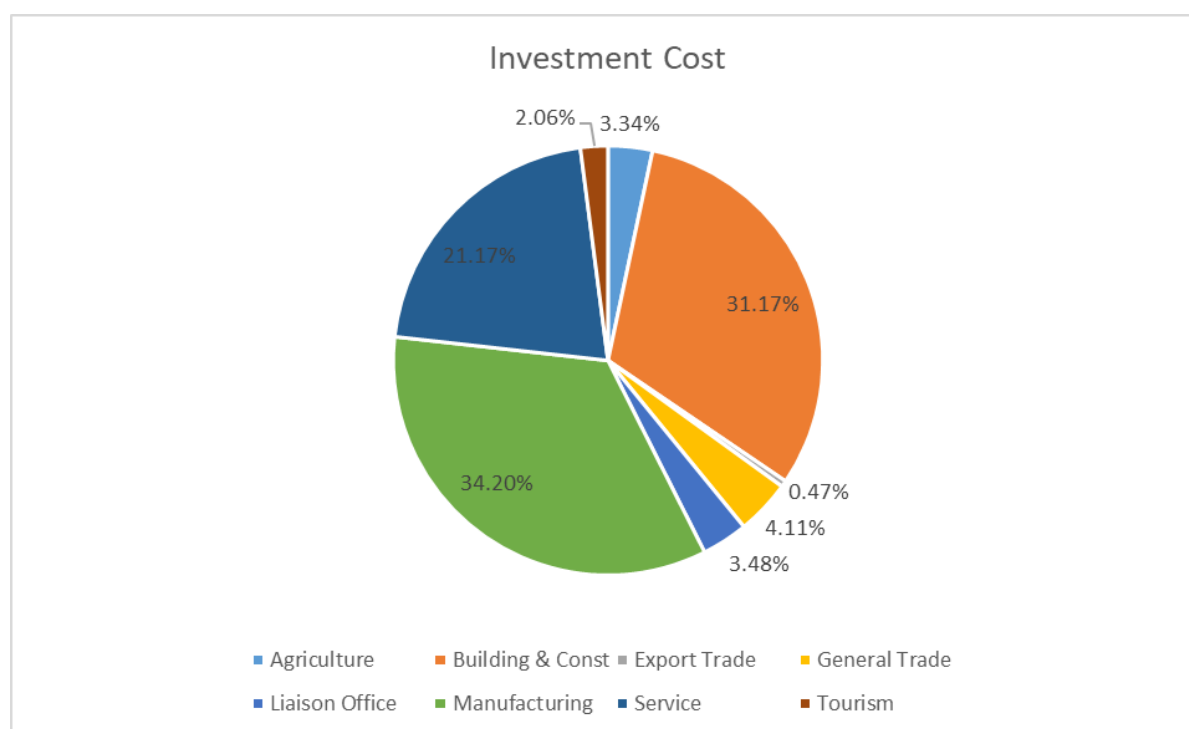
Figures 3.1 and 3.2, as well as table 3.1 below, show the sectoral breakdown of project numbers and cost. The service sector attracted 29% of the total number of projects from 1994 to 2017 followed by the manufacturing sector with 22.4%. Agriculture, which is the backbone of the Ghanaian economy, attracted only 4.7% of the total number of projects. In terms of the value of investment, the manufacturing sector tops with 34.2% of total value of investments in building and construction and service sectors recording 31.2% and 21.2% respectively.

Figure 3.1 Number of Project (September 1994 to September 2017)



Source: Ghana Investment Promotion Centre

Figure 3.2 Cost of Investments (September 1994 to September 2017)



Source: Ghana Investment Promotion Centre

According to Debrah (2002), Europeans invest in infrastructural development such as the construction of roads, hospitality properties, office accommodation, residential properties and industrial plants. U.S. firms are largely operating in the heavy machinery and telecommunications industries.

Table 3.1 Sector Breakdown of Projects and Cost (September 1994 – September 2017)

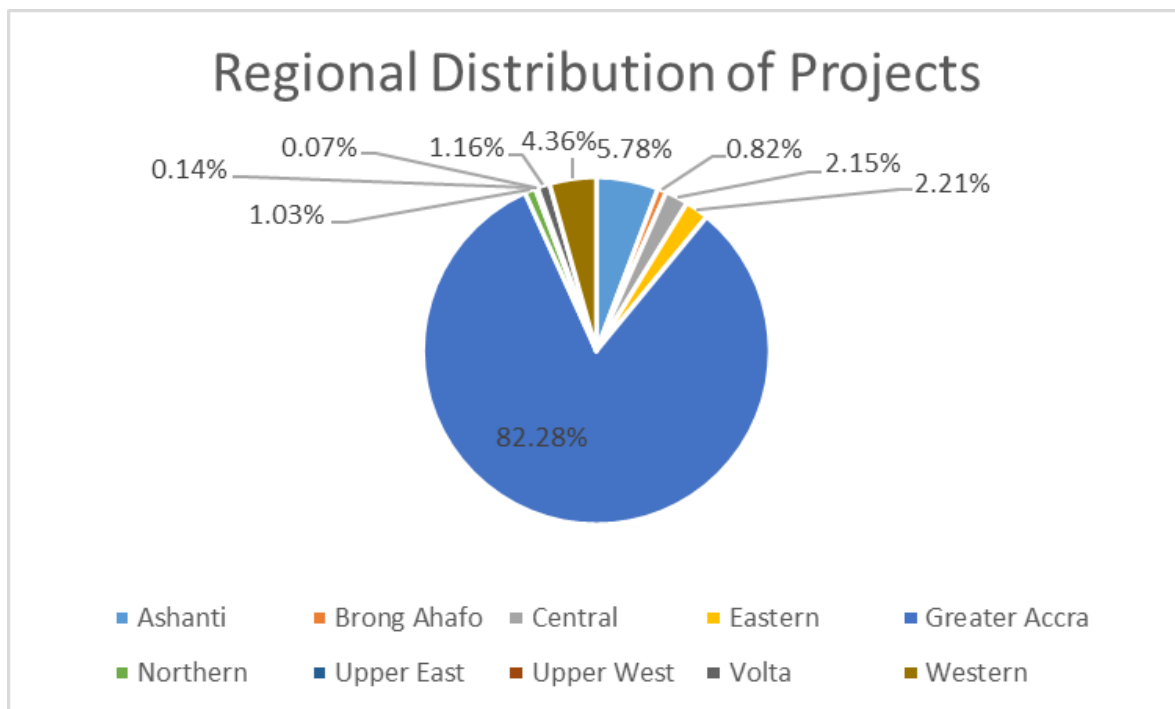
Sector	Total Projects		Total Investment Cost	
	Number	Percentage	US\$ Million	Percentage
Agriculture	263	4.68%	1,497.98	3.34%
Building & Construction	501	8.91%	13,980.97	31.17%
Export Trade	249	4.43%	211.67	0.47%
General Trade	929	16.52%	1,845.52	4.11%
Liaison Office	361	6.42%	1,560.52	3.48%
Manufacturing	1,257	22.36%	15,340.35	34.20%
Service	1,632	29.03%	9,494.96	21.17%
Tourism	430	7.65%	925.94	2.06%
TOTAL	5,622	100.00%	44,857.92	100.00%

Source: Ghana Investment Promotion Centre

3.2.2 Regional Distribution of FDI

Figure 3.3 and Table 3.2 show the regional distribution of projects by sectors from September 1994 to September 2017. The table shows a concentration of foreign investments in the Greater Accra Region with 82.3% of FDI projects which were undertaken in the region. This is the fact in spite of the government’s efforts to attract FDI in other regions through tax incentives. As noted by Boateng & Keith (1999) and other researchers, tax incentives alone do not attract significant FDI inflows, more so when such incentives are seen as compensating existing comparative disadvantages. Investors are discouraged from operating from other regions due to lack of skilled workforce and adequate infrastructures such as good roads, telecommunication services, pipe borne water and stable electricity. Pre and Post-colonial governments have focused on developing the capital region leading to high levels of urban migration to the capital city.

Figure 3.3 Regional Distribution of FDI (September 1994 to September 2017)



Source: Ghana Investment Promotion Centre

The Ashanti region recorded the second highest of 5.8% while the Western Region followed with 4.4%. The Upper East (0.14%) and Upper West (0.07%), regions that are the poorest in Ghana, recorded the least number of projects.

