EFFECT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN NIGERIA: 1981 – 2016.

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NOVEMBER, 2018.

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A DISSERTATION SUBMITTED TO THE SCHOOL OF POST GRADUATE STUDIES, AHMADU BELLO UNIVERSITY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DOCTOR OF PHILOSOPHY IN ECONOMICS.

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NOVEMBER, 2018.

Declaration

I declare that the work in this dissertation entitled "EFFECTS OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN NIGERIA: 1981 – 2016" has been undertaken by me in the Department of Economics. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma at this or any other institution.

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…… …… ……

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Certification

This dissertation titled: "EFFECTS OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN NIGERIA: 1981 – 2016", by OLUBUNMI SOLOMON meets the regulations governing the award of the degree of Doctor of Philosophy (Ph.D. Economics) of Ahmadu Bello University and is approved for its contribution to knowledge and literary presentation.

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Abstract

The inflow of foreign direct investment (FDI) to developing countries has continued to be on the increase over the years. This study investigates the effects of FDI on economic growth in Nigeria between 1981 and 2016. Structural macroeconometric models consisting of 4 blocks made up of aggregate production, aggregate demand and policy management, monetary and prices and external sector blocks were developed for the purpose of the study. The models have 19 simultaneous equations and 45 variables to capture the required proxies. Three-stage least squares (3SLS) technique was adopted to estimate the macroeconometric system of 19 simultaneous equations to capture the disaggregated effect of FDI on the different sectors of the economy as well as the inter-linkages amongst the sectors in order to give better insight into the variations inherent therein. FDI has positive sectoral effect on output of the productive sectors like agriculture, wholesale and retail services, industries, building and construction and gross fixed capital formation according to the findings of the study. Specifically, the simulation experiment considered four policy scenarios: the implications of 10%, 15%, 20% and 25% increases in the flow of FDI into the Nigerian economy. The simulation experiment on aggregate basis confirms FDI to be a great tool in growing the Nigerian economy. For example except for industry, building and construction the effect of FDI on these sectors is positive and significant. In addition, the aggregate demand and policy management block, except for government final consumption expenditure and private consumption expenditure, the performance of FDI is positive and significant. Again, considering the monetary and prices block, FDI has positive and significant effects on all the variables in the block. External sector block also showed similar results, suggesting that FDI has positive and significant effects on exports, exports of oil and gas and gross domestic product, while the effect on imports is negative, which is in accordance with a priori expectation. The finding shows that FDI has a significant effect on both sectoral and aggregate output of the economy but that the growth effects of FDI differ across sectors. The major recommendation of the study is that government should provide enabling environment in such a way that the flow of FDI would be geared towards financing capital projects such as road networks, railway lines, construction of new power plants and as a matter of urgency provide favourable policy in the area of exchange rate volatility, insecurity and corruption for easy inflow of FDI to the aggregate production sector specifically encouraging agricultural value chain and solid mineral development. This is because the country possesses highest comparative advantage in this sector, which would help relax the unemployment and foreign exchange bottle neck thereby making the economy to grow.

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LIST OF ACRONYMS

AGCON = Aggregate Consumption.

BOP = Balance Of Payments.

C = Consumption

CAPX = Capital Expenditure.

CAPFT = Capital Flight.

CAPTL =Capacity Utilization.

CNEXP = Consumption Expenditure.

CINFL = Core Inflation.

CPDEX = Consumer Price Index.

CRHP = Currency Held by Non-Bank Public.

DPST = Demand Deposit.

EXCR = Exchange Rate.

EXPT = Export.

FDIV = Foreign Direct Investment

FNRES = Foreign Reserves.

GDEF =Government Deficit.

GFCE = Government Final Consumption Expenditure.

GFCF = Gross Fixed Capital Formation.

GEXP = Government Expenditure.

GREV = Government Revenue.

I = Investment.

Ig = Government Investment.

Ip = Private Investment.

IMPT =Imports.

LOANS = Commercial Bank Loans and Advances.

MD = Demand for Money.

MKG = Imports of Capital Goods.

MMG = Import Manufacturing Goods.

MPRICE = Import Prices.

MRG = Imports of Raw Materials.

MRR = Minimum Rediscount Rate.

MS= Money Supply.

NOILR = Non oil Revenue.

NX (EXPT – IMPT) = Net Exports

OPNSS = Openness.

OILP = Oil Price.

OREV = Oil Revenue.

PCE = Private Consumption Expenditure.

PCON = Private Consumption Expenditure.

PHGS = Public Holding of Government Securities.

QAGR =Agricultural.

QBUILD = Building and Construction.

QIND = Manufacturing Sector.

QOIL = Oil and Gas Sector.

QRTAIL = Wholesale and Retail services.

QSERV = Services.

REXP = Recurrent Expenditure.

RGDP = Real Gross Domestic Product.

TMTR = Terms of Trade.

Y = National Income.

INTR = Interest Rate

TRFF = Tariff

CHAPTER ONE

1.0. INTRODUCTION

1.1. Background to the Study

The need to fast-track economic growth has always motivated policymakers in most developing countries to make deliberate efforts to attract investments from economies of developed countries. One of the reasons for this is that such economies of developing countries are characterized by low savings and often very high fiscal deficit. Most of the policymakers in such situations believe that external capital is required to finance current account deficits and to accelerate the pace of economic growth through larger production of goods and services. The mainstream thought in this regard is that foreign direct investment can be used to augment domestic savings and bridge the savings-investment gap, (Alfaro & Chauvin, 2017).

Foreign direct investment (FDI) is in many forms and the term is used to refer to different kinds of investment activity. Generally however, FDI is a measure of foreign ownership of productive assets, factories, mines and land. It is direct investment into production or business in a country by corporate bodies and citizens from another country.

The end of World War II marked a significant watershed in the recognition and use of FDI as a very viable economic growth path, especially for the developing countries, (Lall, 2002). For instance, the contributions of foreign investment to Japan after the World War II and in South Korea after the Korean War are of great importance. In the same vein, Thailand, Singapore, Malaysia, Taiwan, Hong Kong and Indonesia which were once reputed to be economic tigers of Asia owe a significant part of their past successes and much of their current growth largely to heavy inflows of FDI over the years.

In Nigeria, the first FDI effort was by The Royal Niger Company (RNC) which in the 19th century and under Sir Tubman Goldie arrived on the shores of Nigeria from Great Britain. The commercial and economic conquests of the RNC soon translated into the formal establishment of political control in Nigeria for Great Britain. The same went for other companies like United Trading Company (UTC), United African Company (UAC) - two descendants of the RNC- and others. This development formed the background to the advent and activities of multinational corporations in Nigeria, (Onu, 2012).

Nigeria became one of the economies with great demand for goods and services and has attracted many FDI over the years since the discovery of crude oil. According to the World Bank, from 1970 to 1979, Nigeria recorded an average ratio of foreign direct investment net inflow of about 1.579 to GDP while from 1980 to 1989, the average ratio of FDI net inflow to GDP recorded stood at 1.947. Thus, in 1994 and 1993, the country made a remarkable record of 8.28 and 6.3 respectively. Since 1993 and 1994, the record was not an issue to contend with. To the greatest dismay, from 1995 to 2010, FDI, net inflow as % of GDP in Nigeria has not gone beyond 4.0 except in 1996, 1997, 2005 and 2009 the country made a record of 4.51, 4.25, 4.44 and 5.08 respectively. World Bank research contained in global Development Finance 2008 shows that Thailand attracted $9.6 billion in 2007 while Nigeria attracted just about $6.03 billion. Total foreign direct investment inflow into the Nigerian in 2010 was about $5.99 billion. The breakdown of the amount according to the report shows that FDI portion was just 12.2 percent or $668 million. This represents a 78.1 percent drop from $3.31 billion in 2009, (Adeleke, Olowe, & Fasesin, 2014).

Summarily, policy makers in developing countries including Nigeria have sought over time to attract more and more FDI in order to accelerate economic growth, job creation and

poverty reduction. This is based on the premise that FDI is a way of obtaining capital and technology that is not available in the host country (Olusanya, 2013). For reasons of globalization as well as revolutions in all areas of economic life worldwide, there is no gainsaying the fact that knowledge on the effect of FDI on economic growth, value addition, employment, poverty and such likes in Nigeria needs to be updated. It is for this reason that this study centers on the effect of FDI on economic growth in Nigeria with particular emphasis on aggregate and sectoral implications and performance as regards aggregate production, monetary prices, external shock and others.

1.2. Statement of the Problem

Foreign direct investment represents a veritable source of foreign exchange and technological transfer, especially to a developing economy. It can be analyzed in terms of inflow of new equity capital (change in foreign share capital), re- invested earning (unremitted profit), trade and supplier's credit, net inflow of borrowing and other obligations from the parent company or its affiliates. In the broadest sense, FDI can affect economic development by increasing the availability of factors of production, specifically, capital. But FDI can be more than capital. The possibility that foreign-owned firms can have a positive impact on the local economy and on productivity levels of domestic firms is perhaps of even greater importance, (Wang & Wang, 2015).

Improvements in local productivity due to the presence of foreign companies may arise from a number of channels. On the macro side, FDI could spawn new economic sectors, push an economy's technological frontier, and diversify exports. On the micro side, through knowledge spillovers and linkages between foreign and domestic firms FDI could foster technology transfer, improve managerial and employee skills, and boost investment incentives and productivity in

upstream and downstream sectors. Intensifying competition that results from foreign entry could incentivize local firms to upgrade their productivity, drive out unproductive domestic firms, and reallocate factors of production to more productive firms and uses, (Syverson, 2011).

Several studies, for instance, Otepola (2002), Solomon and Eka (2013), and Adeleke, Olowe, & Fasesin (2014), have shown that the performance of the Nigerian economy since the 1980s has remained unsatisfactory in contrast to the robust performance of other developing countries of the same economic history antecedent. Particularly, there are large imbalances in the economy such as high fiscal deficit, inflation, exchange rate problem, Balance of Payments disequilibrium and low savings despite the availability of huge material and human resources. Imoughele & Ismaila (2014) especially show that though, savings provides developing countries with the much-needed capital for investment which can improve the growth of an economy; the Nigerian experience has not been so.

Available data show that the saving culture in Nigeria is poor relative to other developing countries. For example, during the period 1981 – 1995, domestic saving averaged 8.34% of GDP and decreased to an average of 7.81 % from 1986 to 1994. However, with the distress in the financial sector of the 1990s, the rate of aggregate savings declined significantly. This resulted in significant fall in domestic saving ratio to GDP in the period 1995 to 2004 to 5.63 %. Also, the average saving to GDP ratio between 2005 and 2012 stood at 15.8 % of GDP, which shows that savings has been very low in Nigeria, necessitating the need for alternative sources of funds to augment the gap created.

One of the several alternative sources of funds to bridge this saving-investment gap in Nigeria, FDI seems to have become the most preferred alternative. That Nigeria joined the rest of the developing world in seeking FDI is evidenced by the formation of the New Partnership for

Africa's Development (NEPAD), which has the attraction of foreign investment to Africa as a major component. FDI is assumed to benefit a poor country like Nigeria, not only by supplementary domestic investment, but also in terms of employment creation, transfer of technology, increased domestic competition and other positive externalities (Egwaikhide, 2012).

This thesis centers on the ongoing debate on the impact of FDI on economic growth globally. Empirical studies report contrasting findings about the contribution of FDI to host economies, especially in developing countries. The main reasons for contrasting results include total factor productivity, explained by the Solow-Swan Model and other factors explained by the Malign Model, such as the absorptive capacity of the host nation, crowding out local firms and capital flight, especially in regard to market-seeking FDI. Whereas countries expect a positive contribution to their economies, in some instances a negative relationship has been noted.

For example, Attari, Kamal & Attaria (2011) found a causal link between FDI and economic growth in the Pakistani economy, as did Athukorala (2003) on the impact of FDI on economic growth in Sri Lanka. Conversely, Mucuk & Demirsel's (2013) study on the effects of FDI on employment in seven developing countries revealed contrasting results. While FDI seems to have increased unemployment in Turkey and Argentina, it reduced it in Thailand. Further, FDI was positively related to employment in the long-run but not in the short-run. In the same vein, while studies such as Todaro (2005), Ayanwale, (2007), Akinlo (2004), conclude that FDI has positive and significant effect on economic growth, some others like Khalique & Noy (2007), Durham (2004), and Schahbaz & Rahman (2010) advance the thought that FDI seems to crowd out domestic investment and is therefore harmful. Therefore the stand of economists over the effects of FDI on economic growth is inconclusive.

Secondly, considering the interrelationship between FDI and economic growth of a country, this study therefore formulated and estimated macroeconometric model that captured the interaction between foreign direct investment and various subsectors in Nigeria. With this, one would be able to better understand the sectoral and aggregate effect of FDI on the Nigeria economy.

Also, government policies in Nigeria on FDI are dynamic and policies towards FDI have radically changed over the years. Prior to 1986, Nigeria adopted protection policies (indigenization), and from SAP period in 1986, Nigeria adopted liberal policies that influenced the inflow of FDI. This thesis will therefore elucidate how policy shift has affected FDI activities in Nigeria. A number of economic reforms and shocks have equally been experienced such as the SAP reforms of 1986, the banking sector consolidation reforms of 2004, the 2007/2008 global financial crisis, the recent economic recession that culminated to peak in 2016. Furthermore, Nigeria has experienced paradigm shift in the social sphere largely due to the liberalization of the telecommunication sector. This has resulted to growth of social media and information sharing, e-commerce, e-banking, etc. Nigeria has equally in recent times experienced some of the most turbulent social crises which has bred insecurity such as the Boko Haram insurgency, Niger Delta militancy etc. All these have affected the Nigerian political social and economic environment in one way or the other and which has definitely affected FDI.