Table 3.2 Regional Distribution (September 1994 – September 2017)

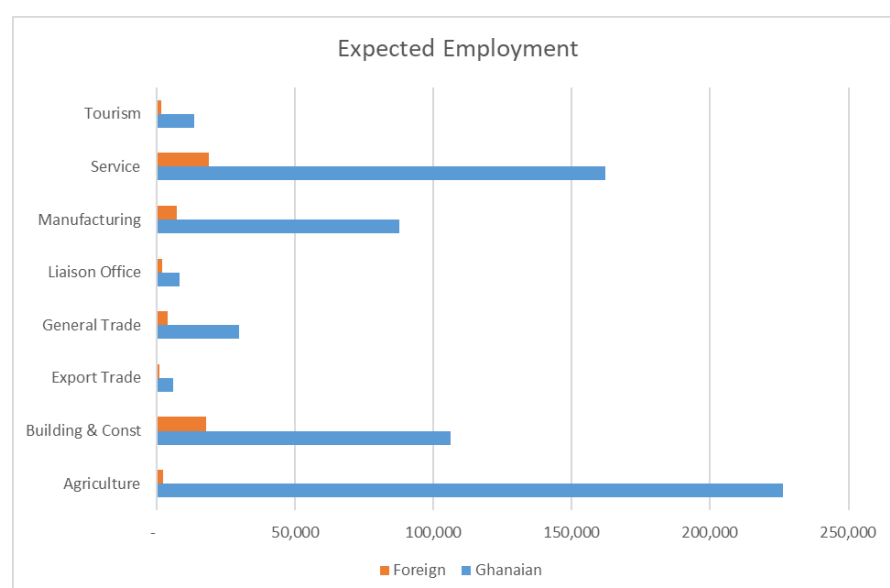
Region	Total.	Percentage
Ashanti	325	5.78%
Brong Ahafo	46	0.82%
Central	121	2.15%
Eastern	124	2.21%
Greater Accra	4,626	82.28%
Northern	58	1.03%
Upper East	8	0.14%
Upper West	4	0.07%
Volta	65	1.16%
Western	245	4.36%
TOTAL	5,622	100.00%

Source: Ghana Investment Promotion Centre

3.2.3 Expected Employment by FDI Projects

Job creation is one of the key expected benefits of FDI promotion, attraction, and retention. As seen in figure 3.4 and table 3.3, between 1994 to 2017, a total of 694,110 jobs was expected to be created out of which 92.14% will be offered to Ghanaians and 7.86% to foreigners.

Figure 3.4 Expected Employment (September 1994 to September 2017)



Source: Ghana Investment Promotion Centre

The agricultural sector was expected to generate the most jobs with the service and construction sectors following accordingly. Export trade generated the least jobs, evidencing the fact that Ghana's exports are mainly primary commodities with little value addition.

Table 3.3 Expected Employment by Sectors (September 1994 – September 2017)

Sector	Total	Ghanaian	Percentage	Foreign	Percentage
Agriculture	228,668	226,407	32.62%	2,261	0.33%
Building & Construction	124,088	106,147	15.29%	17,941	2.58%
Export Trade	6,729	5,826	0.84%	903	0.13%
General Trade	33,521	29,636	4.27%	3,885	0.56%
Liaison Office	9,915	8,100	1.17%	1,815	0.26%
Manufacturing	95,051	87,785	12.65%	7,266	1.05%
Service	181,009	162,171	23.36%	18,838	2.71%
Tourism	15,129	13,489	1.94%	1,640	0.24%
TOTAL	694,110	639,561	92.14%	54,549	7.86%
In Percentage	100.00%	92.14%		7.86%	

Source: Ghana Investment Promotion Centre

3.2.4 Number of FDI Projects by Nationality

Table 3.4 shows the number of FDI projects by nationality from September 1994 to September 2017. China recording the highest number of projects totaling 780, followed by

India (681), Lebanon (466), United Kingdom (416) and Nigeria (276). Within the African continent, Nigeria registered the most projects followed by South Africa (133) and Mauritius (70).

Table 3.4 Number of Projects by Nationality (September 1994 – September 2017)

Rank	Country	Total	Percentage
1	China	780	13.87%
2	India	681	12.11%
3	Lebanon	466	8.29%
4	Britain (UK)	416	7.40%
5	Nigeria	276	4.91%
6	USA	276	4.91%
7	The Netherlands	196	3.49%
8	Germany	169	3.01%
9	South Africa	133	2.37%
10	South Korea	129	2.29%
11	Italy	124	2.21%
12	France	122	2.17%
13	Switzerland	83	1.48%
14	The British Virgin Islands	80	1.42%
15	Canada	73	1.30%
16	Mauritius	70	1.25%
17	Denmark	58	1.03%
18	Spain	53	0.94%
19	Australia	51	0.91%
20	Belgium	50	0.89%
	Others	1,336	23.76%
	Total	5,622	100.00%

3.2.5 Number of FDI Value by Nationality

Table 3.5 shows the cost of FDI investments by nationality. The United Kingdom tops with US\$6,250.23M followed by South Korea (US\$5,495.30M), United States of America (US\$4,749.43M), Netherlands (US\$4,112.31M) and China (US\$3,091.01M). Although China recording the highest number of project, it places fifth in terms of dollar value while South Korea with the 10th highest number of projects recorded the second largest in terms of the

value of investment. Ghana is more focused on attracting high-value FDI.

Table 3.5 Cost of Investment by Nationality US\$ Million (September 1994 – September 2017)

Rank	Country	Total	Percentage
1	Britain (UK)	6,250.23	13.93%
2	South Korea	5,495.30	12.25%
3	USA	4,749.43	10.59%
4	Netherlands	4,112.31	9.17%
5	China	3,091.01	6.89%
6	United Arab Emirates	2,318.47	5.17%
7	Lebanon	1,967.51	4.39%
8	British Virgin Islands	1,897.85	4.23%
9	Nigeria	1,775.08	3.96%
10	Mauritius	1,703.14	3.80%
11	Singapore	1,671.10	3.73%
12	India	1,247.39	2.78%
13	Canada	1,243.35	2.77%
14	South Africa	1,014.38	2.26%
15	Egypt	588.25	1.31%
16	Malaysia	456.14	1.02%
17	France	367.96	0.82%
18	Turkey	363.90	0.81%
19	Brazil	361.74	0.81%
20	Bermuda	341.55	0.76%
	Others	3,841.84	8.56%
	Total	44,857.92	100%

4 Research Questions And Hypothesis Development

From the current literature, it is evident that FDI inflow does not necessarily lead to economic growth. Foreign investment empirically has varying results for various countries, given the diversity of control conditions. In Ghana's quest to achieve accelerated growth, it has implemented several policies to attract and retain FDI.

This research seeks to examine the empirical data to find whether there is a positive causal relationship between foreign direct investment and economic growth as well as to establish the direction of the relationship. In addition, the importance of this relationship, if any, will be assessed by testing its statistical significance. This study seeks to answer the following research questions:

1. Has the technology transfer from FDI had a significant multiplier effect on domestic companies? This is difficult to adequately estimate as technology transfer to the informal sector through counterfeiting is not formally recognized and recorded.
2. Has FDI improved Ghana's institutional capabilities through the enactment of requisite legislation?
3. Has Ghana achieved macroeconomic and trade regime stability because of FDI inflows?

This research argues that FDI inflow has positively affected the economic growth of Ghana. Consequently, the following three hypotheses will be tested:

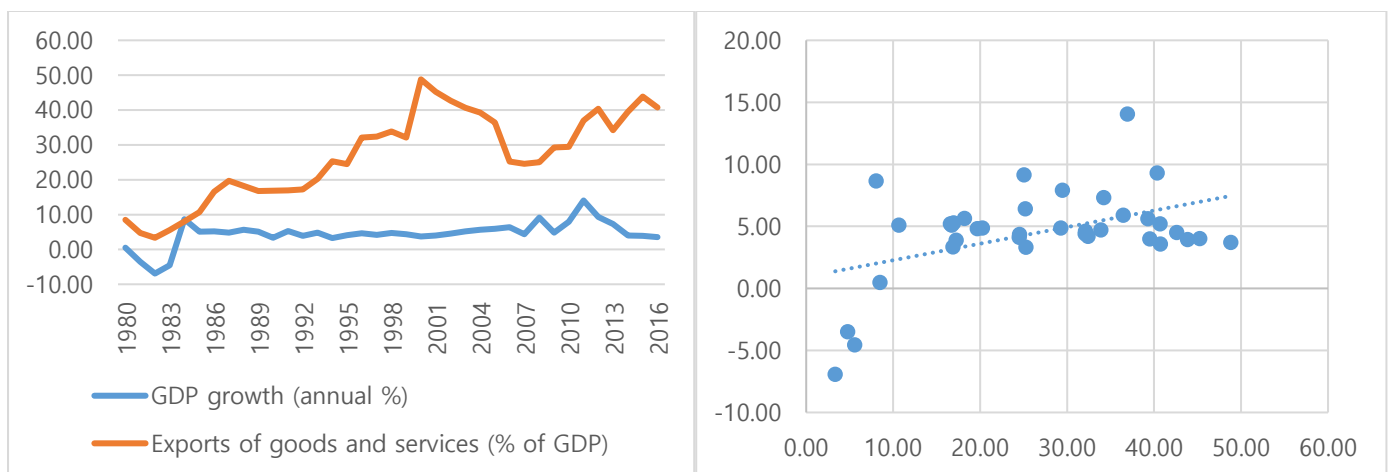
1. FDI has facilitated the transfer of technological expertise to Ghana. These transfers, in turn, result in multiplier effects, which positively benefit domestic companies.
2. FDI has improved the level of institutional capabilities of Ghana through the enactment of effective bureaucracy and property protection legislation.
3. FDI has enhanced the macroeconomic stability and trade regime of Ghana.

4.1 Major Determinants of Economic Growth in Ghana

4.1.1 Export of Goods and Services.

Ghana's economy is raw materials export-driven with the export of cocoa beans and gold being the main sources of revenue. Ghana is the second largest producer of cocoa and the eleventh largest producer of gold in the world. Other exports include oil, timber, bauxite, and diamond. Although several governments have attempted to add value to these raw materials exports, not much has been achieved in that respect. Higher world prices of Ghana's main exports are a catalyst for economic growth. Exports of goods and services as a percentage of GDP peaked at 49% in the year 2000 since recording its lowest percentage of 3% in 1982. The average exports as a percentage of GDP are 26% from 1980 to 2016.

Figure 4.1 Correlation between GDP growth and exports of goods and services

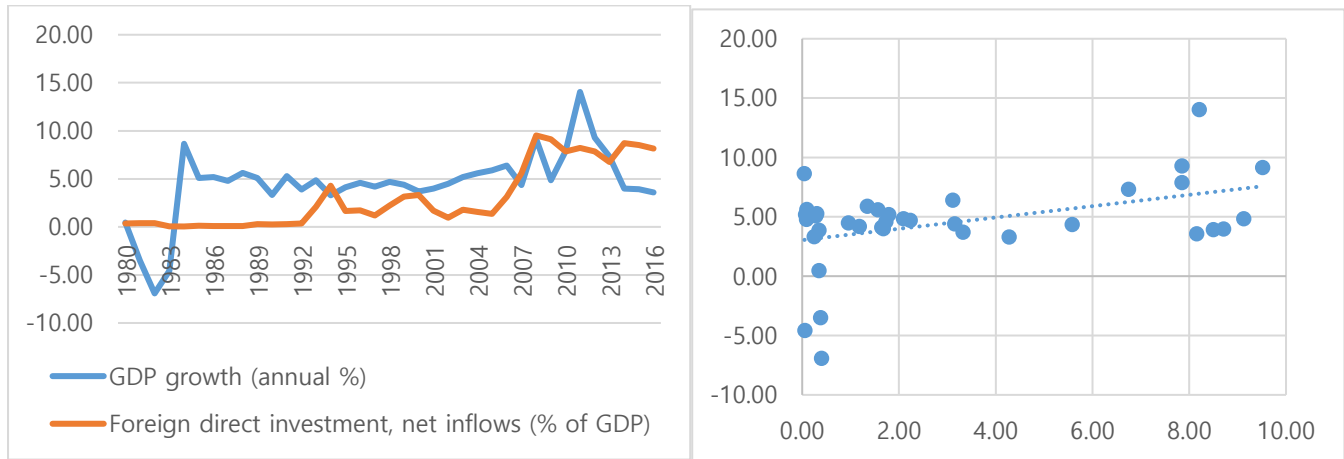


4.1.2 Foreign Direct Investment

Because of low domestic incomes and savings, domestic capital accumulation for investment is also very low. Consequently, Ghana relies on FDI into its private sector. It is generally agreed that sustainable growth is one which is led by the private sector and therefore the government has implemented several policies to attract and retain foreign direct investment. FDI inflow as a percentage of GDP had a mean of 3% and a median of 2%. Ghana recorded

its highest percentage FDI inflow of 10% in 2008 and its lowest in 1984 following a coup d'état in 1983 which was occasioned by general scarcity of basic groceries.

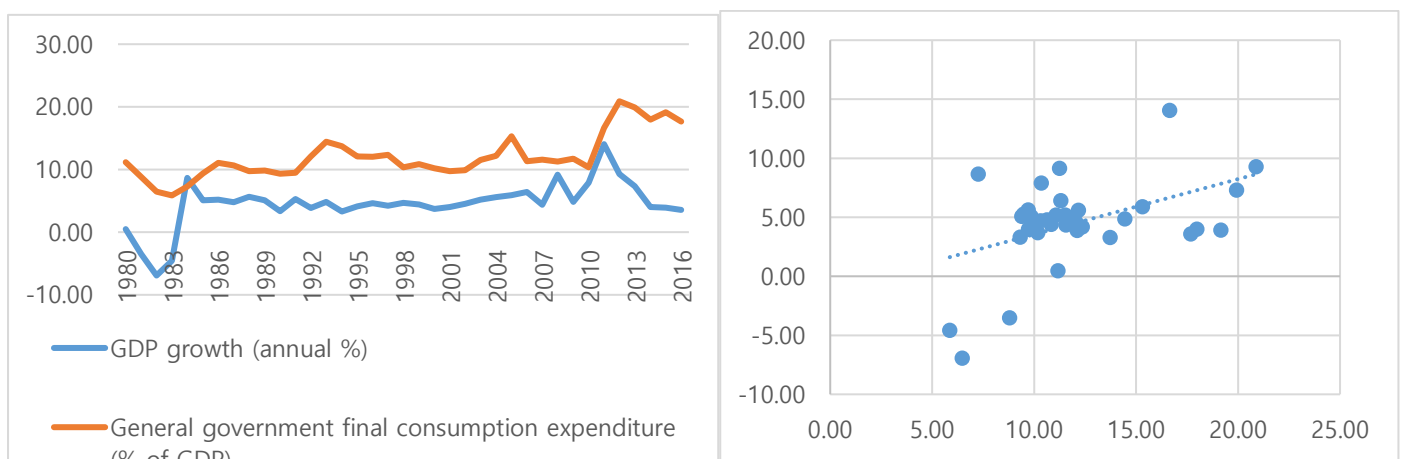
Figure 4.2 Correlation between GDP growth and foreign direct investments



4.1.3 Total Government Expenditure

Again, due to low domestic incomes, the central government has the largest purchasing power. Actually, most private sector firms rely heavily on the patronage of government. Therefore, increased government expenditure boosts economic growth and attracts additional investments into a country. Ghana's government final consumer expenditure as a percentage of GDP was highest (21%) in 2012 and lowest (6%) in 1983. Average expenditure was 12%.

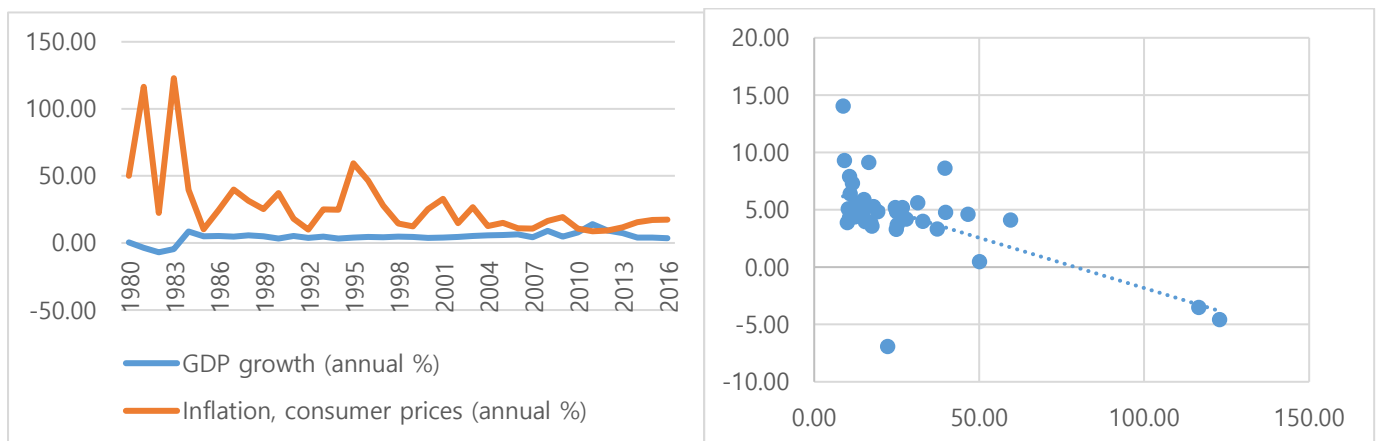
Figure 4.3 Correlation between GDP growth and government expenditure



4.1.4 Rate of Inflation

Inflation is the general price increase in the economy. Stable prices encourage capital accumulation and investment resulting in GDP growth. Inflation rate therefore generally has a negative relationship with GDP growth. This is true in the case of Ghana as figure 4.4 shows a negative correlation between inflation and GDP growth. Ghana recorded the highest inflation 123% in 1983 because of a shortage of consumer products and recorded its least inflation of 19% in 2011. The inflation rate has averaged 28% from 1980 to 2016, which is typical in most developing countries.

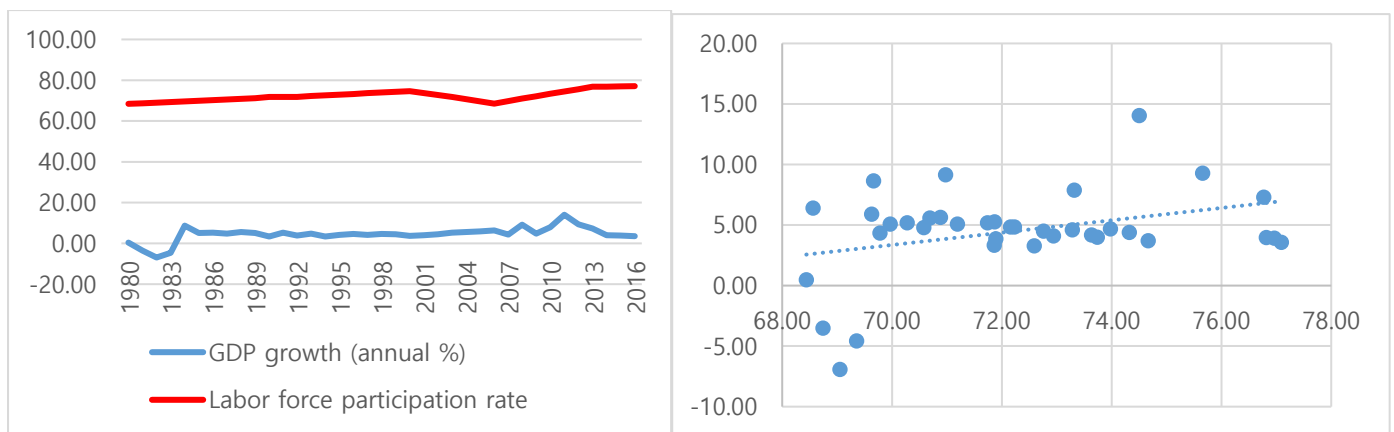
Figure 4.4 Correlation between GDP growth and inflation.