In essence therefore, FDI has been surrounded by lot of debates and have generated so many questions and some are yet to be answered. One of those questions still seeking for answer is; to what extent has FDI contributed to Nigeria's economic growth? Hence, this study.

1.3. Research Questions

(i) What is the effect of FDI on the aggregate production sector of the Nigerian economy over the period of study?

(ii) What is the effect of FDI on the aggregate demand and policy management sector of the Nigerian economy over the period of study?

(iii) What is the effect of FDI on the monetary and prices sector of the Nigerian economy over the period of study?

(iv) What is the effect of FDI on the external sector of the Nigerian economy over the period of study?

(v) What is the effect of FDI on the aggregate output of the Nigerian economy over the period of study?

1.4. Objectives of the Study

The main objective of this study was to assess the effects of FDI on the economy of Nigeria. The specific objectives of the study were:

(i) To determine the effect of FDI on the aggregate production sector of the Nigerian economy over the period of study

(ii) To evaluate the effect of FDI on the aggregate demand and policy management sector of the Nigerian economy over the period of study

(iii) To determine the effect of FDI on the monetary and prices sector of the Nigerian economy over the period of study

(iv) To evaluate the effect of FDI on the external sector of the Nigerian economy over the period of study

(v) To evaluate the effect of FDI on the aggregate output of the Nigerian economy over the period of study.

1.5. Research Hypothesis

The study tested the following hypotheses:

(i) FDI has not had a significant effect on the aggregate production sector of the Nigerian economy over the period of study.

(ii) FDI has not had a significant effect on the aggregate demand and policy management sector of the Nigerian economy over the period of study

(iii) FDI has not had a significant effect on the monetary and prices sector of the Nigerian economy over the period of study.

(iv) FDI has not had a significant effect on the external sector of the Nigerian economy over the period of study

(v) FDI has not had a significant effect on the aggregate output of the Nigerian economy over the period of study

1.6. Significance of the Study

An in-depth and comprehensive analysis of the effect of FDI in Nigeria with special focus on economic growth by researchers is limited. The understanding of the linkage between FDI net inflows and its impact on economic growth is important for the fact that the quantity of FDI in a capital and technology-scarce economy like that of Nigeria necessitates the understanding of the relationship between FDI and economic growth. This is needful as it is globally known that FDI plays an ever-increasing role in economic development and growth. The understanding of how to encourage greater quantum of FDI, how and when capital inflows

might substitute for other forms of capital and how that capital might best be linked to desirable development outcomes will be a critical public question for Nigeria.

Based on the fact that there is no exhaustive empirical evidence on the effect of FDI on economic growth in Nigeria, it was necessary to undertake this country-specific research study. For Nigeria, this study will add to other studies on the subject matter and also fill any gap that may exist in previous studies which has been undertaken to establish whether FDI is actually beneficial to host countries.

Also, it is hoped that when the findings of this study is added to the existing body of literature, it will be a valuable guide especially to policy makers and as well be a good source of reference for future scholarly research. One advantage of academic research is that it investigates matters which practitioners and policy makers find useful but have little time to study. In this wise, this study is very essential especially to policy makers and development partners because it may guide them in initiating, developing, and managing long term economic strategies based on empirical evidence.

Finally, this study contributes to the literature by examining the relationship between FDI inflows and Nigeria's economic growth and development, hence addressing the country's specific dimension to the FDI growth debate. The study is different from previous studies in scope of time, dimensions of the economy covered as well as methodology. Thus, it contributes significantly to knowledge by providing new evidence with regards to the FDI-economic growth nexus in Nigeria.

1.7. Scope and Limitations of the Study

This dissertation is conducted within the time frame of the period of thirty six years (1981 – 2016). The reasons being the economic depression of the early 1980s and government's adoption

of the market-based Structural Adjustment Programme (SAP) in 1986, with its attendant de-regulation and liberalization of economic activities. The country has continued to take significant steps within this period to further deregulate and liberalize the economy as a means of opening it up for private sector participation. These economic measures have been vigorously pursued by the government. This period also encompasses major historical economic developments in Nigeria and will therefore enable the determination of the relationship between FDI and macroeconomic variables in Nigeria. The study has utilized both qualitative and quantitative data in its analysis. The major limitations of this study however, include data paucity and poor data quality. The problem of data use arise not only from the fact that these institutions often give conflicting data on the same phenomenon, but also from the fact that some of the historical data are stated at current market prices, others at a given base year, while some are given at factor costs. In this circumstance, the problem of data quality and integrity come to the fore which could impair statistical inference procedure. Therefore a lot of tedious (and time consuming) work had to be done to harmonize the data collected from the different sources.

1.8. Outline of the Chapters

This dissertation has five chapters structured as follows: Chapter one, which is the introductory chapter contains the following: background to the study, statement of the problem, research questions, objectives of the study, research hypothesis, significance of the study, scope, limitations of the study and outline of chapters. Chapter two is on literature review, while chapter three contains the methodology. The results and discussions are in chapter four. Chapter five contains the summary, conclusion and recommendations.

CHAPTER TWO

2.0. LITERATURE REVIEW

Introduction

This chapter examines some key conceptual issues relating to FDI. Also, the chapter considers the theories of FDI, Multinational Corporations, and so on. An overview of FDI in Nigeria is undertaken here. This chapter also provides the basis for the theoretical framework for the research work.

2.1. Conceptual Literature

2.1.1. The Concept of Foreign Direct Investment

There is no specific definition of Foreign Direct Investment (FDI) owing to the presence of many authorities like the Organization for Economic Cooperation and Development (OECD), International Monetary Fund (IMF), International Bank for Reconstruction and Development (IBRD) and the United Nations Conference on Trade and Development (UNCTAD). All these bodies have attempted to illustrate the nature of FDI from different perspectives. According to IMF (2003), FDI refers to the capital flows from abroad that is invested in the productive sector of the economy and are usually preferred over other forms of finances because they are non-debt creating, non-volatile and their returns depend on the performance of the projects financed by the investors. FDI also facilitates international trade and transfer of knowledge, skills and technology. It is also described by UNCTAD (2004) as the source of economic development, modernization and employment generation, whereby the overall benefits triggers technology spillover, assists human capital formation, contributes to international trade integration and particularly exports; helps to create a more competitive business environment, enhances enterprise development, increases total factor productivity and improves efficiency of resource

use (Chatterjee, 2009). FDI comes in various forms and types. The most common ones are as follows:

(i) Inward Foreign Direct Investment: This refers to long term capital inflow into a country other than aid, portfolio investment or a repayable debt. It is done by an entity outside the host country in the home country.

(ii) Outward Foreign Direct Investment: This refers to long term capital outflow from a country other than aid, portfolio investment or a repayable debt. It is done by an entity outside the host country in the home country.

(iii) Horizontal Foreign Direct Investment: This refers to a multi-plant firm producing the same line of goods from plants located in different countries.

(iv) Vertical Foreign Direct Investment: If the production process is divided into upstream (parts and components) and downstream (assembly) stages, and only the latter stage is transferred abroad, then the newly established assembly plant's demand for parts and components can be met by exports from home-country suppliers. This is what economists describe as "Vertical FDI" whose aim is to exploit scale economies at different stages of production arising from vertically integrated production relationships.

(iv) Greenfield Foreign Direct Investment**:** Greenfield FDI is a form of investment where the MNC constructs new facilities in the host country.

(v) Brownfield Foreign Direct Investment: Brownfield FDI implies that the MNC or an affiliate of the MNC merges with or acquires an already existing firm in the host country resulting in a new MNC affiliate.

2.1.2. Multinational Corporations

Multinational Corporations (MNC) or Transnational Corporations (TNC) is the most important carriers of FDI. According to World Investment Directory (2012), MNCs are incorporated or unincorporated enterprises comprising parent enterprises and their foreign affiliates. A parent enterprise is defined as an enterprise that controls assets of other entities in countries other than its home country, usually by owning a certain equity capital stake. An equity capital stake of 10% or more of ordinary shares or voting power of an incorporated enterprise or its equivalent for an unincorporated enterprise is normally considered as a threshold for the control of assets. A foreign affiliate is an incorporated or unincorporated enterprise in which an investor who is a resident in another country owns a stake that permits a lasting interest in the management of that enterprise (Chatterjee, 2009). A MNC can be defined as an entity which has one or more of the following criterion:

(i) Sole proprietorship held abroad

(ii) Foreign branches of the company

(iii) Subsidiaries of the company

(iv) Associate

Multinational Corporations can be categorized into the following types:

National Firms: This refers to single plant firms with headquarters and plant in the same country.

Horizontal Multinationals**:** This refers to two plant multinationals which engage in producing the same line of goods across plants in different countries

Vertical Multinationals**:** This refers to two plant multinationals which engage in dividing the production process in parts and components across different plants across the nations to take

advantage of the scale economies arising from vertically integrated production relationships (Chatterjee, 2009).

2.2. Theoretical Literature Review

2.2.1 The Origin of FDI Theories

Considering the definitions, theories explain the motivating factors behind capital flows among nations. FDI theories explain the foreign investors' way of thinking, behaviour and actions. Consequently, there is an interconnection between motivation factors and ways of thinking, decision-making, behaviour and actions. As such, it is necessary to begin by exploring the origins of FDI, to deepen understandings of FDI theories. The origin of FDI theories can be traced from a mercantilist notion of capital accumulation. Mercantilists before 1800 believed that the wealth of a nation depended on the treasure accumulated, measured by the amount of gold and silver owned by a nation. To achieve this, mercantilists and governments embarked on exploration, (Javorcik & Spatareanu (2009)).

FDI flows started with exploration of the globe. There were three main objectives of exploration. First, due to a shortage of land and natural resources, push and demand economic factors required that Europe extended its power to distant lands, to acquire resources and markets. Second, demand factors were individual and political in nature, with the desire to gain status through territory and wealth accumulation in the form of colonies. Finally, the need for religious and humanitarian organizations to spread Christianity and 'civilize' other areas intensified exploration. These demand factors were followed by a selection of areas for exploration. Journeys of exploration were undertaken, and after returning home the explorer reported his findings, described the areas visited and made recommendations. State officials, merchants and missionaries evaluated the report to determine the fulfillment of the demand

factors as a basis for colonization and development, marking the beginning of FDI flows into such regions, (Javorcik, 2004).

Through exploration, European superpowers started to occupy distant territories. Christopher Columbus' successful exploration, under the auspices of King Ferdinand of Spain, began European settlement in North America Sage. China, the richest country in the world by the ninth century annexed as much territory as possible on its frontier. Vasco Da Gama's explorations under the King of Portugal's auspices led to the occupation of India and the East African coast. This was after Vasco Da Gama's discovery that the Sultan of Omani had established an empire covering the East African coast with booming trade in natural resources, spices, cloth slaves. Since European imperialism had grown, responding to Vasco Da Gama's report, concerning the presence of abundant resources and trade that could benefit Europe, streams of European merchants started arriving on the East African coast. Due to growth of the industrial revolution first, the European merchants' need for land and raw materials as well as investing surplus capital acquiring colonies became the solution (Alfaro, Kalemli-Ozcan, & Volosovych, 2008)).

Second, European powers believed that strong national pride could only be attained by acquiring colonies. As a result, following the 1884 Berlin Conference, a country such as Nigeria became a British colony, marking the beginning of European FDI in Nigeria. Mercantilists believed that the acquisition of territories increased trade surplus through exports and subsidies, but minimized imports by imposing tariffs and quotas. As such, countries were to export as much as possible in order to acquire wealth, as opposed to imports, which drained a country of its wealth. Though the mercantilist model was not sustainable as it implied unilateral and asymmetric relationships, it explains the origins of FDI. Thus began the many theories that have

been propounded to explain the motivating factors responsible for FDI and the macro-economic effect on the host country. Such theories provide the basis for the theoretical framework of the study.

2.2.2. From International Trade Theories to FDI Theories

International trade theories were explained by Adam Smith's (1776) 'theory of absolute advantage' and David Ricardo's 'comparative advantage theory'. Similar to the mercantilists' theories, these early theories did not include the role of FDI in production. Building on this foundation, the factor endowment theory—commonly referred to as the Hecksher-Ohlin (HO) theory--started to show that a nation's trade would occur based on three factors (Lall, 2002). First, demand conditions are determined by tastes and preferences. Second, factor endowment facilitates competitiveness, based on cheap available factor inputs. Finally, technology is a factor input facilitating production. Countries specialize in factor endowment commodities and import comparative disadvantage goods. Similar to other earlier theories, FDI was not explained but the H-O theory provided a foundation for the Portfolio Investment Theory (PIT) and later FDI theories.

The PIT started as a perfect market-based theory, (Lipsey, 2004). Building on international trade theories, the PIT was first proposed by Markowitz in 1952. According to Markowitz, portfolio selection was based on the law of large numbers, where the actual yield of the portfolio is almost the same as the expected yield. Therefore, investors should diversify and maximize expected returns by investing in securities that provide maximum expected return. Later, Tobin (1958) developed the Portfolio Theory of Money according to four assumptions. First, all investors are risk-averse. Second, investors select stocks based on two subjective parameters useful to the investor. Third, the values of the two parameters enable investors to

rank portfolios, providing maximum utility. Fourth, investors' portfolio decisions are made based on specific periods. Tobin developed the Separation Theory by proposing that portfolios are interest-bearing assets, but some are high-risk while others are low-risk. His theories did not explain the role played by FDI, however. In 1957, Mundell developed the Capital Movements Theory.