4.1.5 Labor Force Participation Rate

Ghana has a relatively high labor force participation rate as compared to other developing countries. The rate has been around 70% on average since the 1980s. This is mainly due to the rapid population growth rate which has resulted in a youthful population. This affords businesses cheap labor force (unskilled and semi-skilled) for the production of goods and services. Labor force participation has been consistently high, ranging from 78% in 2016 to 71% in 1980. The average participation rate is 72%.

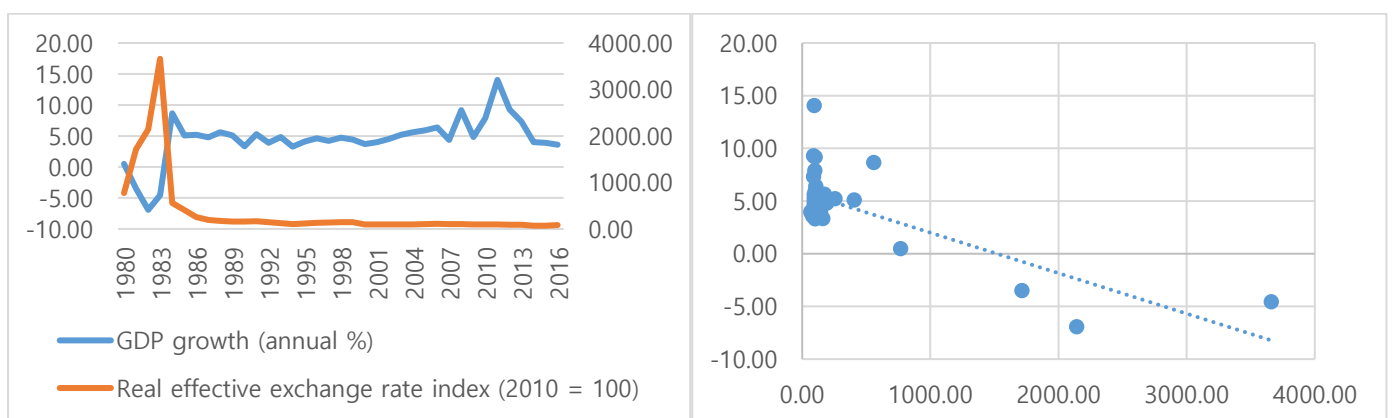
Figure 4.5 Correlation between GDP growth and labor force participation rate



4.1.6 Real Effective Exchange Rate Index

The real effective exchange rate index has a negative relationship with the GDP growth of Ghana. GDP growth rate falls as the REER index increases. An increase in the REER index signifies depreciation of the Ghana Cedi against the currencies of its major trading partners. Although currency depreciation is generally good for the competitiveness of export-oriented countries, Ghana is an import-dependent economy. As a result, currency depreciation results in expensive imports thereby negatively affecting GDP growth. Due to a shortage of basic goods in 1983, the Ghana Cedi depreciated the most against major currencies recording a REER index of 3660. The most appreciation was recorded in 2014 with a REER index of 69. On the average, the Ghana Cedi has depreciated against the currencies of its major trading partners with a REER index of 351.33.

Figure 4.6 Correlation between GDP growth and real effective exchange rate



4.2 Data Source and Description

This research will use data on foreign direct investment, net inflows (percentage of GDP), total exports (percentage of GDP), total government expenditure (percentage of GDP), inflation (annual percentage), labor force participation rate (percentage of total population aged 15 years and older) real effective exchange rate index and GDP annual growth from the World Bank's World Development Indicators database. Data from 1980 to 2016 are used and the descriptive statistics of the variables are illustrated below.

Table 4.1 Descriptive Statistics

	GDP	EXPORT	FDI	GOVEXP	INFL	LABOR	REER
Mean	4.493	26.641	3.060	12.004	27.942	72.232	351.331
Median	4.700	25.259	1.681	11.242	19.251	71.889	118.795
Maximum	14.046	48.802	9.517	20.888	122.875	77.940	3660.639
Minimum	-6.924	3.338	0.045	5.861	8.727	68.440	69.452
Std Deviation	3.659	12.660	3.281	3.569	25.464	2.485	705.987
Skewness	-0.948	-0.184	0.879	0.940	2.733	0.397	3.689
Kurtosis	6.043	1.979	2.115	3.333	9.860	2.291	15.38
Jarque-Bera	19.377	1.799	5.586	5.179	114.906	1.745	313.508
Probability	0.000	0.407	0.061	0.075	0.000	0.418	0.000
Observations	37	37	37	37	37	37	37

Table 4.2 Variable Description and Sources

VARIABLE CODE	VARIABLE NAME	VARIABLE DESCRIPTION	SOURCE
EXPORT	Exports of goods and services (% of GDP)	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world.	World Bank national accounts data, and OECD National Accounts data files.
LABOR	Labor force participation rate, total (% of total population ages 15+)	The labor force participation rate is the proportion of the population ages 15 and older that is economically active: all people who supply labor for the production of goods and services during a specified period.	International Labor Organization, ILOSTAT database.
FDI	Foreign direct investment, net inflows (% of GDP)	Foreign direct investment is the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor.	IMF, IFS and BoP databases, World Bank, International Debt Statistics, OECD GDP estimates.
GOVEXP	General government final consumption expenditure (% of GDP)	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees).	World Bank national accounts data, and OECD National Accounts data files.
INFL	Inflation, consumer prices (annual %)	Inflation, as measured by the consumer price index, reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	International Monetary Fund, International Financial Statistics and data files.
LABOR	Labor force participation rate, total (% of total population ages 15+)	The labor force participation rate is the proportion of the population ages 15 and older that is economically active: all people who supply labor for the production of goods and services during a specified period.	International Labor Organization, ILOSTAT database.
REER	Real effective exchange rate index (2010 = 100)	The real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.	International Monetary Fund, International Financial Statistics.
GDP	GDP growth (annual %)	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes minus any subsidies not included in the value of the products.	World Bank national accounts data, and OECD National Accounts data files.

5 Methodology

The methodology we employ is to assess the autoregressive distributed lag (ARDL), devised by Pesaran et al (2001), to establish the cointegration relationships among the variables. The advantage of the ARDL method is that it can be applied to the model whether variables are stationary at level [I (0)] or integrated of the first order [I (1)]. We will specify the model as below. The expected signs of the coefficients are indicated in brackets above the equation. Exports of goods and services, foreign direct investment, government expenditure and labor force participation are expected to have a positive effect on GDP growth. Inflation is expected to have a negative effect on GDP while the real effective exchange rate is expected to have a mixed impact depending on whether the country is export-oriented or import-dependent.

$$\text{GDP} = f \left(\begin{matrix} (+) \\ \text{EXPORT} \end{matrix} + \begin{matrix} (+) \\ \text{FDI} \end{matrix} + \begin{matrix} (+) \\ \text{GOVEXP} \end{matrix} + \begin{matrix} (-) \\ \text{INFL} \end{matrix} + \begin{matrix} (+) \\ \text{LABOUR} \end{matrix} + \begin{matrix} (+/-) \\ \text{REER} \end{matrix} \right)$$

5.1 Estimation of the Model

A time series methodology was used to estimate the model. This methodology allows the testing of the long-run relationships based on cointegration analysis as well as unit root testing. The stationariness of the variables was tested using the Augmented Dickey-Fuller (ADF) test [Dickey & Fuller (1981)] and the Phillips-Perron (PP) test Phillips & Perron (1988). The variables were tested for stationariness at level and at first difference using the ADF and PP using the Eviews statistical package.

The null hypothesis for the ADF and PP tests was that there was a unit root in the time series with the optimal level of lagged first differences selected automatically by Eviews. Cointegration analysis was then undertaken to establish the relationships among the variables.

5.2 Cointegration Analysis

The ARDL method used to establish the cointegration relationships among the variables includes the following steps. First, the long run relationship between the variables is determined. The existence of a long run relationship is established by the bounds test based on a correctly specified and appropriate ARDL model and an unrestricted error correction model. The null hypothesis of the bounds test is whether the coefficients of the lagged terms of the unrestricted error correction model are jointly equal to zero. If statistic of the test is above the upper bound, the existence of a long-run relationship among the variables is confirmed.

The second is to undertake a statistical diagnostic test to examine the goodness of the model. This includes serial correlation test and heteroscedasticity test. The third step then involves derivation of the long-run relationship once the existence of a long run relationship among the variables has been confirmed.

6 Empirical Results

6.1 Unit Root Tests

The result of the Augmented Dickey-Fuller and Phillips-Perron unit root tests are reported in tables 6.1 below:

Table 6.1 ADF and PP Unit Root Tests

VARIABLE	ADF UNIT ROOT TEST		PP UNIT ROOT TEST	
	LEVEL	FIRST DIFF	LEVEL	FIRST DIFF
GDP	-3.349834	-6.965362*	-3.081674	-9.189514*
EXPORT	-1.918437	-5.924868*	-2.006996	-5.924868*
FDI	-2.313039	-4.971893*	-2.411204	-5.000357*
GOVEXP	-2.814684	-5.208206*	-3.018017	-6.457148*
INFL	-6.400386*	N/A	-6.395226*	N/A
LABOR	8.28685	-5.763221	1.47179	-5.763221
REER	-2.788135	-7.600918*	-3.317372	-18.44459*

**Statistically significant at the 5% level of significance*

The results of both tests indicated that all the variables except labor force participation were stationary because the null hypothesis of the variables having unit root was rejected. GDP, EXPORT, FDI, GOVEXP, and REER were stationary at their first differences while INFL was stationary at level. The condition to run the ARDL model is that the dependent variable must be stationary at first difference and the independent variables must be stationary at either level or first difference. Consequently, LABOR was not included in the estimation of the equation because it was stationary at second difference.

6.2 Estimated Model

The estimated optimal ARDL model is shown in table 6.2 below. The power of the model is strong with R-squared being 99.39% and Adjusted R-squared being 93.45%. The model statistics are shown in the table below.

The estimated long-run relationships derived from the optimal ARDL model are also shown in the table below. All the independent variables except GOVEXP are statistically significant at 5% level of significance.

Table 6.2 Optimal ARDL Model

Dependent Variable: GDP
Method: ARDL
Sample (adjusted): 1984 2016
Included observations: 33 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): EXPORT FDI GOVEXP
INFL REER
Fixed regressors: C
Number of models evaluated: 12500
Selected Model: ARDL(4, 4, 4, 4, 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP(-1)	-0.723950	0.125823	-5.753723	0.0104
GDP(-2)	-0.332703	0.125527	-2.650447	0.0770
GDP(-3)	-0.288747	0.125766	-2.295904	0.1054
GDP(-4)	-0.608573	0.133414	-4.561525	0.0198
EXPORT	0.480734	0.092648	5.188839	0.0139
EXPORT(-1)	-0.146405	0.060620	-2.415136	0.0946
EXPORT(-2)	-0.061935	0.055930	-1.107374	0.3489
EXPORT(-3)	-0.010340	0.055697	-0.185651	0.8646
EXPORT(-4)	0.150234	0.049757	3.019367	0.0568
FDI	0.635231	0.190836	3.328672	0.0448
FDI(-1)	0.451674	0.299856	1.506303	0.2291
FDI(-2)	-0.821374	0.248544	-3.304739	0.0456
FDI(-3)	1.290503	0.221621	5.823015	0.0101
FDI(-4)	-0.227374	0.217018	-1.047718	0.3717
GOVEXP	0.268865	0.121058	2.220959	0.1129
GOVEXP(-1)	0.420901	0.179568	2.343961	0.1009
GOVEXP(-2)	-0.332405	0.149932	-2.217042	0.1134
GOVEXP(-3)	-0.143140	0.165820	-0.863224	0.4515
GOVEXP(-4)	-0.708952	0.102580	-6.911232	0.0062
INFL	-0.045070	0.029260	-1.540365	0.2211
INFL(-1)	-0.098766	0.022205	-4.447843	0.0211
INFL(-2)	-0.118115	0.027374	-4.314796	0.0229
INFL(-3)	-0.131111	0.025133	-5.216673	0.0137
INFL(-4)	-0.150845	0.027803	-5.425409	0.0123
REER	0.302763	0.038397	7.885150	0.0043
REER(-1)	-0.021020	0.002837	-7.408185	0.0051
REER(-2)	-0.011199	0.001596	-7.018304	0.0059

REER(-3)	-0.006450	0.001080	-5.972390	0.0094
REER(-4)	0.000393	0.000620	0.633959	0.5711
C	-13.44438	4.636490	-2.899689	0.0625

R-squared	0.993864	Mean dependent var	5.477893
Adjusted R-squared	0.934546	S.D. dependent var	2.217579
S.E. of regression	0.567344	Akaike info criterion	1.124585
Sum squared resid	0.965638	Schwarz criterion	2.485046
Log likelihood	11.44435	Hannan-Quinn criter.	1.582338
F-statistic	16.75499	Durbin-Watson stat	3.464582
Prob(F-statistic)	0.019486		

*Note: p-values and any subsequent tests do not account for model selection.

The long-run relationship between GDP growth rate and the independent variables is provided in table 6.3. The estimated short-run parsimonious error correction model derived from the long-run model is shown in the appendix.

Table 6.3 Long-Run Relationship

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPORT	0.139571*	0.022885	6.098859	0.0089
FDI	0.449788*	0.072420	6.210813	0.0084
GOVEXP	-0.167480	0.064829	-2.583413	0.0815
INFL	-0.184127*	0.023653	-7.784367	0.0044
REER	0.089536*	0.008806	10.167620	0.0020
C	-4.551287	1.582577	-2.875871	0.0637

*Statistically significant at the 5% level of significance

6.3 Goodness of the Model Test

Based on the tests for serial correlation (autocorrelation of residuals) and heteroscedasticity (constant variance of residuals), the model was good. The test results are shown in tables 6.4 and 6.5.

Table 6.4 Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.011269	Prob. F(2,1)	0.5752
Obs*R-squared	22.08202	Prob. Chi-Square(2)	0.0000

Since the null hypothesis that the residuals are not correlated was not rejected because the probability is greater than 5%, there is no evidence of serial correlation.

Table 6.5 Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.357506	Prob. F(29,3)	0.9423
Obs*R-squared	25.59407	Prob. Chi-Square(29)	0.6471
Scaled explained SS	0.315836	Prob. Chi-Square(29)	1.0000

Since the null hypothesis that there is no heteroskedasticity was not rejected because the probability is greater than 5%, the model is good.

6.4 Bound Test (Existence of Long-Run Relationship)

The results of the bound test to confirm the existence of a long-run relationship among variables are shown in table 6.6.

Table 6.6 Bounds Test (Existence of Long-Run Relationship)

ARDL Bounds Test

Sample: 1984 2016

Included observations: 33

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	23.48100	5

Critical Value Bounds

Significance	I0 Bound	I1 Bound

10%	2.08	3
5%	2.39	3.38
2.5%	2.7	3.73
1%	3.06	4.15

Since the F-statistic is greater than the upper bound of 5% level of significance, there is evidence of long-run relationship among the variables.

6.5 Stability of the Model

The figure 6.1 confirms that the estimated model is stable throughout the estimation period. There was no structural change in the model for the period of this study.

Figure 6.1 Model Stability Test

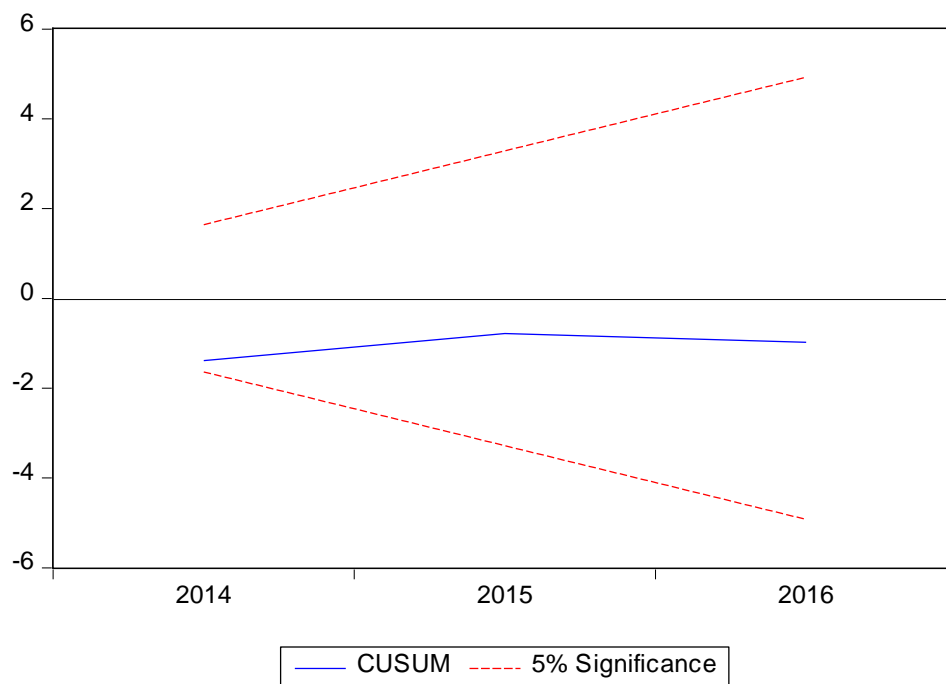


Table 6.7 Summary of Empirical Test Results and Recommendations

EMPIRICAL TEST VARIABLE	EMPIRICAL TEST RESULT (RELATIONSHIP WITH GDP GROWTH)	POLICY RECOMMENDATIONS		
Exports	Positive and Significant	Improve value addition by supporting private sector export processing companies with grants and soft loans.	Increase funding for non-traditional exports like fruits, handicrafts as these provides more employment opportunities.	Export revenue repatriation exemption granted to mining companies in the 1980s must be abolished to ensure all exporters repatriate their export revenue back into the economy to support the Ghana Cedi. This will stabilize the Ghana Cedi against major currencies and ensure a stable REER
Real effective exchange rate	Positive and Significant	Support by providing credit and technical assistance to import-substitution industries to reduce Ghana's dependence on imports.	The government must ensure fiscal discipline and reduce budget deficits. This reduces our foreign currency loan servicing that depletes our foreign exchange reserves.	
Rate of inflation	Negative and Significant	The Central bank must implement its inflation targeting monetary policies independently to stabilize the Ghana Cedi	The Central bank must adhere to its policy of zero financing for government in order not to needlessly increase money supply leading to inflation.	
Government expenditure	Negative and Not significant	Focus government expenditure on productive and labor-intensive sectors for growth and to reduce unemployment	Corrupt public officers who misappropriate government funds must be prosecuted to serve as a deterrent.	Parliament must pass the Right to Information Act to ensure continuous monitoring of government spending by civil society.
Foreign direct investment	Positive and Significant	Extend physical and social infrastructure to other regions to promote FDI attraction through public-private partnerships through tax exemptions and government offtake agreements.	Continue to undertake market-oriented and business-friendly reforms such as property protection rights laws, bilateral tax agreements, etc.	Focus on high-value foreign investments that impact the economy instead of on numerous low-value investments that can be undertaken by local firms with the needed support.