Building on the foundations of international trade theories, the Capital Movements Theory was developed by Mundell (1957) which first attempted to explain FDI. Following the early PIT, Mundell developed a basic model as an extension of the H-O Theory, to explain trade and capital movements. According to Mundell, due to tariffs, capital flows from a high tariff to a low-tariff country, assuming that the two countries, products and factors of production are identical in both countries (Denisia, 2010). As such, capital flows reduce imports, and capital movements and trade are substitutes. Mundell's model did not explain the role of FDI as a factor input. Capital movements and trade are not substitutes. Despite the shortcomings, Mundell's Capital Movements Theory became a focal point of FDI theories.

Industrial Organization Theory

Following Mundell's theory, Hymer (1960) developed a theory referred to as the Industrial Organization Theory (IOT) which sought to distinguish FDI from FPI. The IOT based on three basic theories. First, IOT is based on Bain (1956) who proposed the Imperfect Market Paradigm. According to Bain, imperfect markets exist with few competitors, and high entry barriers are expected to provide higher returns. However, Bain did not explain FDI in his Imperfect Markets Paradigm. Second, Hymer developed the IOT considering Tobin's PIT, discussed earlier. Third, Hymer considered the 1957 Mundell Model of Capital Movements Theory, which also does not explain FDI.

Following the three theories, Hymer (1960) developed the IOT based on the nature and operations of local firms and foreign investments. He observed that domestic firms have advantages over foreign firms as they have knowledge about their local economy Bain defined entry barriers as a set of technologies or product conditions that allow incumbent firms to earn economic profits in the long term. He identified three sets of conditions: economies of scale, product differentiation and absolute cost advantages of established firms' environment, legal systems, language, and culture.

Hymer noted that two conditions were possible that enable foreign firms to become viable in a foreign country. First, foreign firms must possess some advantages over local firms, and second, the market must be imperfect. Upon this background, Hymer then drew two key differences between FDI and portfolio investments. FDI, as opposed to portfolio investments, involve assets that enable the home-to-host-country capital flows, as a means of maximizing returns based on a firm's skills and abilities. Due to the existence of assets in FDI, foreign investors are then motivated to seek control of the enterprise abroad. Also, portfolio investments depend on interest rates meanwhile FDI on returns. Hymer derived two conclusions: interest rates can explain Portfolio Investment but not FDI, and that FDI is capital movement between countries associated with multi-national enterprises (MNEs), (Poole, 2013).

Despite explaining FDI for the first time, IOT has been criticized. First, IOT does not explain why firms with ownership-specific advantages—such as superior technology—may not invest at home and export as advocated by mercantilists. Second, the theory does not explain the basis for choosing a particular country, for example Nigeria. Despite the criticisms of IOT, it provided a difference between portfolio investments and FDI for the first time. Since Hymer (1960), a number of other FDI theories have been developed. Using these studies, FDI is

examined through two broad perspectives: market-based theories and international political economy-based theories.

Market-based Theories

The market-based theories can be categorized into FDI perfect and imperfect market-based theories. Among the FDI perfect market-based theories are Capital and Market Size Theories. The Capital Theory is also known as the Rate of Return theory and was first proposed by MacDougall (1958) and later Kemp (1964). It is based on the assumptions of a perfectly competitive market, (Alfaro & Chauvin, 2017). This theory suggests that capital flows from a low-rate to a high-rate return country. FDI moves from capital-abundant economies, where returns are low, to capital-scare countries, where returns are high. Thus, assuming a two-country model, and prices of capital being equal to its marginal productivity, foreign investors are attracted to invest when the marginal return is equal to or greater than the marginal cost.

The FDI Capital Theory can explain the phenomena behind import substitution industries established in developing countries such as for sub-Saharan Africa. Due to the high demand for consumer goods such as sugar, soap safety matches and clothing, developing countries attracted FDI in the early 1960s. Demand already existed because imports were the only source of commodities to developing countries. Due to a lack of essential commodities, FDI projects were established to take the advantage of the high returns that existed as early investors in the market. Further, horizontal integration is related to high-return expectation because MNEs are driven by the availability of technology, which leads to low marginal costs and anticipated high returns.

However, empirical studies, such as those by Agarwal (1980) and Bandera and White (1968) do not support the FDI Capital Theory. First, according to the authors, human capital plays a significant role in equalizing rates of return on capital in developing countries. Second,

return is inadequate as a precondition for explaining FDI inflows. Third, capital does not necessarily flow from high income to low-income countries, but rather from developed to developed countries, following Linder's Theory of Overlapping Demand. FDI inflows are higher in developed countries than developing countries. Despite these criticisms, the Capital Theory explains the flow of FDI into Africa. During the 1884 Berlin Conference, Africa was regarded as an agrarian continent that required civilization and development. Therefore, FDI inflows started to come to such countries in Africa.

The FDI Market Size Theory can be attributed to Bandera and White (1968) and later to scholars such as Asiedu (2005) and Mughal and Akram (2011). These scholars indicate that efficiency seeking FDI is motivated by the size of the market, measured by a firm's sales or GDP. This is because even if prices do not increase but markets expand, assuming other factors constant the enterprise's returns expand. As GDP grows, so does GDP per capita and welfare. Countries such as China, India and Pakistan attract high proportions of FDI largely because of high population, despite lower GDP per capita.

However, if FDI inflows were based on market size, then small island countries (such as Cape Verde) would not be attracting FDI. Cape Verde's land area is only 4,044 square kilometers and the population was only 491,875 in 2010. However, GDP there has risen from USD 175 in 1975 to USD 3183 in 2008, while FDI stocks increased from USD 4 million to USD 1576 million in 2013 (Africa Development Bank 2012; UNCTAD 2014). As such, the market size theory can explain FDI inflows for some countries, such as China, but not small island countries. Therefore, perfect market FDI-based theories are largely macroeconomic, yet microeconomic theories are equally important. If FDI was based on perfect competition assumptions, such as equal access to knowledge and no barriers to trade, then foreign

investments would not exist. Additionally, perfect completion theories do not consider political factors, so FDI theories could be explained better by imperfect competition FDI theories.

This present study presents and examines four theoretical approaches – The Eclectic Theory, The Savings – Investment Gap, Dual-Gap Model and the IS-LM Model.

2.2.3. The OLI (Ownership, Location and Internalization) Paradigm or Eclectic Theory

The OLI Paradigm or Eclectic Theory is a blend of three different theories of FDI that is O + L + I, each piece focusing on a different question. Dunning (1981) suggests that firms Ownership, Location and Internalization (OLI) advantages must exist to undertake benefiting FDI. The theory argues that FDI is determined by three sets of advantages namely: the presence of Ownership specific competitive advantage in a Transnational Corporation (TNC), the presence of locational advantages in a host country, and the presence of superior commercial benefits in an intra-firm as against an arm's - length relationship between investor and recipient (Chatterjee, 2009). The ownership-specific advantages (e.g. proprietary technology) of a firm, if exploited optimally, can compensate for additional cost of establishing production facilities in a foreign environment and can overcome the firm's disadvantages vis-à-vis local firms .The Ownership-specific advantages of the firm should be combined with the Locational advantages of host countries (e.g. large markets or lower cost of resources or superior infrastructure).

Finally, the firm finds greater benefits in exploring both Ownership-specific and Locational advantages by internalization e.g. through FDI rather than arm's-length transactions. This may be the case for several reasons. For one, markets for assets or production inputs (technology, knowledge or management) may be imperfect and may involve significant transaction costs or time-lags. Also it may be in a firm's interest to retain exclusive rights to assets (e.g. knowledge) which confer upon it a significant competitive advantage e.g. monopoly rents (Chatterjee,

2009).While the first and third conditions are firm specific determinants of FDI, the second is Locational-specific and has a crucial influence on a host country's inflows of FDI. If only the first condition is met, firms will rely on exports, licensing or sale of patents to service a foreign market. If the third condition is added to the first, FDI becomes the preferred mode of servicing foreign markets, but only in the presence of Locational-specific advantages. Within the three conditions for FDI to occur, Locational determinants are the only ones that host government can influence directly (UNCTAD, 2006).

In Nigeria, the OLI or Eclectic Theory has great relevance. Multinational companies or any other foreign companies involved in FDI in Nigeria have relied on their Ownership specific advantages or proprietary technology over local firms as a justification for their investing in Nigeria. Closely related to ownership is Internalization in the form of their knowledge and marketing skill which gives them superior edge over local competitors and has been a great motivation for investing in the country. Also, the locational advantage of Nigeria is another reason for investing in Nigeria. The country has the largest population in Africa, coupled the gift of natural resources that is uncommon in many countries. Therefore the Eclectic theory is of a great relevance in attracting foreign direct investment to Nigeria.

2.2.4. The Saving-Investment Gap Approach

According to Thirwall, (1994) the savings-investment gap acts as a constraint to economic growth. The theory states that there is a savings gap in the developing countries due to high levels of poverty, which requires international transfer of resources to fill. The theory further argues that the major constraint to economic growth is low level of savings. The inability to mobilize sufficient domestic resources has continued to inhibit economic growth. These account for the need of FDI to fill the gap. In his analysis Thirwall (1994), attempts to show the required

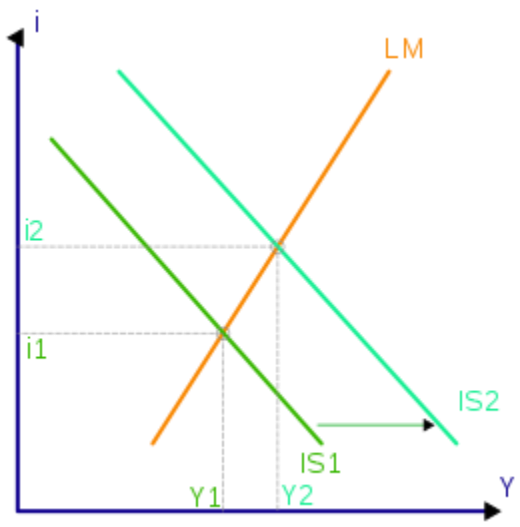
amount of foreign capital imports for any target rate of economic growth. He concludes that the difference between investment requirements to sustain the target rate of growth and increases in the savings generated by rising income is external capital finance. He further stated that when domestic savings reach a level adequate to sustain the target rate of growth, the savings-investment gap will disappear. This approach, however, ignores the fundamental question of how the inflow of capital will be financed to reach the level adequate to sustain the target rate of growth.

The Savings – Investment gap theory is very relevant when considering the issue of FDI and economic growth in Nigeria. According Funke & Nsouli (2003), if domestic savings is properly mobilized, it can encourage economic growth through investment. One of the major economic problems of most developing countries including Nigeria is inadequate savings mobilization for investment purposes, which is called savings gap or savings constraint. Abiola (2003) asserted that this gap can be corrected by encouraging foreign direct investment FDI. Also, according to Imoughele and Ismaila (2014), savings provides developing countries with the much needed capital for investment which can improve the growth of the economy. Increase in saving, they assert, leads to increase in capital formation and production activities that can bring about high level of employment and reduce external borrowing. Again, Obadan and Odusola (2001) asserted that the low level of savings in Nigeria is as a result of high incidence of poverty, low disposable income, underdeveloped savings channel, underdeveloped capital markets, conspicuous consumption and unfavourable economic environment characterized by high unemployment and inflation. However, the average saving to GDP ratio between 2005 and 2013 stood at 15.8 %. It can therefore be concluded that savings has been very low in Nigeria, necessitating the need FDI to augment the gap created.

2.2.5. The IS-LM Model

The IS-LM model, which stands for "investment-savings, liquidity-money," is a Keynesian macroeconomic model that shows how the market for economic goods (IS) interacts with the loanable funds market (LM), or money market, and it is represented as a graph in which the IS and LM curve intersect to show the short-run equilibrium between interest rates and output. British economist John Hicks first introduced the IS-LM model in 1937; just one year after fellow British economist John Maynard Keynes published "The General Theory of Employment, Interest and Money." Hick's model served as a formalized graphical representation of Keynes' theories, though it is largely used as a heuristic device today. The three critical exogenous variables in the IS-LM model are liquidity, investment and consumption. According to the theory, liquidity is determined by the size and velocity of the money supply. The levels of investment and consumption are determined by the marginal decisions of individual actors. The IS-LM graph examines the relationship between real output, or GDP, and nominal interest rates. The entire economy is boiled down to just two markets, output and money, and their respective supply and demand characteristics push the economy towards an equilibrium point. This is sometimes referred to as "the Keynesian Cross."

In the IS-LM graph, the IS curve slopes downward and to the right. This assumes the level of investment and consumption is negatively correlated with the interest rate but positively correlated with gross output. By contrast, the LM curve slopes upward, suggesting the quantity of money demanded is positively correlated with the interest rate and with increases in total spending, or income.GDP, or (Y), is placed on horizontal axis, increasing as it stretches to the right. The nominal interest rate, or (i or R), makes up the vertical axis. Multiple scenarios or points in time may be represented by adding additional IS and LM curves. In some versions of the graph, curves display limited convexity or concavity.