7 Conclusion and Recommendations

7.1 Conclusion

The economic growth of Ghana's economy from 1980 to 2016 was mainly influenced by exports of goods and services, foreign direct investment, inflation and the real effective exchange rate of the Ghana Cedi. Except for inflation that had a significant, negative relationship with economic growth, the other factors positively affect economic growth. Government expenditure showed a negative but insignificant effect on the GDP growth of Ghana signifying it has not been a very important contributor to GDP growth.

7.1.1 Export of Goods and Services

The long-run relationship equation clearly links growth of exports to economic growth. Ghana's exports have largely been primary products whose unstable and declining real prices are determined on the international commodity markets. While attempts have been made to reduce the dependence on cocoa and diversify into mineral products and oil, it is essential that equal attention is paid to expanding the export base to include services and manufacturing sectors. Ghana has gradually grown its export revenues as a percentage of GDP from 3% in 1982 to 26% in 2016, peaking at 49% in the year 2000.

7.1.2 Real Effective Exchange Rate

This study also confirms that the depreciation of the Ghana Cedi (increase in REER) is positively related to economic growth. This is because the depreciated currency makes the exports of Ghana cheaper as compared to its competitors leading to higher demand for Ghana's exports. Ghana is a major exporter of gold, cocoa beans, timber, manganese and other mineral products. It recently started exploiting oil in commercial quantities although on a minor scale of 120,000 barrels per day. However, successive governments have implemented policies to

stabilize the Ghana Cedi from a severe depreciation in 1983 when REER was 3660 to a more stable depreciation of 351.33 on average. This resulted in the following. Although currency depreciation boosts exports, it also makes imports costly for Ghanaians. Being an import-dependent country, the benefits of improved export revenue is exceeded by the cost of expensive imports.

7.1.3 Rate of Inflation

High inflation has proven to stagnate economic growth in Ghana for the period under study. Inflationary environment reduces the purchasing power of Ghanaians and therefore a disincentive for business investments and thus economic growth. Ghana's inflation, although still one of the highest among developing countries in Sub-Saharan Africa, it has seen a marked improvement in the last three decades. From a record high of 123% in 1983 to a low of 19% in 2011, an average inflation of 28% has been recorded from 1980 to 2016.

7.1.4 Total Government Expenditure

Although the government wields the highest purchasing power in Ghana as is in most developing countries, government expenditure has not significantly contributed to economic growth. This finding can be explained by the massive corruption and misappropriation of government expenditure. A greater portion of government expenditure does not go into the productive sectors of the economy which will translate into the pockets of people especially through increased employment. The government should focus its expenditure to support labor-intensive business to accelerate economic development and reduce unemployment.

7.1.5 Foreign Direct Investment

Lastly, the research finding supports the fact that inflow of FDI in addition to other important economic factors can significantly and positively result in economic growth. This

shows how important private sector investments have been to Ghana's growth. In light of the difficulties of data capturing in developing economies which makes it nearly impossible to capture private investment in the informal sector, it is believed that the data underestimate their contribution. FDI's positive and significant contribution to GDP growth confirms that the private sector is better at the efficient allocation of economic resources than the government. These findings, therefore, support this study's arguments that transfer of technology that accompanies FDI inflow has had a multiplier effect on the whole economy thereby improving the technical know-how of domestic companies. This is either through formal transfer and informal transfer usually through counterfeiting and piracy. Also, institutional capacity of Ghana has seen continuous improvement in a bid to attract FDI. Several laws have been passed from the 1980s to date to guarantee private investments and protect private property. Within the period of the study, Ghana has enacted the Ghana Free Zones Act, the Ghana Investment Promotion Act, signed on to the Multilateral Investment Guarantee Agency (MIGA) convention against investment expropriation amongst several business-friendly legislation. Finally, Ghana's economy has seen reasonable stability over the decades after the turbulent times in the early 1980s that forced it to undertake a Structural Adjustment Program on IMF insistence.

It is therefore imperative for policymakers to create the enabling environment for the promotion, attraction, and retention of FDI. Equally, attention must also be given to the other economic variables that complementarily influence economic growth.

7.2 Recommendations

7.2.1 Export of Goods and Services

The government must support export processing companies with grants,

concessionary loans and technical assistance in order to improve value addition to our primary commodity exports. Currently, Ghana imports most finished goods that are manufactured with our commodity exports such as chocolate from cocoa beans, furniture from timber, jewelry from gold, gasoline from crude oil, etc. Adding value by processing from raw materials to semi-finished and finished goods will increase our export revenue. Aside from the traditional exports listed above, attention has to be paid to the export of non-traditional exports such as fruits, vegetables, and handicrafts. The non-traditional export sector employs more unskilled to skilled labor than the traditional export sector. Assistance has to be in the form of loans, grants, skills development training and marketing services for non-traditional exporters.

Lastly, the government must review the export revenue repatriation exemption granted to mining companies in the 1980s when there was political instability. This was to allow them to keep their export revenue outside the country as an investment guarantee. After 25 years of stable democracy, Ghana has to abolish these exemptions in order for all exporters to repatriate their export revenue into the country.

7.2.2 Real Effective Exchange Rate

REER is a measure of Ghana's competitiveness in terms of trade. The government has to extend technical assistance and credit, either directly or through guarantees for commercial loans, for import-substitution industries. This will reduce the country's import dependence and even become an exporter of previously imported goods. This will also ensure that Ghana enjoys the benefit of a depreciating currency on export revenue. Again, the abolishing of export revenue repatriation exemption will help the Central Bank of Ghana better manage the Ghana Cedi to forestall excessive depreciation.

Ghana's government must ensure fiscal discipline in order to reduce its budget deficits. It should live within its means and not rely on foreign currency loan that requires the use of our foreign exchange reserves to service and repay.

7.2.3 Rate of Inflation

The central bank must implement its inflation-targeting monetary policy independently and without political influence. This policy requires the Bank of Ghana to independently increase interest rates when the economy overheats and to reduce it when economic activity slows down. Although there is no evidence of political influence in the past, the central bank ought to safeguard itself from the tendency of politicians to influence monetary policy. Since 2010, the Bank of Ghana at the insistence of IMF started a policy of zero-financing for the government. This meant they would not print currencies as a source of finance for the executive government which faced sharp criticisms from politicians. The central bank has to maintain this policy as central bank financing is inflationary.

7.2.4 Total Government Expenditure

The government has to focus its expenditure priorities to productive and labor-intensive sectors to ensure economic growth and reduce unemployment. Currently, the government's expenditure is mainly recurrent and a small percentage is spent on investment and infrastructural projects. The government must also seal all revenue leakages and prosecute public officers including political appointees who misappropriate and embezzle state resources. Parliament must, as a matter of urgency, pass the Right to Information Act to ensure continuous monitoring of government spending and public

resource utilization by civil society.

7.2.5 Foreign Direct Investment

Ghana must continue to undertake market-oriented and business-friendly reforms to make it the investment destination of choice in Sub-Saharan Africa. The country's investment promotion strategies must be focused on high-value foreign investments that influence the economy instead of high-quantity but low-value investments that can be undertaken by domestic firms.

Special attention must be paid to the promotion of investments into the service, industrial, manufacturing and agricultural sectors as these sectors can provide sustainable employment for the rising youth population of Ghana. In addition, the government must extend physical and social infrastructure to the other regions of Ghana in order to evenly distribute FDI inflow across the country. This can be done through public-private partnerships, tax exemptions and offtake agreements with the private sector to extend road network, rail network, energy, water and other utilities to rural provincial areas of the country.

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Appendices

Appendix 1 Regional Distribution (September 1994 – September 2017)										
Region	Tot.	%	Agric	Bld/Cons	Exp Trad	Gen Trad	Liais.	Mfg	Service	Tour.
Ashanti	325	5.78%	14	26	27	50	13	82	85	28
Brong Ahafo	46	0.82%	8	2	13	2	1	13	5	2
Central	121	2.15%	25	9	3	1		32	18	33
Eastern	124	2.21%	48	7	4	4	1	30	20	10
Greater Accra	4626	82.28%	108	428	185	845	319	1032	1396	313
Northern	58	1.03%	14	4	2	9	4	9	9	7
Upper East	8	0.14%		1	2			1	3	1
Upper West	4	0.07%		1		1			1	1
Volta	65	1.16%	36	1	2	4		16	4	2
Western	245	4.36%	11	22	11	13	22	40	93	33
TOTAL	5622	100.00%	264	501	249	929	360	1255	1634	430

Appendix 2 Number of FDI Projects by Nationality (September 1994 – September 2017)											
Rank	Country	Total	Percentage	Agric	Bld/ Cons	Exp Trade	Gen Trade	Liaison	Mfg	Service	Tourism
1	China	780	13.87%	13	54	17	208	12	265	130	81
2	India	681	12.11%	39	41	106	128	38	195	101	33
3	Lebanon	466	8.29%	11	57	9	140	3	145	59	42
4	Britain (Uk)	416	7.40%	14	41	12	38	50	66	168	27
5	Nigeria	276	4.91%	6	29	5	55	13	26	131	11
6	Usa	276	4.91%	22	22	6	12	25	37	119	33
7	Netherlands	196	3.49%	19	11	12	19	8	23	86	18
8	Germany	169	3.01%	14	11	6	8	10	38	64	18
9	South Africa	133	2.37%	1	7		12	16	9	85	3
10	South Korea	129	2.29%	18	10	1	13	10	31	31	15
11	Italy	124	2.21%	4	24	9	5	4	45	22	11
12	France	122	2.17%	5	4	5	10	16	23	42	17
13	Switzerland	83	1.48%	7	5	4	6	13	16	27	5
14	British Virgin Islands	80	1.42%	4	11		16	6	9	30	4
15	Canada	73	1.30%	4	12	2	6	3	14	28	4
16	Mauritius	70	1.25%	1	12	1	6	3	6	38	3
17	Denmark	58	1.03%	7	3	1	2	9	12	22	2
18	Spain	53	0.94%	4	14	1	3	5	12	12	2
19	Australia	51	0.91%	1	1	1	1	3	8	28	8
20	Belgium	50	0.89%	6	5	4	6	7	4	14	4
	Others	1,336	23.76%	64	127	47	235	106	271	397	89
	Total	5,622	100.00%	264	501	249	929	360	1,255	1,634	430

Appendix 3 Cost of Investment by Nationality (September 1994 – September 2017)											
Rank	Country	Total	Percentage	Agric	Bld/ Cons	Export Trade	Gen Trade	Liaison	Mfg	Service	Tourism
1	Britain	6,250.23	13.93%	30.61	295.39	20.20	37.51	136.88	5,534.77	186.12	8.74
2	South Korea	5,495.30	12.25%	16.59	5,402.19	0.03	22.74	5.28	19.58	26.19	2.69
3	USA	4,749.43	10.59%	62.46	1,035.12	1.30	23.94	44.93	2,528.65	1,035.69	17.34
4	Netherlands	4,112.31	9.17%	28.19	176.59	4.73	30.40	3.17	2,783.26	1,082.06	3.91
5	China	3,091.01	6.89%	14.23	336.19	8.23	187.89	11.83	1,882.04	636.87	13.71
6	United Arab Emirates	2,318.47	5.17%	0.60	2,251.21	0.55	17.76	1.04	21.99	25.32	-
7	Lebanon	1,967.51	4.39%	1.43	32.14	2.07	176.19	0.49	1,732.24	14.09	8.85
8	British Virgin Islands	1,897.85	4.23%	16.26	1,044.42	-	15.92	3.53	25.86	88.31	703.55
9	Nigeria	1,775.08	3.96%	3.24	88.56	0.61	894.82	6.59	9.55	765.19	6.52
10	Mauritius	1,703.14	3.80%	108.91	1,175.08	5.31	58.04	111.50	20.08	149.51	74.72
11	Singapore	1,671.10	3.73%	221.21	-	2.51	2.74	1.86	58.14	1,384.56	0.08
12	India	1,247.39	2.78%	388.49	56.73	44.89	113.33	435.01	150.12	53.18	5.63
13	Canada	1,243.35	2.77%	0.28	26.15	0.13	3.08	7.21	50.83	1,155.48	0.20
14	South Africa	1,014.38	2.26%	100.20	41.90	-	34.75	141.37	30.74	663.60	1.81
15	Egypt	588.25	1.31%	0.26	2.53	-	15.05	565.27	3.44	1.29	0.42
16	Malaysia	456.14	1.02%	-	0.65	-	0.67	0.09	17.32	437.41	-
17	France	367.96	0.82%	54.91	3.20	22.48	6.04	10.47	91.06	175.21	4.59
18	Turkey	363.90	0.81%	-	18.69	1.02	7.70	0.29	8.06	327.75	0.38
19	Brazil	361.74	0.81%	0.20	219.91	-	7.05	132.28	0.01	2.29	-
20	Bermuda	341.55	0.76%	277.73	-	-	26.35	8.92	-	28.55	-
	Others	3,841.84	8.56%	319.74	760.04	102.47	239.36	44.95	1,094.80	1,221.31	59.17
	Total	44,857.92	100%	1,510.87	11,905.36	198.80	1,764.08	1,536.02	14,747.8	8,685.65	837.64

Appendix 4 ARDL Cointegrating

Original dep. variable: GDP

Selected Model: ARDL(4, 4, 4, 4, 4)

Sample: 1980 2016

Included observations: 33

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	1.230023	0.093626	13.137655	0.0010
D(GDP(-2))	0.897320	0.059980	14.960211	0.0006
D(GDP(-3))	0.608573	0.049161	12.379173	0.0011
D(EXPORT)	0.480734	0.032943	14.593092	0.0007
D(EXPORT(-1))	-0.077958	0.021455	-3.633630	0.0359
D(EXPORT(-2))	-0.139893	0.022041	-6.346948	0.0079
D(EXPORT(-3))	-0.150234	0.021653	-6.938228	0.0061
D(FDI)	0.635231	0.078299	8.112840	0.0039
D(FDI(-1))	-0.241755	0.082949	-2.914513	0.0618
D(FDI(-2))	-1.063130	0.084750	-12.544293	0.0011
D(FDI(-3))	0.227374	0.066625	3.412714	0.0421
D(GOVEXP)	0.268865	0.046838	5.740323	0.0105
D(GOVEXP(-1))	1.184497	0.085127	13.914482	0.0008
D(GOVEXP(-2))	0.852091	0.087960	9.687256	0.0023
D(GOVEXP(-3))	0.708952	0.056222	12.609853	0.0011
D(INFL)	-0.045070	0.008074	-5.582263	0.0114
D(INFL(-1))	0.400071	0.018784	21.298849	0.0002
D(INFL(-2))	0.281956	0.014952	18.857536	0.0003
D(INFL(-3))	0.150845	0.008928	16.896395	0.0005
D(REER)	0.302763	0.013834	21.886234	0.0002
D(REER(-1))	0.017256	0.000908	19.010706	0.0003
D(REER(-2))	0.006057	0.000355	17.061804	0.0004
D(REER(-3))	-0.000393	0.000264	-1.490166	0.2330
CointEq(-1)	-2.953973	0.133027	-22.205856	0.0002

$$\text{Cointeq} = \text{GDP} - (0.1396*\text{EXPORT} + 0.4498*\text{FDI} - 0.1675*\text{GOVEXP} - 0.1841 \text{INFL} + 0.0895*\text{REER} - 4.5513)$$

Appendix 5 Breusch-Godfrey Serial Correlation LM

Test:

F-statistic	1.011267	Prob. F(2,1)	0.5752
Obs*R-squared	22.08201	Prob. Chi-Square(2)	0.0000

Test Equation:

Dependent Variable: RESID

Method: ARDL

Sample: 1984 2016

Included observations: 33

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	0.008300	0.125810	0.065969	0.9581
GDP(-2)	0.021153	0.128710	0.164343	0.8963
GDP(-3)	0.002746	0.126380	0.021728	0.9862
GDP(-4)	0.009870	0.133184	0.074108	0.9529
EXPORT	0.035676	0.099577	0.358271	0.7810
EXPORT(-1)	-0.004786	0.060749	-0.078788	0.9499
EXPORT(-2)	-0.005022	0.057247	-0.087723	0.9443
EXPORT(-3)	-0.002712	0.055593	-0.048787	0.9690
EXPORT(-4)	0.006756	0.049861	0.135501	0.9143
FDI	0.038759	0.192690	0.201148	0.8736
FDI(-1)	-0.018354	0.299533	-0.061276	0.9610
FDI(-2)	-0.020914	0.250304	-0.083555	0.9469
FDI(-3)	0.006014	0.222119	0.027075	0.9828
FDI(-4)	-0.069137	0.228339	-0.302780	0.8128
GOVEXP	0.014548	0.121052	0.120182	0.9239
GOVEXP(-1)	0.027187	0.182820	0.148708	0.9060
GOVEXP(-2)	0.009638	0.149534	0.064453	0.9590
GOVEXP(-3)	-0.027769	0.166411	-0.166871	0.8947
GOVEXP(-4)	0.003458	0.102370	0.033781	0.9785
INFL	-0.000949	0.030567	-0.031047	0.9802
INFL(-1)	-0.002625	0.022322	-0.117610	0.9255
INFL(-2)	-0.000439	0.027276	-0.016099	0.9898
INFL(-3)	-0.002293	0.025123	-0.091278	0.9421
INFL(-4)	-0.007484	0.029215	-0.256160	0.8404
REER	0.010642	0.039498	0.269445	0.8324
REER(-1)	-0.000574	0.002876	-0.199476	0.8747
REER(-2)	-0.000252	0.001600	-0.157235	0.9007
REER(-3)	-0.000270	0.001113	-0.243004	0.8482
REER(-4)	0.000146	0.000640	0.228890	0.8568
C	-2.149879	5.042691	-0.426336	0.7434
RESID(-1)	-1.212299	1.075737	-1.126948	0.4620
RESID(-2)	-0.499698	1.151174	-0.434077	0.7393

R-squared	0.669152	Mean dependent var	4.04E-15
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Adjusted R-squared	-9.587141	S.D. dependent var	0.173713
S.E. of regression	0.565225	Akaike info criterion	0.139701
Sum squared resid	0.319479	Schwarz criterion	1.590860
Log likelihood	29.69493	Hannan-Quinn criter.	0.627972
F-statistic	0.065243	Durbin-Watson stat	2.316608
Prob(F-statistic)	0.999538		