Many economists, including many Keynesians, object to the IS-LM model for its simplistic and unrealistic assumptions about the macro economy. In fact, Hicks admitted model's flaws were fatal and it was probably best used as "a classroom gadget, to be superseded, later on, by something better." Subsequent revisions have taken place for so-called "new" or "optimized" IS-LM frameworks. While the initial IS-LM continues to play an important role as a policy tool, it has been criticized as an obsolete instrument in the academic community. The main criticism is that this model cannot explain simultaneous occurrences of high inflation and high unemployment rates in the economy. Moreover, the shift in central banks from targeting the money supply to following an interest-rate rule also undermines the importance of this model as a policy tool. Nevertheless, the model has been vigorously revived by the introduction of new "expectation" concepts, while keeping its original simplicity and clearness. The new IS-LM model is a powerful macroeconomic tool, supported not only in academic and government environments, but also in business and other non-academic environments. The capital account is typically much larger than the current (trade) account. Capital inflows and outflows through FDI dominate export and import

flows, so the exchange rate is typically very sensitive to capital movements, especially short term capital flows (unless these are controlled). This can cause serious short term problem by discouraging the multinational companies because of high dependence on foreign goods as raw materials. This is because any currency which is viewed by the market as being vulnerable is subject to considerable short term capital outflows, which makes the currency even more vulnerable and liable to devaluation of fixed rate or depreciation of a floating rate (Saori and Kaiwen,2007).

Rapid growth from Foreign Direct Investment (FDI) tends to lead to currency appreciation as a result of the capital inflows, as does an increase in the price of raw materials and fuels, for net exporters of these goods. This appreciation puts major pressure on the domestic economy - making imports more competitive and exports more difficult to sell, tending to contract the domestic economy. The domestic economy needs to be both robust and flexible (sensible banks and stock markets) to cope with this pressure. This is currently the case in Nigeria.

2.2.6. The Dual - Gap Model.

Chenery and Strout (1966) have put forward the "two – gap" approach to economic growth. The idea is that "savings – gap" and "foreign exchange gap" are two separate and independent constraints on the attainment of a target rate of growth in LDCs. Chenery sees foreign investment as a way of filling these two gaps in order to achieve the target growth rate of the economy. To calculate the size of the gaps, a target growth rate of the economy is postulated along with a given capital output ratio. A savings gap arises when domestic savings rate is less than the investment required to achieve the target. e.g. if the growth target of national real income is 6 percent per annum, and the capital – output ratio is 3:1, then the economy must save 18% of its national income to achieve this growth target. If only 12 percent of savings can be

mobilized domestically, the savings gap is 6 percent of the national income. The economy can achieve the target growth rate by filling this savings gap with foreign investment. In the same vein, a fixed relationship is postulated between targeted foreign exchange requirements and net export earnings. If net export earning falls short of foreign exchange requirements, a foreign exchange gap appears which can be filled by foreign investment. The two gaps are explained in term of the national income accounting identities:

E – Y ≡ I – S ≡ M – X = F

Where E = National Expenditure; Y = National Output; I = Investment; S = Savings, M = Import; X = Export; F = Net Capital Inflow (Investment)(I –S) is the domestic saving gap and (M – X) is the foreign exchange gap.

Like the basic national income accounting identities, the two gaps are always equal ex-post in any given accounting period. But they may differ ex-ante because in the long run those who make decisions about savings, investment, exports and imports are different people. So during the planning process, the plans of savers, investors‟ importers and exporters are likely to be different. Ex-ante (or planned) investment is related to the target growth rate of the economy.

Chenery and Strout (1966) attempted to capture this dual-gap approach in their two-gap model. The underlying assumption of the model is that FDI is regarded as an additional factor of production, which could relax both the savings and the foreign exchange constraints on the rate of growth of output of the recipient country. As Forbes & Warnock (2012) notes “foreign investment supplement the Less Developed Countries’ (LDCs) low domestic savings and hence fills the resources gap or ‘savings gap’ and also provides additional foreign exchange and thereby helps fill the ‘foreign exchange gap’ – the two-gap analysis”. The distinctive contribution of dual-gap analysis to development theory is that if foreign exchange is the

dominant constraint, it points to the dual role of foreign investment in supplementing not only deficient domestic saving, but also foreign exchange. The dual gap theory thus performs the valuable service of emphasizing the role of foreign imports and foreign exchange in the growth process(Chatterjee, 2009). From the viewpoint of foreign investment analysis is the observation that the impact of increased capital flows will be greater where the foreign exchange gap rather than the savings gap is binding.

The Two - Gap Model (2GM) expands out of the adaptation of Harrod- Domar growth hypothesis to the open economy by planners, and is interested in exports, imports, savings, investment and foreign direct investment. This two-gap comprises of the foreign exchange gap and the domestic savings gap. Chenery and others concur that domestic savings and foreign exchange gaps are separate and have independent constraints towards achieving growth in the LDCs. Chenery (1966) sees its expedients to source for foreign capital to fill the gaps in order to achieve economy's target growth rate. He further postulates a fixed relationship between targeted foreign exchange requirement and net export earnings. If the latter fall short of the former, a foreign exchange gap prevails; this can be obviated by foreign capital.

2.2.7. How Foreign Direct Investment Affects Output

The overall benefits of FDI for developing country economies are well documented. Given the appropriate host-country policies and a basic level of development, a preponderance of studies shows that FDI triggers technology spillovers, assists human capital formation, contributes to international trade integration, helps create a more competitive business environment and enhances enterprise development. All of these contribute to higher economic growth, which is the most potent tool for alleviating poverty in developing countries. Moreover, beyond the strictly economic benefits, FDI may help improve environmental and social

conditions in the host country by, for example, transferring “cleaner” technologies and leading to more socially responsible corporate policies (Funke & Nsouli, 2003).

Potential drawbacks of FDI include a deterioration of the balance of payments as profits are repatriated (albeit often offset by incoming FDI), a lack of positive linkages with local communities, the potentially harmful environmental impact of FDI, especially in the extractive and heavy industries, social disruptions of accelerated commercialization in less developed countries, and the effects on competition in national markets. Moreover, some host country authorities perceive an increasing dependence on internationally operating enterprises as representing a loss of political sovereignty.

In understanding how the possible channels through which FDI affects a host country and its economic growth, it is useful to first know that. FDI comprises a bundle of assets, some proprietary to the investors and some not. The proprietary assets and technology, brand recognition, and managerial techniques are responsible for what the literature calls the “ownership advantages” of Multi-national Enterprises (MNEs). These advantages give MNEs a competitive edge over local firms and allow the former to overcome the transaction costs of operating across national boundaries. Non-proprietary assets like finance, capital goods, intermediate inputs and the like can be obtained from the market at least in part. Proprietary assets can only be obtained from the firms that create them. MNEs are naturally reluctant to sell their most valuable assets to unrelated firms and potential competitors or to third parties Lamine & yang (2010). The following paragraphs briefly describe the asset categories associated with FDI inflows.

Capital (Impact on Investment): FDI brings in host countries financial resources, investing in long-term projects. As distinct from other sources of capital such bank loans, bonds or even

portfolio equity capital (which represent external forms of foreign saving that are used for investment by local firms), FDI is the only source that internalizes foreign savings, that is, the firms which bring these savings, undertake investment. MNEs can thus affect investment in host countries directly through their own investment activities, and indirectly by inducing more investment undertaken by host-country firms. It should be noted though, that FDI flows underestimate total investment of foreign affiliates in host countries.

The difference between the two measures (foreign affiliate investment expenditure and FDI) could be attributed to two factors. Firstly, foreign affiliates can finance their investment expenditures from a variety of sources. For example, borrowing in the host-country capital market, or in the global financial market can finance these expenditures Secondly, financial flows for Mergers and Acquisitions (M&A) represent change of ownership in existing assets and therefore do not contribute to the host country capital formation at the moment of entry, although they may lead to investment in the future through subsequent investment.

Does FDI crowd out or crowd in domestic investment? Crowding out total investment in host country may occur if MNEs borrow in host country under conditions of scarcity and hence increase domestic interest rates, making thus borrowing unfavorable to local firms. Crowding in takes place when investment by foreign affiliates stimulates new investment in downstream or upstream markets in the host country, or increases the efficiency of financial intermediation. The existence of backward and forward linkages to local companies is a key consideration for determining the local impact of FDI on capital formation.

Technology: FDI is an important vehicle for the transfer of technology, contributing relatively more to economic growth than domestic investment. However, the higher productivity of FDI materializes only when the host country has a minimum threshold stock of human capital. Thus FDI contributes to economic growth only when the host country has a sufficiently high level of absorptive capability

that facilitates the transfer of the advanced technology. Technology diffusion (transmission of ideas and new technology) plays a central role in the process of economic development.

Market Access: FDI through MNEs can provide access to export markets offering thus benefits in terms of realization of scale economies, competitive stimulus, employment, skill upgrading and management techniques, etc. Consequently, there are many channels through which FDI affects economic growth: through technology transfer - by increasing a host country's productivity and exports - and through trade expansion. The latter happens when MNEs concentrate in trade-intensive sectors. In addition, FDI could affect capital formation and, consequently, growth, since FDI inflows are a source of financing.

The above discussion establishes that there are many channels through which FDI affects growth. Inward FDI may increase a host country's productivity and exports and in turn, productivity growth may indirectly affect exports. Another channel through which the FDI affects growth is the increase in host country's trade. There is a great deal of evidence that foreign-owned firms (MNEs) trade more in general (with their parent-companies and others) than the locally owned firms. MNEs or their affiliates generally enjoy larger share of home and host country imports and exports than they do of output; this is partly explained because they are concentrated in trade-intensive sectors and partly because their trading propensity in any given sector tends to be greater than that of indigenous firms. It is likely therefore, that high shares of foreign ownership or large inflows of FDI would increase the importance of trade, thus affecting growth indirectly. Also, a host country's institutional characteristics, such as legal system, enforcement of property rights and the extent of bureaucratic corruption, that have been suggested as explanations for different growth rates, are likely to influence the extent of FDI and capital formation

The above views find support in basic textbooks on the theory of FDI and multinationals (Lall, Caves, Dunning, Neil Hood, Stefen Young). Although these views are considered standard in the literature about growth and FDI, we add below some more evidence in support of the same.

In Solow-type theoretical growth models, FDI is traditionally conceived as an addition to the capital stock of the host economy. In this view, there are no substantial differences between domestic and foreign capital. More importantly, the impact of FDI on growth is similar to that of domestic capital. With diminishing returns to capital, FDI has no permanent impact on the growth rate. FDI will have a short-run impact on growth, however, which depends on the transitional dynamics to the steady-state growth path.

In endogenous growth models, the potential role of FDI is greater. There are a number of channels through which FDI permanently affects the growth rate. One way to think about these effects is to specify how FDI affects each argument in the production function. FDI can affect output by increasing the stock of capital has already been mentioned above). However, this impact is likely to be small under the assumption of perfect substitutability. Although the empirical evidence on this matter is mixed (Hanson 2001), if foreign and domestic capitals are complements the final impact of FDI on aggregate output will be larger as a result of these externalities. Further, if foreign capital is treated differently from domestic capital, say, by way of expanding the variety intermediate goods and capital equipment, FDI can raise productivity in the host country (Borenstein e*t al.*1998).

Considerations, which affect a MNE in choosing a country for its operations, depend on the level of economic development. Generally speaking, when a MNE decides to establish a subsidiary in a developed country, it aims to access its large and developed market, while by investing in a less developed country it tries to take advantage of the county's low-costs, or to access real resources. So the links of FDI and growth seem to be different for countries of different stage of development. Besides the development impact of FDI depends on the dynamics of the transfer of the technology and skills by MNEs: how much upgrading of local capabilities takes place over time, how far local linkages deepen, and how closely affiliates integrate themselves in the local market.

2.3. Empirical Literature Review

2.3.1. Studies Outside Africa

The interest in analyzing the effect of FDI on economic growth is growing in the literature. Some of such recent studies are reviewed here. While examining the implication of FDI flows on economic growth, Bailliu, Lafrance and Perrault (2003) used panel data from 40 selected developing countries from different regions around the world from 1995–2000. They specified a model which accounted for potential endogeneity of the explanatory variables and the result shows that FDI inflows foster higher economic growth, above and beyond any effects on the investment rate, but only for economies where the banking sector has reached a certain level of development. Also Caudros and Alguacil (2001) examine the nature of the causal relationship between output levels, inward foreign direct investment and trade in Latin American countries; Argentina, Brazil and Mexico from the middle seventies to 1997. Utilizing a vector auto-regressive (VAR) model the result of the study suggests a significant impact of foreign direct investment on economic growth and trade in the countries studied.

Using cross-section data relating to a sample of 66 developing counties over three decades Reinhart and Reinhart (2008) analyzed the role foreign direct investment and trade in economic growth of developing countries within the endogenous growth-theory framework. The study shows that foreign direct investment and trade contribute toward advancing economic growth in developing countries and that foreign direct investment is often the main channel through which advanced technology is transferred to developing countries. The study further believed that sound macroeconomic policies, better stock of human capital and institutional stability are necessary preconditions for foreign direct investment-driven growth to materialize and stimulate domestic growth.

More importantly, recent studies have begun to query the robustness of model that ignored the possible interaction between foreign direct investment and other capital inflows. For instance(Schabaz and Rahman 2010; Odhiambo, 2011; Khaddraoui, 2012), introduced financial development to a model that examined the effects of foreign direct investment on economic growth. The conclusion from the papers was that the effect of foreign direct investment could depend on the level of financial development in developing countries. Obviously from the above review foreign direct investment has been established to be a crucial factor in the growth process especially in developing countries. However, most of the existing studies are based on the assumption that all foreign capital mobilized was directly invested in the productive process. Such assumption is less likely to hold. In many instance there are capital flight especially in developing countries and also some of the capital inflow are either misappropriated or invested in less productive ventures (Saibu and Keke, 2014).

Foreign direct investment (FDI) according to UNCTAD (2004) is generally seen as a composite bundle of capital stock and technology, which augments the existing stock of knowledge in the host economy through labour training, skill acquisition and diffusion, and the introduction of new managerial practices and organizational arrangements. De Mello (1997) posited that foreign direct investment can impact economic growth directly and indirectly. FDI can directly impact economic growth through capital accumulation, and the incorporation of new inputs and foreign technologies in the production function of the host country.

The seminar work of De Mello (1999) for a sample of OECD and non-OECD countries over the period 1970 - 1990 finds some evidence in favour of a long-run relationship between FDI and economic growth. He finds positive effects of FDI on economic growth and in both developing and developed countries. Similar to Borensztein (1998), De Mello concludes that the long term

growth in host countries is determined by the spillovers of technology and knowledge from the investing countries to host countries, and its extent is determined by the complementary and substitution between FDI and domestic investment. In the non-OECD sample, De Mello finds no causation from FDI to growth based on fixed effects regressions and a negative short run impact of FDI on GDP, indicating that growth benefits may be restricted to higher income countries. Along this same theme, Blomstrom (1994) in a cross-country analysis of 78 developing countries found that FDI had positive effect on growth rates for higher income developing countries, but not for lowering come ones because developed countries have conducive environment, while opposite is the case for developing ones.

A few researchers have emphasized the way in which the growth effects of FDI depend on conditions of the financial markets of the host country. Alfaro (2004) and Durham (2004) found that it is necessary for countries to have well-developed banking and financial institutions in order to gain from FDI in terms of economic growth. Alfaro (2004) used cross-country data between 1975 and 1995 and found that FDI alone did not play any definite role in spurring economic growth. When various measures of financial market development are included positive effects are found. Durham (2004) used data for 80 countries from 1979 to 1998 and found that it is also necessary for a country to have strong institutional development and investor-friendly legal environment for FDI to have a positive effect on growth.

Researchers have also looked at the role that the trade regime plays in the transmission of positive growth effects from FDI. Using annual cross-sectional data for 46 developing countries in a Fixed Effects Model, for example, the seminar work of Balasubramanyam (1996) finds support for the Bhagwati hypothesis: that the growth effect of FDI is positive for export promoting countries and negative for import substituting ones. Using Co-integration and Error

Correction techniques, Zhang (2001) finds similar results. Of the 11 countries in the study, in five cases (four of which are in East Asia) FDI enhances economic growth. For the other six countries without co-integration links, unidirectional causal effects are found in five countries. FDI is found to positively impact economic growth in Hong Kong, Indonesia, Singapore, Taiwan, and Mexico. In an alternative framework, more in line with Structuralist/dependency theory arguments, for the years 1940 - 1990, Kentor (1998) finds that countries with a relatively high dependence on foreign capital exhibit slower economic growth than less dependent countries. Kentor (2003) uses a different measure – foreign investment concentration, calculated as the percentage of total foreign direct investment stocks accounted for by the top investing countries – and still finds a long term negative effect on growth. Sakar (2007) and Kentor (1998, 2003) ask a similar question of a sample of 51 less developed countries. Sakar (2007) tests if a country with higher FDI relative to its gross domestic capital formation grows at a faster rate. The panel regression shows a positive relation for a group of 11 countries who had high GDP per capita and high trade dependence. The time series analysis of the individual countries shows a positive relation for 10 countries and a negative relation in four. In the majority of cases there is no long-term relation regardless of whether or not the country is rich or poor, or is classified as closed or open. Dritsakiet al (2004) applies a co-integration and causality approach in which they find a positive long-run equilibrium relationship between FDI and economic growth and a-one-way causality between FDI and economic growth, running from FDI to growth.

De Gregorio (2003) in his contribution to the debate on the importance of FDI notes that FDI may allow a country to bring in technologies and knowledge that are not readily available to domestic investors and in this way increase productivity growth in the economy. In his study, he finds that increasing aggregate domestic investment by 1 percent point of GDP increases

economic growth of Latin American countries by 0.1 to 0.2 percent a year, but increasing FDI by the same amount increases growth by approximately 0.6 percent a year during the periods of 1980 – 85, thus indicating that FDI is three times more efficient than domestic investment. Ledyaeva and Linden (2006) determine the FDI impact on per capita growth in 74 Russian regions during the periods 1996 – 2003. Their framework related real per capita growth rate to initial levels of state variables such as the stock of physical capital and the stock of human capital and control variables viewed as important factors in the Russian economy's regional development in the analyzed period. Their results imply that in general FDI (or related investment components) do not contribute significantly to economic growth during the period but that some evidence of positive aggregate FDI effects in higher income regions.

However, FDI seems not to play any significant role in the recent growth convergence process among Russian regions. Tang (2008) explores the causal link between FDI, domestic investment and economic growth in China between 1988 – 2003 using the multivariate VAR and ECM. The results indicate that there is a bi-directional causality between domestic investment and economic growth, while there is a single directional causality from FDI to domestic investment and economic growth. Athukorala (2003)'s study on the impact of foreign direct investment on economic growth in Sri Lanka between 1959 – 2002, agrees that the regression results do not provide much support for the view of robust link between FDI and growth in Sri Lanka. He posits that the situation is due to lack of improved investment climate such as good governance, accountability, political instability and disturbance, bureaucratic inertia, among other reasons.

Kumar and Pradham (2002) analyze the relationship between FDI, growth and domestic investment for a sample of 107 developing countries for the periods 1980 – 1999. Their model

used flow of output as the dependent variable and domestic and foreign owned capital stock, labour, human skills, capital stock and total factor productivity as their independent variables. Their results show that panel data estimations in a production function framework suggest a positive effect of FDI on growth, although FDI appears to crowd out domestic investments in net terms, in general, some countries have had favourable effects of FDI on domestic investments in net terms, suggesting a role for host country policies. FDI could be beneficial in the short run but not in the long run. Durham (2004) for example, fails to establish a positive relationship between FDI and growth but instead suggests that the effects of FDI are contingent on the "absorptive capacity" of host countries.

Furthermore, Todaro (2005) notes that the primary factors which stimulate economic growth are investments that improve the quality of existing physical and human resources, that increase the quantity of these same productive resources and that raise the productivity of all or specific resources through invention, innovation and technological progress. FDI contributes to the growth rates of macroeconomic variables and is seen as a vital tool for economic progress. Development economists ascribe a significant and positive role to foreign direct investment in the growth process of developing countries. FDI is regarded as an additional factor of production which could relax both the savings gap and foreign exchange constraints on the output growth rate of the recipient country. Since planned investment is always greater than savings, it creates a savings gap which is required to be filled by FDI. Closely associated with this is another problem, the existence of trade or foreign exchange gap, which confronts a developing country. As an additional factor of production, FDI cushions these two gaps.

Economicgrowth results from accumulation of factors of production or from improvements in technology or both. Economic theory provides two approaches to studying the link between

economic growth and development of the host countries. The first approach is rooted in the standard theory of international trade. The theory dates back to MacDougall (1960) and involves a partial-equilibrium comparative-static approach which examined how marginal increments in investment from abroad are distributed. This approach believes that inflows of foreign capital – whether in the form of foreign direct investment or portfolio capital – will raise the marginal product of labour and reduce the marginal product of capital in the host country. Beyond this, Fratzscher (2012) argues, "the most important direct gains….from more than less private investment from abroad seem likely to come through higher tax revenue from foreign profits (at least if the higher investment is not induced by lower tax rates), through economies of scale and through external economies generally, especially where (domestic) firms acquire 'know-how' or are faced by foreign competition to adopt more efficient methods". FDI is thus, connected to other potentially important benefits.

The second approach which was pioneered by Javorcik (2007) is based on the theory of industrial organization. This approach begins with an examination of why firms undertake investment abroad to produce the same goods as they produce. He argues that for direct investment to thrive there must be some imperfections in markets for goods and factors, including technology, or some interference in competition by government or by firms which separate markets. Consequently to be able to invest in production in foreign markets, a firm must possess some assets, such as product and process technology or management and marketing skills, which can be used profitably in the foreign affiliates. Firms investing abroad therefore represent something more than a simple import of capital into a host country to include diffusion of technology and knowledge, as well as impacting on market structure and competition in host economies. From the foregoing FDI, is not only a source of finance and employment, is certainly

a medium of acquiring skills, technology, organizational and managerial practices and access to markets. Thus is expected to exert a positive impact on growth in the host country through the sum of direct and indirect effects of capital flows along with technology transfer. South Center (1992) identifies the following plausible benefits of FDI in any economy: The transfer of technology to individual firms, and technological spillover to the wider economy; increased productive efficiency due to competition from multinational subsidiaries; improvement in the quality of the factors of production including management in other firms and not just the host firm, a healthy balance of payments through the inflow of investment funds; increases in exports; increases in savings and investment; faster growth of output and employment; and welfare improvement due to low prices of goods and the introduction of new or better quality goods.

Todaro (1994) summarized the benefits of FDI thus:

(i) FDI fills the resource gap between desired investment and local mobilized savings.

(ii) It fills the gap between targeted foreign exchange requirements and those derive from net export earnings plus net public foreign aid.

(iii) FDI fills the gap between targeted government tax revenues and locally raised taxes.

(iv) FDI helps fill-up perceived management, entrepreneurship, technology, and skill gaps by local operations of private foreign firms.

Todaro (1994), also, presents some arguments against foreign direct investment in general and the activities of multinational corporations in particular. These are:

(i) MNCs may lower domestic savings and investment rates by stifling competition through exclusive production agreements with the host governments. They may fail to re-invest much of their profits and generating domestic incomes for groups with lower savings propensity.

(ii) MNCs can exacerbate balance of payments crisis in the host countries consequent upon their practice of substantial importation of intermediate products and capital goods, and capital account may worsen because of overseas repatriation of profits, interests, royalties, management fees and other funds.

(iii) Contribution of MNCs to public revenue in the form of corporate taxes is likely to be less than anticipated as liberal tax concession, the practice of transfer pricing, excessive investment allowances, disguised public subsidies and tariff protection provided by the host government.

(iv) The impact of MNCs on development is sometimes uneven, thus reinforcing dualistic economic structures which exacerbates income inequality.

(v) Multinationals sometimes use their economic power to influence government policies in directions unfavourable to the development of their host economies.

2.3.2. African Studies

Using data from several investor surveys Asiedu (2002), suggests that macroeconomic instability, investment restrictions, corruption and political instability have a negative impact on foreign direct investment to Africa. Another study Lumbila (2005) examined a panel analysis of the effects of foreign direct investment (FDI) on GDP and other macroeconomic variables from 47 African countries over two decades (1980–2000). Utilizing a Seemingly Unrelated Regressions (SUR) technique of analysis the study revealed that foreign direct investment exerts a positive impact on growth in Africa. While contributing to the debate on the joint effects of aid and FDI in economic development, estimated a panel data for countries in the Southern Africa region, Benzuidenhout (2009) found a negative relationship between FDI and growth, but no relationship between aid and growth. In another similar study Ndambendia and Njoupougnigni

(2010) established that there was a long run association between FDI and economic growth in 36 sub-Saharan Africa countries, and also found that FDI exerts positive effect on economic growth. Ogbekor (2005) examines the role of exports and FDI on the growth of Namibian economy from 1991 to 2001. Using a combination of bivariate and multivariate variable models, the study concludes that FDI and export aids economic growth potential. Obwona (2001) notes in his study of the determinants of FDI and their impact on growth in Uganda that macroeconomic policy, political stability and policy consistencies are important parameters determining the flow of FDI into Uganda and that FDI affects growth positively but insignificantly. Adewumi (2006), examine the impact of foreign direct investment on economic growth in Africa using graphical and regression analysis. It was established that the contribution of foreign direct investment to growth is positive in most of the countries but not significant.

2.3.3. Nigerian Studies

In Nigeria, Ayashagba and Abachi (2002) carried empirical investigation on the effects of foreign direct investment on economic growth from 1980 to 1997. The result showed that foreign direct investment had significant impact on economic growth in Nigeria. However, the study concludes that the presence of foreign direct investment in the LDCs particularly in Nigeria is not totally useful. Examining the impacts of foreign direct investment in oil sector in Nigeria and its attendant impact on economic growth, Salami, Kari, Chukwu, and Mand David (2012) used co-integration analysis to show that foreign direct investment at current year is negatively associated with GDP possibly due to the fact that such investment needed to be allowed some time lag to translate to any significant impact. The impact of domestic capital formation is relatively small compared with the impact of foreign direct investment in the oil sector. Investigating the relationship between foreign direct investment and economic growth in Nigeria

between 1970 and 2008, Umoh, Jacob, and Chukwu (2012), argued that there is endogeneity i.e., bi-directional relationship between FDI and economic growth in Nigeria. The paper then adopted both single and simultaneous equation systems to examine if there is any sort of feed-back relationship between FDI and economic growth in Nigeria. The results show that FDI and economic growth are jointly determined in Nigeria and there is positive feedback from FDI to growth and from growth to FDI.