Appendix 6 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.357506	Prob. F(29,3)	0.9423
Obs*R-squared	25.59407	Prob. Chi-Square(29)	0.6471
Scaled explained SS	0.315836	Prob. Chi-Square(29)	1.0000

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Sample: 1984 2016

Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.393143	0.649293	0.605494	0.5876
GDP(-1)	-0.003265	0.017620	-0.185293	0.8648
GDP(-2)	0.000849	0.017579	0.048296	0.9645
GDP(-3)	0.015885	0.017612	0.901932	0.4336
GDP(-4)	-0.005481	0.018683	-0.293342	0.7884
EXPORT	-0.005110	0.012974	-0.393867	0.7200
EXPORT(-1)	-0.003018	0.008489	-0.355504	0.7457
EXPORT(-2)	-0.001936	0.007832	-0.247237	0.8207
EXPORT(-3)	0.002864	0.007800	0.367148	0.7379
EXPORT(-4)	3.08E-05	0.006968	0.004423	0.9967
FDI	-0.027647	0.026725	-1.034503	0.3770
FDI(-1)	0.005309	0.041992	0.126427	0.9074
FDI(-2)	0.011023	0.034806	0.316694	0.7722
FDI(-3)	-0.007826	0.031036	-0.252152	0.8172
FDI(-4)	0.024016	0.030391	0.790226	0.4871
GOVEXP	0.001637	0.016953	0.096590	0.9291
GOVEXP(-1)	-0.003129	0.025147	-0.124428	0.9088
GOVEXP(-2)	-0.014042	0.020996	-0.668783	0.5515
GOVEXP(-3)	0.006655	0.023221	0.286601	0.7931
GOVEXP(-4)	0.003163	0.014365	0.220205	0.8398
INFL	-0.001021	0.004098	-0.249267	0.8192
INFL(-1)	0.001594	0.003110	0.512759	0.6435
INFL(-2)	-0.001021	0.003834	-0.266371	0.8072
INFL(-3)	-0.001153	0.003520	-0.327600	0.7647
INFL(-4)	0.002251	0.003894	0.578197	0.6037
REER	-0.000966	0.005377	-0.179681	0.8689
REER(-1)	5.13E-06	0.000397	0.012917	0.9905
REER(-2)	-3.90E-06	0.000223	-0.017434	0.9872
REER(-3)	0.000121	0.000151	0.802954	0.4807
REER(-4)	-0.000114	8.68E-05	-1.310755	0.2813

R-squared	0.775578	Mean dependent var	0.029262
Adjusted R-squared	-1.393835	S.D. dependent var	0.051351
S.E. of regression	0.079451	Akaike info criterion	-2.807073
Sum squared resid	0.018937	Schwarz criterion	-1.446611

Log likelihood	76.31670	Hannan-Quinn criter.	-2.349319
F-statistic	0.357506	Durbin-Watson stat	2.115955
Prob(F-statistic)	0.942258		

Appendix 7 ARDL Bounds Test

Sample: 1984 2016

Included observations: 33

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	23.48095	5

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.08	3
5%	2.39	3.38
2.5%	2.7	3.73
1%	3.06	4.15

Test Equation:

Dependent Variable: D(GDP)

Method: Least Squares

Sample: 1984 2016

Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	1.230023	0.263701	4.664467	0.0186
D(GDP(-2))	0.897320	0.198887	4.511699	0.0203
D(GDP(-3))	0.608573	0.133414	4.561525	0.0198
D(EXPORT)	0.480734	0.092648	5.188839	0.0139
D(EXPORT(-1))	-0.077958	0.046284	-1.684348	0.1907
D(EXPORT(-2))	-0.139893	0.042587	-3.284872	0.0463
D(EXPORT(-3))	-0.150234	0.049757	-3.019367	0.0568
D(FDI)	0.635231	0.190836	3.328672	0.0448
D(FDI(-1))	-0.241755	0.324071	-0.745996	0.5098
D(FDI(-2))	-1.063130	0.255117	-4.167217	0.0251
D(FDI(-3))	0.227374	0.217018	1.047718	0.3717
D(GOVEXP)	0.268865	0.121058	2.220959	0.1129
D(GOVEXP(-1))	1.184497	0.184456	6.421575	0.0077
D(GOVEXP(-2))	0.852091	0.172417	4.942047	0.0159
D(GOVEXP(-3))	0.708952	0.102580	6.911232	0.0062
D(INFL)	-0.045070	0.029260	-1.540365	0.2211
D(INFL(-1))	0.400071	0.067214	5.952195	0.0095
D(INFL(-2))	0.281956	0.045804	6.155775	0.0086

D(INFL(-3))	0.150845	0.027803	5.425409	0.0123
D(REER)	0.302763	0.038397	7.885150	0.0043
D(REER(-1))	0.017256	0.002003	8.615990	0.0033
D(REER(-2))	0.006057	0.000795	7.614607	0.0047
D(REER(-3))	-0.000393	0.000620	-0.633959	0.5711
C	-13.44438	4.636490	-2.899689	0.0625
EXPORT(-1)	0.412288	0.067679	6.091803	0.0089
FDI(-1)	1.328660	0.202828	6.550689	0.0072
GOVEXP(-1)	-0.494730	0.168458	-2.936819	0.0607
INFL(-1)	-0.543907	0.103481	-5.256093	0.0134
REER(-1)	0.264487	0.033911	7.799364	0.0044
GDP(-1)	-2.953973	0.315563	-9.360949	0.0026
<hr/>				
R-squared	0.997095	Mean dependent var	0.246678	
Adjusted R-squared	0.969012	S.D. dependent var	3.222942	
S.E. of regression	0.567344	Akaike info criterion	1.124585	
Sum squared resid	0.965638	Schwarz criterion	2.485046	
Log likelihood	11.44435	Hannan-Quinn criter.	1.582338	
F-statistic	35.50591	Durbin-Watson stat	3.464582	
Prob(F-statistic)	0.006515			

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I dedicate this work to my family for their immense support and prayers.

Curriculum Vitae

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PROFESSIONAL SUMMARY

- ACCA Member and CFA Candidate
- Well presented with excellent communication, negotiation, and interpersonal skills.
- Dedicated to professionalism in judgments and actions.
- Enthusiastic and self-motivated with an eye for accuracy and attention to detail.
- Ability to remain calm and focused under pressure and work within strict deadlines.
- Welcomes challenges, learn fast and adapts well to new situations and opportunities.

EDUCATION

Level 1, Chartered Financial Analyst (CFA) Designation

Jun 2013

CFA Institute, United States of America

- Ethical & Professional Standards
- Quantitative Methods
- Economics
- Financial Reporting & Analysis
- Corporate Finance
- Equity Investments
- Fixed Income
- Derivatives
- Alternative Investments
- Portfolio Management & Wealth Planning

ACCA Professional Qualification

May 2016

Association of Chartered Certified Accountants, United Kingdom

- Taxation
- Management Accounting
- Financial Accounting & Reporting
- Corporate & Business Law
- Performance Management
- Financial Management
- Governance, Risk & Ethics
- Business Analysis
- Audit & Assurance

Bachelor of Science in Administration (Accounting Option)

May 2007

University of Ghana, Legon, Ghana

- Financial Accounting
- Cost Accounting
- Taxation
- Managerial Economics
- Business Finance
- Company and Commercial Law
- Quantitative Methods
- Auditing

EXPERIENCE

Principal Finance Officer

Jan 2016 – Present

Ghana Investment Promotion Centre, Accra, Ghana

- Prepare and present quarterly management reports and financial statements.
- Formulate and implement accounting policies, financial strategies, and plans.
- Coordinates the preparation of annual budgets, monitor budgets against actual performance and initiate necessary corrective actions.
- Maintain cash forecasting and control systems to ensure that adequate funds are available to meet the operational requirements of the Centre.
- Ensure that the Centre's financial procedures comply with the Financial Administration Act, Internal Audit Agency Act, and the Public Procurement Act.

Senior Finance Officer

Jan 2012 – Dec 2015

Ghana Investment Promotion Centre, Accra, Ghana

- Prepare and present quarterly management reports and financial statements.
- Implements internal control procedures to ensure all transactions comply with relevant policies and procedures.
- Liaising with external auditors during statutory audits
- Prepare monthly payroll and maintain the record of staff provident fund scheme.

Finance Officer

Apr 2008 – Dec 2011

Ghana Investment Promotion Centre, Accra, Ghana

- Ensure transactions are properly processed and captured on the computerized accounting system (Ebizframe Enterprise Resource Planning software).
- Ensure all payment vouchers and supporting documents are pre-audited promptly.
- Maintain asset register of the Centre.
- Assist with the preparation of the budget.
- Undertake bank reconciliation.

Investment Officer

Nov 2007 – Mar 2008

Ghana Investment Promotion Centre, Accra, Ghana

- Processed and expedited investors' request for information
- Helped evaluate prospective investors' reactions to promotion programs and "offer packaging", and monitored marketing activities and progress of investment inducement programme.
- Maintained liaison with external sources of information and services such as trade and professional associations, tertiary institutions, research firms, etc. for intelligence

- Acquired and maintained data/ information on market, industry, economic, competitive conditions, and trends relevant to inward investment
- Developed interpretative reports based on statistical analysis of the data collected.

REFERENCES

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