According to Onu (2010), in the neoclassical growth models, FDI promotes economic growth by increasing the volume of investment and/or its efficiency, FDI affects economic growth only in the short-run because of diminishing returns to capital in the long-run. He asserts that long-run growth in the neoclassical models arises from exogenous growth of the labour force and exogenous technological progress. In the endogenous growth models according to him, FDI raises growth through technological diffusion from the developed countries to the developing. This permanent knowledge transfer from FDI accounts for the diminishing returns that result in long run growth. Using ECM for period 1986 to 2007, he found a positive relationship between FDI and economic growth in Nigeria. Olusanya (2013) asserts that since capital is scarce in developing countries, there is need for the infusion of resources (capital is necessary for economic growth) in these economies. Nigeria according to him is a country endowed with arable land and abundant natural resources; government policies have been directed towards ensuring that what nature has provided is harnessed and utilized to the fullest for the benefit of the citizenry. Thus, government policies and strategies towards foreign investments in Nigeria is usually shaped by two principal objectives: the desire for economic independence and the demand for economic development. Economic independence is a situation in which a country does not have to rely on developed-country domestic and international economic policy to

stimulate her economic growth (Todaro, 2005). This implies that Nigeria develops education system, technology, economic and political systems, attitudes, consumption patterns, etc to attain economic independence. Economic independence presupposes self-reliance and sustenance. Generally, the greater emphasis on economic independence, the less generous the government would be in its incentive policies at attracting and promoting FDI. Emphasis on accelerated economic development, on the other hand, would dictate a wider opening of the door for foreign investors.

Ayanwale (2007) employs an augmented growth model via the ordinary least square and the 2SLS methods to ascertain the relationship between FDI, its components and economic growth, his results suggest that the determinants of FDI in Nigeria are market size, infrastructure development and stable macroeconomic policy. Openness to trade and available human capital are, however, not FDI inducing but FDI was found to contribute to economic growth in Nigeria. Ayadi (2009) investigates the relationship between FDI and economic growth in Nigeria (1980 – 2007) and finds a very weak correlation and causality between the variables and recommends that infrastructural development, human capital building and strategic policies towards attracting FDI should be intensified. Osinubi and Amaghionyediwe (2010) investigates the relationship between foreign private investment (FPI) and economic growth in Nigeria for the periods 1970 – 2005 and find that FPI, domestic investment growth, net export growth and the lagged error term were statistically significant in explaining variations in Nigeria's economic growth. In a study on the impact of FDI on economic growth in Nigeria, for the periods 1970 – 2001, Akinlo (2004) through his ECM results shows that both private capital and lagged foreign capital have little and not statistically significant effect on the economic growth. The results seem to support the argument that extractive FDI might not be growth enhancing as much as manufacturing FDI.

Ayanwale and Bamire (2004) report a positive and significant effect of FDI on the productivity of both domestic and foreign firms in the Nigerian Agro/Allied sector.

2.4: Gap in the Literature

The study used a macroeconometric model, in which the economy was disaggregated into four blocks and about 19 equations and 4 identities are utilized as proxy for the whole economy, this methodology has not been commonly used in analyzing the subject of FDI and growth in Nigeria. Also much of the past studies concentrated only on the oil and gas subsector of the economy, but our study went beyond oil and gas to develop models that truly take into consideration the Nigerian economy.

Again the Nigerian economy been a developing one, is truly dynamic; therefore there is need for updating of a subject as dynamic as FDI in Nigeria. On a constant basis most of the old restrictive policies on FDI in Nigeria are been updated because of the need of the government for external finance that is less volatile.

2.5. Overview of FDI Performance in Nigeria.

The analyses below show the cumulative foreign private investment flow in Nigeria analyzed by types of activity or on sectoral basis are below.

2.5.1. Cumulative Foreign Private Investment In Nigeria Analyzed By Type Of Activity: 1981 – 2014.

Starting with the mining and quarrying sector, in 1981, the total inflow of foreign private investment to the sector was ₦526.0 million which was about 14% of total foreign private investment in the economy for that year. Also, in 1985, ₦774 million was invested in the economy which was about 11% of total foreign private investment in the economy that year. In 1990, about ₦1.1 billion worth of foreign private investment flowed into the mining and quarrying sector of the economy representing 10.5% of total foreign private investment for that

year. In 1995, a total of ₦56.7 billion was invested in the mining and quarrying sector, representing about 47% of total foreign private investment in the country. By the year 2000, over ₦60.7 billion was invested in the same sector which is 38.5% of total private investment for that year. Also, in the year 2005, about ₦80.7 billion was invested in the mining and quarrying sector of the economy representing about 24% of total foreign private investment in the economy. In 2008, about ₦140.4 billion was invested in this sector of the economy making 24 % of total foreign private investment that year. From the analysis it appears investment in the mining and quarrying sector has been on the rise since 1981.

Table 2.1: Cumulative Foreign Private Investment in Nigeria Analyzed by Types of Activity: Mining & Quarrying: 1981 – 2016 (₦ Million).

TYPE OF ACTIVITY	YEAR	PAID-UP CAPITAL PLUS RESERVE (1)	OTHER LIABILITIES (2)	TOTAL (1)+ (2)	%DISTRIBUTION OF TOTAL (4)
MINING & QUARRYING	1981	276.9	249.1	526.0	14.0
	1982	282.3	691.7	974.0	18.1
	1983	289.5	211.7	511.2	8.6
	1984	358.8	334.0	702.8	10.8
	1985	406.3	337.7	744.0	10.9
	1986	413.2	2,097.2	2,510.4	27.0
	1987	413.2	1,847.0	2,260.2	22.6
	1988	413.9	2,989.1	3,403.0	30.0
	1989	460.0	176.7	636.7	5.8
	1990	516.8	574.8	1,091.6	10.5
	1991	524.3	1,334.3	810.0	6.6
	1992	577.9	5,839.3	6,417.2	31.3
	1993	929.7	26,757.2	27,686.9	41.5
	1994	941.0	25,739.0	26,680.0	37.7
	1995	941.1	55,806.3	56,747.3	47.5
	1996	1,262.7	55,529.6	56,792.3	46.3
	1997	1,301.1	57.920.3	59,221.4	46.2
	1998	1,387.4	58,583.1	59,570.5	39.3
	1999	1,408.6	57,446.8	58,885.5	38.2
	2000	1,408.6	59,302.3	60,710.9	38.5
	2001	1,429.6	60,182.3	61,611.9	38.3
	2002	1,429.6	60,182.3	61,611.9	37.0
	2003	1,477.2	60,331.9	60,801.9	34.6
	2004	1,646.5	60,499.2	62,145.7	24.9
	2005	2,140.5	78,649.0	80,789.4	24.8
	2006	3,424.7	102,345.6	105,668.4	22.0
	2007	4,288.8	127,804.5	132,805.5	23.9
	2008	4,456.9	136,040.2	140,497.1	24.0
	2009	12,455.2	145,788.4	158,243.6	32.5

	2010	16,900.1	153,455.2	170,355.3	29.2
	2011	10,500.2	147,670.9	158,171.1	25.6
	2012	23, 400.4	170,965.1	194,365.1	3.37
	2013	20,765.1	165,233.5	185,998.6	31.2
	2014	21,800.4	180,345.2	202,145.6	35.6
	2015	17,500.9	156,567.3	174,068.2	30.8

Source: CBN Statistical Bulletin, Various Issues.

Another critical sector of the Nigerian economy is the manufacturing and processing sector depicted in the table 2.5 below. An amount of ₦ 1.7 billion came into that sector in 1981 as foreign private investment which is about 45.4% of total foreign private investment for that year. In 1986, a total of ₦ 2.8 billion was invested in the sector constituting about 30.1% of foreign private investment in Nigeria for that year.

Table 2.2: Cumulative Foreign Private Investment In Nigeria Analyzed By Types Of Activity: Manufacturing & Processing: 1981 – 2016 (₦ Million).

TYPE OF ACTIVITY	YEAR	PAID-UP CAPITAL PLUS RESERVE (1)	OTHER LIABILITIES (2)	TOTAL (1)+ (2)	%DISTRIBUTION OF TOTAL (4)
MANUFACTURING & PROCESSING	1981	1,147.4	559.3	1,705.7	45.4
	1982	1,233.1	689.4	1,922.5	35.7
	1983	1,388.1	739.7	2,128.1	35.8
	1984	1,541.2	508.1	2,109.3	32.5
	1985	1,695.6	592.5	2,280.1	33.6
	1986	1,921.4	888.8	2,810.2	30.1
	1987	2,174.9	947.4	3,122.3	31.2
	1988	2,596.0	1041.0	3,367.0	32.1
	1989	3,537.4	1,889.0	5,406.4	49.1
	1990	4,937.4	1,401.6	6,339.0	60.7
	1991	7,011.8	1,680.6	8,692.4	71.0
	1992	7,707.1	2,039.2	9,746.3	47.5
	1993	10,400.4	2,484.7	12,885.1	19.3
	1994	11,176.8	2,883.1	14,059.9	19.9
	1995	25,186.7	2,482.1	27,668.8	23.2
	1996	27,063.1	2,751.2	29,814.3	24.3
	1997	28,519.7	2,777.5	31,297.2	24.4
	1998	31,446.6	3,057.3	34,503.9	22.6
	1999	33,041.5	3,240.6	36,282.1	23.5
	2000	34,104.8	3,228.8	37,333.6	23.7
	2001	34,308.8	3,470.8	37,779.6	25.5
	2002	36,261.8	3,691.8	39,953.6	24.0
	2003	42,013.8	3,705.6	45,719.4	25.6
	2004	99,144.8	3,851.0	102,995.8	41.3
	2005	128,888.2	5,006.3	133,894.5	41.1
	2006	206,221.2	6,508.2	212,129.4	44.2
	2007	211,376.7	8,135.3	219,512.0	39.1
	2008	220,957.0	8,807.6	229,764.6	39.2
	2009	343,973.2	12,369.4	356,342.6	34.7

	2010	517,997.4	16,456.1	534,453.5	43.0
	2011	1,032,027.8	56723.4	1,088,751.2	69.4
	2012	1,209,734.7	59,582.6	1,269,317.3	29.8
	2013	1,272,928.1	65654.1	1,338,582.2	25.3
	2014	1,464,221.2	70654.9	1,534,876.1	36.0
	2015	823,345.2	478,245.1	1,301,590.5	24.7

Source: CBN Statistical Bulletin, Various Issues.

Also, in 1989, a total of ₦ 5.4 billion was invested in the manufacturing and processing sector in Nigeria, which constitutes about 50% of total foreign private investment in the country. In 1996, a total of ₦ 29.8 billion, representing about 24.3% was invested in this sector. Again, in the year 2002, a total of ₦ 39.9 billion, representing about 24% of total foreign private investment was invested in the sector. By the year 2008, the flow of foreign private investment to the manufacturing and processing sector in the country had jumped to about ₦ 229.7 billion representing about 39.2% of the total flow of this category of investment in the country. Agriculture, Forestry and Fisheries is a very key sector of the Nigerian economy, as it employs over 60% of Nigerians. In 1981, according to table 2.7 below, about ₦120.5 million foreign private investments was made in the sector, representing about 3.2%oftotal foreign private

Table 2.3: Cumulative Foreign Private Investment in Nigeria Analyzed by Types of Activity: Agriculture, Forestry & Fisheries: 1981 – 2016 (₦ Million).

TYPE OF ACTIVITY	YEAR	PAID-UP CAPITAL PLUS RESERVE (1)	OTHER LIABILITIES (2)	TOTAL (1)+ (2)	%DISTRIBUTION OF TOTAL (4)
AGRICULTURE, FORESTRY & FISHERIES	1981	113.0	7.5	120.5	3.2
	1982	113.0	7.5	120.5	2.2
	1983	113.4	14.4	127.8	2.1
	1984	113.8	14.7	128.5	2.0
	1985	114.6	11.4	126.0	1.9
	1986	114.7	13.5	128.2	1.4
	1987	115.3	2.0	117.3	1.2
	1988	119.1	9.8	128.9	1.1
	1989	121.5	13.3	134.8	1.2
	1990	330.0	4.7	334.7	3.2
	1991	343.4	39.4	382.8	3.1
	1992	343.6	42.8	386.4	1.9
	1993	344.9	870.0	1,214.9	1.8
	1994	344.9	863.6	1,208.5	1.7
	1995	345.4	863.6	1,209.0	1.0

	1996	345.4	863.6	1,209.0	1.0
	1997	345.4	863.6	1,209.0	0.9
	1998	345.4	863.6	1,209.0	0.8
	1999	345.4	863.6	1,209.0	0.8
	2000	345.4	863.6	1,209.0	0.8
	2001	345.4	863.6	1,209.0	0.7
	2002	345.4	863.6	1,209.0	0.7
	2003	345.4	863.6	1,209.0	0.7
	2004	345.4	863.6	1,209.0	0.5
	2005	345.4	863.6	1,209.0	0.5
	2006	345.4	863.6	1,209.0	0.7
	2007	379.9	960.1	1,329.9	0.2
	2008	393.3	1,003.1	1,397.2	0.2
	2009	1,7179.	10,566.5	12,345.4	0.4
	2010	4,862.5	40,567.9	45,432.4	0.8
	2011	47,081.7	120,445.7	167,527.4	0.4
	2012	2,202.4	38,000.9	40,203.3	0.6
	2013	5,776.5	61,563.3	67,339.8	0.5
	2014	13,753.4	110,234.2	123,987.6	0.3
	2015	11,865.6	68,534.3	80,399.9	0.6

Source: CBN Statistical Bulletin, Various Issues.

investment in the country for that year. Again, in 1985, there was a marginal increase of ₦126 million, constituting about 2% of total foreign private investment in the country. Also in 1991, the flow of foreign private investment into the agriculture, forestry and fisheries sector was ₦ 382.8 million, an increase of over 3% of total foreign private investment in that sector. In 1996, a total of ₦ 1.2 billion flowed into the agriculture, forestry and fisheries sector of the economy constituting about 1%, a decline of 2% of total foreign private investment in the agricsector for that year as compared to that of 1991. By 2001, a total of ₦ 1.2 billion was invested in this sector, which was a decline of 0.3%, because the total foreign private investment for that year in the agriculture sector was 0.7%. In 2008, the level of investment in the sector remains the same, as an amount of ₦ 1.3 billion flowed to the sector.

Transport and communication is another sector that is attracting foreign private investment in Nigeria, especially since the inception of Global System for Mobile Communications (GSM) in Nigeria in 2001. In 1981, a total of ₦ 60.8 million flowed into the sector, constituting about 1.6%of total foreign private investment in the country that year. In 1984, about ₦ 80.6 million

flowed into the transport and communication sector of the economy, constituting about 1.3% of total foreign private investment in the country. Also, in 1990, a total of ₦ 240.5 million flowed into the transport and communication sector of the economy, bringing about a marginal increase of 2.3% of total inflow of foreign private investment in Nigeria. By the year 1996, the net foreign private investment flow to that sector had increased to about ₦ 456.6 million, representing 0.4% of total foreign private investment for that year this is about 100% increase from that of 1990. Also, in the year 2000, an amount of ₦ 820.3 million was invested in the transport and communication representing about 0.5% of total flow of foreign private investment to Nigeria for that year. Looking at 2004, there was a great improvement in the level of foreign investment in this sector, as a total of ₦ 4.2 billion flowed into this sector, while, in 2008, the flow of investment to the sector was ₦ 11.3 billion constituting about % 1.7% and 1.9% of total

Table 2.4: Cumulative Foreign Private Investment in Nigeria Analyzed by Types of Activity: Transport & Communication: 1981 – 2016 (₦ Million).

TYPE OF ACTIVITY	YEAR	PAID-UP CAPITAL PLUS RESERVE (1)	OTHER LIABILITIES (2)	TOTAL (1)+ (2)	%DISTRIBUTION OF TOTAL (4)
TRANSPORT & COMMUNICATION	1981	22.3	38.5	60.8	1.6
	1982	27.9	41.0	68.9	1.3
	1983	28.8	48.5	77.3	1.3
	1984	29.4	51.2	80.6	1.3
	1985	30.0	55.9	85.9	1.3
	1986	30.6	49.8	80.4	0.9
	1987	33.3	42.3	75.6	0.8
	1988	104.5	56.1	160.6	1.4
	1989	105.0	53.2	158.2	1.5
	1990	182.9	57.6	240.5	2.3
	1991	232.2	141.0	373.2	3.0
	1992	242.3	149.2	391.5	1.9
	1993	245.6	180.8	426.4	0.8
	1994	247.5	182.1	429.6	0.6
	1995	267.4	107.4	374.8	0.3
	1996	261.6	224.0	485.6	0.4
	1997	285.8	386.8	672.6	0.5
	1998	302.4	386.8	689.2	0.5
	1999	320.4	499.9	820.3	0.5
	2000	320.4	499.9	820.3	0.5
	2001	342.4	612.9	955.3	0.6

	2002	890.4	845.9	1,736.3	1.0
	2003	1,749.9	1,140.6	2,890.5	1.6
	2004	2,707.6	1,575.5	4,281.1	1.7
	2005	3,519.9	2,045.6	5,565.4	1.7
	2006	5,631.8	2,659.2	8,291.0	1.7
	2007	7,321.3	3,456.9	10,778.2	1.9
	2008	7,744.9	3,638.9	10,680.1	1.9
	2009	6,179.8	4,500.3	10,758.2	1.5
	2010	7,406.7	3,976.6	11,383.3	1.7
	2011	8,596.3	5,430.0	14,026.3	2.1
	2012	27,651.6	15,800.8	43,452.4	1.8
	2013	31,591.2	18,450.9	50,042.1	1.7
	2014	41,995.1	21,565.4	63,560.5	1.9
	2015	40,386.4	20,700.4	61,086.8	1.1

Source: CBN Statistical Bulletin, Various Issues.

foreign private investment for 2004 and 2008 respectively. In the year 2014 about ₦ 63.5 billion flowed to the sector. The flow of foreign private investment to the Building and Construction sector of the economy as shown in table below. In the year 1981, the total flow of sector was ₦ 235.9 million, representing 8.7% of total foreign private investment in the country that year. Again in 1985, a total of ₦453.2 million was invested in the industry by foreign private investors, representing 6.7% of total foreign private investment that year. There was an increase in the flow of investment to this sector in 1991, as a total of ₦1.4 billion came in, which is 12% of total foreign private investment in the country that year and an increase of over 100% from that of 1985. Also, in the year 1996, foreign private investment in the sector increased marginally to ₦1.8 billion, but amounted to only 1.5% of total foreign private investment in the country. In 2000, there was much increase in the flow of foreign private investment into the building and construction sector because a total of ₦ 3.9 billion, which is about 2.5% of total foreign private investment inflow into the country for that year came in. By the year 2004, a total of ₦ 5.2

Table 2.5: Cumulative Foreign Private Investment in Nigeria Analyzed by Types of Activity: Building & Construction: 1981 – 2016 (₦ Million).

TYPE OF ACTIVITY	YEAR	PAID-UP CAPITAL PLUS RESERVE (1)	OTHER LIABILITIES (2)	TOTAL (1)+ (2)	%DISTRIBUTION OF TOTAL (4)
BUILDING & CONSTRUCTION	1981	86.6	239.3	325.9	8.7
	1982	131.0	291.5	422.5	7.8
	1983	141.3	302.6	443.9	7.5
	1984	145.2	293.3	439.0	6.8
	1985	152.9	300.3	453.2	6.7
	1986	160.3	341.3	501.6	5.4
	1987	163.0	299.6	462.6	4.6
	1988	173.0	319.7	492.7	4.3
	1989	198.4	283.4	481.8	4.4
	1990	299.4	444.2	473.6	7.1
	1991	381.2	1,090.4	1,471.6	12.0
	1992	412.6	994.0	1,406.6	6.9
	1993	521.2	(450.4)	71.0	1.0
	1994	645.3	1,062.6	1.707.0	2.4
	1995	769.3	783.7	1,553.0	1.3
	1996	840.5	1,023.8	1.864.3	1.5
	1997	1,184.5	75.8	1,259.8	1.0
	1998	3,811.7	76.6	3,888.3	2.6
	1999	3,905.1	90.8	3,995.9	2.6
	2000	3,905.1	90.8	3,995.9	2.5
	2001	3,985.1	226.8	4,211.9	2.6
	2002	4,067.1	226.8	4,293.9	2.6
	2003	4,249.7	296.1	4,458.8	2.5
	2004	4,445.6	718.5	5,194.1	2.1
	2005	5,779.3	934.1	6,713.3	2.1
	2006	9,246.8	1,214.3	10,461.1	2.2
	2007	10,633.8	1,396.4	12,030.2	2.1
	2008	11,171.6	1,530.9	12,702.5	2.2
	2009	11,552.4	3,008.3	14,560.7	1.9
	2010	14,938.4	4,561.8	19,500.2	1.7
	2011	17,593.1	5,600.2	23,193.3	2.0
	2012	21,088.6	6,520.8	27,609.4	1.5
	2013	13,816.6	4,250.4	18,067.2	1.8
	2014	20,370.7	5,500.2	25,870.9	1.9
	2015	18,865.2	4,556.9	23,422.1	1.3

Source: CBN Statistical Bulletin, Various Issues.

billion was invested and by the year 2008, the amount had more than doubled, as a net flow of ₦ 12.7 billion, representing 2.1% and 2.2% of total foreign private investment for those years respectively.

Another critical sector of the Nigerian economy is the Trading and Business Services, because of its importance, a lot of foreign investors seems to be interested in putting their money in this sector. Total inflow of foreign private investment to this sector in 1981 was ₦ 767.2 million, which represent about 20.4% of total foreign private investment to that sector. Also, in 1985, the tempo of investment jumped to ₦ 2.6 billion which is about 39.7% of total foreign private investment in Nigeria for the year. In 1990, about ₦ 1.7 billion was invested in this sector, constituting about 16.4% of the total foreign private investment inflow into the country. By the year 1995, a total of ₦2.9 billion flowed into that sector of the economy representing about 2.5% of investment of total foreign investment in the country that year. Again, in the year 2000, the inflow of foreign private investment to the trading and business services sector of the economy increased to ₦11.2 billion, representing 7.1% of the total foreign investment in the economy. In the year 2004, a total of ₦ 20.2 billion flowed into the trading and business services of the Nigerian economy, constituting about 8% of total foreign private investment for that year. By the year 2008, the flow of foreign investment to this sector of the Nigerian economy had jumped to ₦ 50.2 billion constituting about 8.6% of total foreign private investment in the country for that year.

Table 2.6: Cumulative Foreign Private Investment in Nigeria Analyzed by Types of Activity: Trading & Business Services: 1981 – 2016 (₦ Million).

TYPE OF ACTIVITY	YEAR	PAID-UP CAPITAL PLUS RESERVE (1)	OTHER LIABILITIES (2)	TOTAL (1)+ (2)	%DISTRIBUTION OF TOTAL (4)
TRADING & BUSINESS SERVICES	1981	441.1	326.1	767.2	20.4
	1982	699.5	784.1	1,483.6	27.6
	1983	831.6	1,443.3	2,274.9	38.2
	1984	971.2	1,651.3	2,622.5	40.9
	1985	1,112.7	1,585.2	2,697.9	39.7
	1986	1,264.0	1,489.0	2,753.0	29.6
	1987	1,580.8	1,815.7	3,396.5	34.0
	1988	1,724.0	1,409.7	3,133.1	27.6
	1989	2,308.6	1,188.6	3,497.2	32.1

	1990	2,478.8	(768.4)	1,710.4	16.4
	1991	2,695.9	1,188.6	1,452.2	11.9
	1992	2,759.6	(1,277.1)	1,482.2	7.2
	1993	2,978.4	(1,113.9)	1,864.5	2.8
	1994	3,459.1	(1,211.5)	2,247.6	3.2
	1995	4,295.6	(1,304.9)	2,990.7	2.5
	1996	4,322.3	-653.6	3,668.7	3.0
	1997	4,652.7	(1,027.0)	3,625.7	2.8
	1998	10,531.0	(70.5)	10,460.5	6.1
	1999	11,324.3	(397.0)	10,927.3	7.1
	2000	11,598.3	(397.0)	11,201.3	7.1
	2001	11,991.3	25.0	12,016.3	7.4
	2002	12,581.3	264.0	12,317.3	7.4
	2003	13,463.6	993.7	14,457.3	8.1
	2004	18,204.2	2,038.2	20,242.4	8.1
	2005	23,665.5	2,649.7	26,315.1	8.1
	2006	37,864.7	3,444.6	41,309.3	8.6
	2007	43,544.4	3,961.3	47,505.7	8.6
	2008	45,426.9	4,768.1	50,194.9	8.6
	2009	44,670.9	8,900.6	53,571.5	7,9
	2010	63,370.2	12,300.5	75,670.7	8.9
	2011	72,125.3	14,563.2	86,688.5	10.5
	2012	66,4377	16,670.8	83,108.5	9.6
	2013	71,420.7	18,430.9	89,851.1	11.0
	2014	89,740.0	20,769.1	110,509.1	12.5
	2015	91,456.6	21,098.4	112,555.0	13.1

Source: CBN Statistical Bulletin, Various Issues.

There are other smaller areas that attract foreign private investment to Nigeria, referred to here as Miscellaneous Services. In 1981, over ₦ 186 million flowed into these services, representing 6.7% of that year's total foreign private investment. Also, in 1985, a total of ₦ 419 million came into this sector of the economy as foreign private investment, constituting 6.2% of total foreign private investment that year.

Table 2.7: Cumulative Foreign Private Investment in Nigeria Analyzed by Types of Activity 1981 – 2016 (₦ Million)

TYPE OF ACTIVITY	YEAR	PAID-UP CAPITAL PLUS RESERVE (1)	OTHER LIABILITIES (2)	TOTAL (1)+ (2)	%DISTRIBUTION OF TOTAL (4)
MISCELLANEOUS SERVICES	1981	186.0	65.8	251.8	6.7
	1982	266.5	124.3	390.8	7.3
	1983	266.5	107.7	386.3	6.5
	1984	266.5	106.3	335.6	5.2
	1985	266.5	100.3	418.9	6.2
	1986	266.5	203.1	529.8	5.7

	1987	266.5	228.3	559.1	5.6
	1988	266.5	18.6	383.3	3.4
	1989	266.5	100.7	584.7	5.4
	1990	266.5	(541.8)	(23.7)	(0.2)
	1991	266.5	(163.2)	682.0	5.6
	1992	266.5	(425.0)	682.2	3.3
	1993	266.5	3,882.8	22,638.0	33.9
	1994	266.5	4,820.3	24,381.1	34.5
	1995	266.5	8,991.1	28,848.0	24.2
	1996	266.5	8,734.1	28,766.7	23.5
	1997	266.5	10,802.6	31,046.2	24.2
	1998	266.5	19,056.2	41,689.5	27.4
	1999	266.5	18,890.0	42,100.2	27.3
	2000	266.5	18,956.2	42,237.6	26.8
	2001	24,575.4	19,082.2	43,657.6	27.0
	2002	26,486.4	19,023.2	45,509.6	27.3
	2003	28,872.3	20,184.2	49,056.5	27.5
	2004	31,396.5	22,174.7	53,571.2	21.5
	2005	40,815.5	28,827.1	69,642.6	21.4
	2006	65.304.7	37,475.2	102,780.0	21.4
	2007	84,306.9	44,970.2	129.277.1	23.6
	2008	91,517.4	48,852.8	140,370.1	23.9
	2009	89,750.4	45,950,1	135,700.5	22.3
	2010	98,800.2	51,300.7	150,100,9	26.8
	2011	88,734.9	34,780.8	123,515.7	29.3
	2012	97,443.4	44,600.3	142,043.7	32.1
	2013	99,291.3	36,700.3	135,991.6	28.9
	2014	97,112.9	51,566.5	148,679.4	25.6
	2015	95,345.2	50,876.8	146,222.0	24.4

Source: CBN, Statistical Bulletin, Various Issues.

In 1990, there was a sharp drop in the value of foreign private investment in the miscellaneous services, as only ₦ 23.7 million, representing 0.2% of total foreign investment in Nigeria. Again, in 1995, there was a sharp increase in the flow of foreign private investment in the country, as a total of ₦28.8 billion flowed into these activities of the economy, constituting over 24% of the total foreign private investment into Nigeria for that year. By the year 2000, the total flow of foreign investment to this sector of the economy was ₦ 42.2 billion, representing 26.8% of total foreign investment for that year. In the year 2004, ₦53.5 billion came into this sector of the economy, representing 21.5% of total foreign private investment in the country. The flow of foreign direct investment into these activities in the year 2008 was ₦140.3 billion, representing 24% of total foreign investment in Nigeria. Finally, looking at the cumulative foreign direct

investment flow into Nigeria from 1981, the following picture emerges according to the table 3.10 above: In 1981, a total of ₦ 3.7 billion flowed into the different sectors of the economy.

2.6. Policies and Institutional Framework on FDI in Nigeria.

2.6.1. Introduction

Nigeria as a country given her natural resources base and large market size qualifies to be a major recipient of foreign direct investment in Africa and indeed is one of the top three leading African countries that consistently received foreign investment in the past decades. Unfortunately, the effort of most countries in Africa to attract foreign investment has been futile. This is in spite of the perceived and obvious need for foreign direct investment in the continent. Some of the major constraint to attracting investment in Nigeria includes inconsistency in government policies and other social vices such as corruption, insecurity, and political instability. Since 1986, the government of Nigeria had vigorously pursued economic policies aimed at liberalizing and promoting competition and investment in the Nigerian economy. To re-affirm its commitment to market-led economy, the government has enacted and continued to update relevant legal instrument that hitherto contained provision inhibiting competition and investment in Nigeria. Furthermore appropriate incentives are continuously being put in place to promote private investment (Babatunde, 2013).Most governments depend on investment promotion agencies, economic development boards, industrial development agencies, and other investment promotion commissions to compete globally for critical foreign investment and the development benefits it brings (Ortega and Griffin, 2009). In 1995, the Nigerian investment promotion commission (NIPC) was established to enhance inflow of investment in the country.

2.6.2. FDI Policies in Nigeria before and After 1981.

The indigenization policy started in 1972 with "the Nigerian Enterprises Promotion Decree" (NEPD). The decree imposed several restrictions on FDI entry. As a result, some 22 business activities were exclusively reserved for Nigerians, including advertising, gaming, electronics manufacturing, basic manufacturing, road transport, bus and taxi services, the media and retailing and personal services. Foreign investment was permitted up to 60 per cent ownership and provided that the proposed enterprise had, based on 1972 data, share capital of N200,000 ($300,000) or turnover of N500, 000 ($760,000) (Babatunde, (2013).The second indigenization decree, the Nigerian Enterprises Promotion Decree of 1977, tightened restrictions on FDI entry in three ways: (a) by expanding the list of activities exclusively reserved to Nigerian investors (e.g. bus services, travel agencies, the wholesaling of home products, film distribution, newspapers, radio and television and hairdressing); (b) by lowering permitted foreign participation in the FDI-restricted activities from 60 to 40 per cent and adding new activities restricted to 40 per cent foreign ownership such as fish-trawling and processing, plastic and chemicals manufacturing, banking and insurance; and (c) by creating a second list of activities permitted, foreign investment was reduced from 100 to 60 per cent ownership, including manufacturing of drugs, some metals, glass, hotels and oil services companies. Relaxation of these restrictions began in 1989. The NEPD was amended so as to leave a single group of 40 business activities in which foreign participation was completely prohibited unless the value of the enterprise exceeded N20 million ($2.7 million in 1989). In addition, foreign investors could hold only a share of up to 40 per cent in insurance, banking, oil production and mining (Babatunde, 2013).

Therefore, in 1995, the Nigerian Investment Promotion Commission Act opened all sectors to foreign participation except for a short negative list (including drugs and arms) and allowed for 100 per cent foreign ownership in all sectors, with the exception of the petroleum sector (where FDI is limited to joint ventures or production sharing). In contrast to previous development plans, National Economic Empowerment and Development Strategy (NEEDS, 2003) made FDI attraction an explicit goal for the Government and paid particular attention to drawing investment from wealthy Nigerians abroad and from Africans in the Diaspora. In this context, both the immediate past government and the one preceding it consistently expressed commitment to removing barriers to FDI in non-oil sectors through their vision 20-20-20. Though most FDI is still destined for the oil industry, the steps being taken under the reform agenda are bearing fruit.

2.6.3. Nigeria Investment Promotion Council (NIPC) and FDI in Nigeria.

The increasing efforts of developing economies to attract and stimulate investment have led, over the years, to the establishment of Investment Promotion Agencies (IPAs) or similar government institutions with the prime function of stimulating domestic investment and attracting foreign investment. Host government intervention in the operations of Multinational firms has been the focus of some studies, notably Lee (1998); Trnik, (2007). Later studies however, paid much attention to the relationship between investment promotion and FDI inflow. Worthy of note in this regard is the work of several researchers such as Asiedu (2004) found that there was a general decline in Africa's foreign direct investments' global position despite the efforts of the countries in the continent. Morisset (2001) on the other hand, concluded that to improve the climate for foreign investment, an econometric analysis indicates that strong economic growth and aggressive trade liberalization can be used to fuel the inflow of FDI. Mali and Mozambique

were cited as the two countries that have shown spectacular improvements in their business in the 1990s because of the implementation of few visible actions, which were essential in the strategy of attracting foreign investment. Asiedu and Gyimah-Brempong (2008) also concluded that liberalization of policies through IPAs has a significant and positive effect on foreign direct investment.

However, according to the Central Bank of Nigeria FDI inflow to Nigeria has averaged about USD 1.184 billion per year since 1997, declining every year except for 2001 CBN (2016), The study by Abeson and Taku (2007) showed that foreign firms in Nigeria between 1975 and 1985 experienced a high level of government intervention and that some companies pulled out of Nigeria because of this. The response of federal government to this disturbing situation had led to a series of reforms one of which is the coming into being of NIPC as a one-stop shop investment center. The Nigerian Investment Promotion Commission (NIPC) was created specifically for this purpose (NIPC, 2003). One-stop shop center (such as NIPC) is an investment facilitation mechanism where relevant government agencies are brought to one location, coordinated and streamlined to provide efficient and transparent services to investors. It shortens and simplifies administrative procedures for the issuance of business approvals, permits and licenses and company incorporation, thereby removing bottlenecks faced by investors in establishing, running business, and ultimately, reduces the cost of doing business in the country.

Furthermore, NIPC also has the responsibility to ensure the realization of the maximum benefits of the policies of liberalization and deregulation of the national economy. In fact, the policy priorities of the Presidency's office on investment include: "getting the 'right' processes and incentives in place for a competitive business climate" as well as removing administrative bottlenecks to encourage investment (UNCTAD, 2008). In addition, NIPC provides statistical

data and information on the Nigerian economy, good investment climate, legal and regulatory framework as well as sector and industry specific information to aid existing and prospective investors in making informed business decisions (NIPC, 2003). The commission is also expected to work unceasingly to improve the image of Nigeria globally with messages tailored to reduce negative perception about Nigeria (Abubakar, 2012).

2.7. LISTOFSELECTED FOREIGN MULTINATIONAL CORPORATIONS IN NIGERIA.

Table 2.8

Company	Home Country	Sector
Nestle Nigeria Plc.	Switzerland	Food, beverages, and tobacco
Unilever Nigeria Plc.	Netherlands	Chemicals and chemical products
Ashakacem Plc.	France	Non-metallic mineral products
GlaxoSmithKline Consumer Nigeria Plc.	United Kingdom	Chemicals and chemical products
Cement Company Of Northern Nigeria Plc.	Norway	Non-metallic mineral products
Air Liquide Nigeria Plc.	France	Chemicals and chemical products
Boc Gases Nigeria Plc.	United Kingdom	Chemicals and chemical products
Mobil Producing Nigeria Unlimited	United States	Chemicals and chemical products
Paterson Zochonis Industries Plc.	United Kingdom	Chemicals and chemical products
Thermocool Engineering Company Ltd	United Kingdom	Machinery and equipment
Elf Petroleum Nigeria Limited	France	Petroleum
Nampak Nigeria Plc.	United States	Wood and wood products
Crittall-Hope Nigeria Ltd	United Kingdom	Metal and metal products
Halliburton Energy Services Nigeria Ltd	United States	Petroleum
Nigerian Agip Exploration Ltd	Italy	Petroleum
Halliburton Energy Services Nigeria Ltd	United Kingdom	Petroleum
Reckitt Benckiser Nigeria Limited	United Kingdom	Chemicals and chemical products
Giwarite Ltd	Belgium	Manufacture of petroleum
Haco Ltd	United Kingdom	Chemicals and chemical products
Vee Networks Ltd	Kuwait	Telecommunications
CFAO Nigeria Plc	France	Holding
John Holt Plc	United Kingdom	Wholesale trade
Longman Nigeria Plc	United Kingdom	Publishing, printing
Btc Nigeria Limited	Germany	Wholesale trade

Daewoo Nigeria Ltd	Rep. of Korea	Construction
Volkswagen Of Nigeria Ltd	Germany	Wholesale trade
Panalpina World Transport (Nigeria) Ltd	Switzerland	Air transport
Trevi Foundations Nigeria Limited	Italy	Construction
Siemens Ltd	Germany	Wholesale trade
Nigerian Westminster Dredging & Marine Ltd	Netherlands	Construction
Globestar Engineering Company Nigeria Ltd	Luxembourg	Construction
Ppc Limited	Netherlands	Research and development
Sgs Inspection Service Nigeria Ltd	Switzerland	Other business activities
Michelin (Nigeria) Ltd	France	Rubber and plastic products
Swiss Nigerian Chemical Company Ltd	Switzerland	Public administration
Dizengoff West Africa (Nigeria) Ltd	United Kingdom	Wholesale trade
Araromi Rubber Estates Ltd	France	Forestry and fishing
Abb Ng Ltd	Switzerland	Other business activities
First Stockbrokers Ltd	India	Finance
Soji Commodities WA Ltd	United Kingdom	Finance
MTN	South Africa	Telecommunications
Airtel	India	Telecommunications
Multichoice	South Africa	Broadcasting
Etisalat	Kuwait	Telecommunications
Kia Motors	South Korea	Automobiles
Standard Chartered Bank	South Africa	Banking
Sinopec	China	Oil & Gas
SEPCO	China	Power
CGC	China	Construction
Huawei	China	Telecommunications
Shoprite	South Africa	Retails

(UNCTAD, 2008, 2013).

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CHAPTER THREE

RESEARCH METHDOLOGY

3.1. Introduction

The methodology of this study consists of three frameworks (conceptual, theoretical and empirical)**.** The dissertation has developed and estimated a Keynes-Klein model consisting of a small open economy. The dynamic structures of the models have three components as follows:

(i) A collection of aggregate variables. These variables may be latent or observable factors such as macroeconomic variables;

(ii) A description of the dynamics of these aggregate variables; and

(iii) A mapping between these aggregate variables and the term – structure of FDI. The mapping is theoretically motivated and was constructed based upon empirical considerations.

In the light of the foregoing, the decision to anchor this study on Keynes-Klein macroeconomic model stems from the fact that the macroeconomic data of the Nigerian economy has some degree of aggregation in terms of government consumption, savings, income and output. In some instances the data may not even be available on some variables such as national capital stock, private consumption expenditure, and so on (Obadan, 1996). However, because the facts about the economy include Nigeria being a small open economy, the existence of varying wage structure across public and private sectors, high inflation rate, high unemployment rate, high incidence of labour mobility, significant influence of import prices on local sector, prevalence of downward wage rigidity, and the exogenous nature of oil and gas prices; all these go to reinforce the decision that this study be cast on the framework of Keynes-Klein model.

3.2. Conceptual Framework of the Study

This section contains the conceptual, theoretical framework of the study and the structure of the model

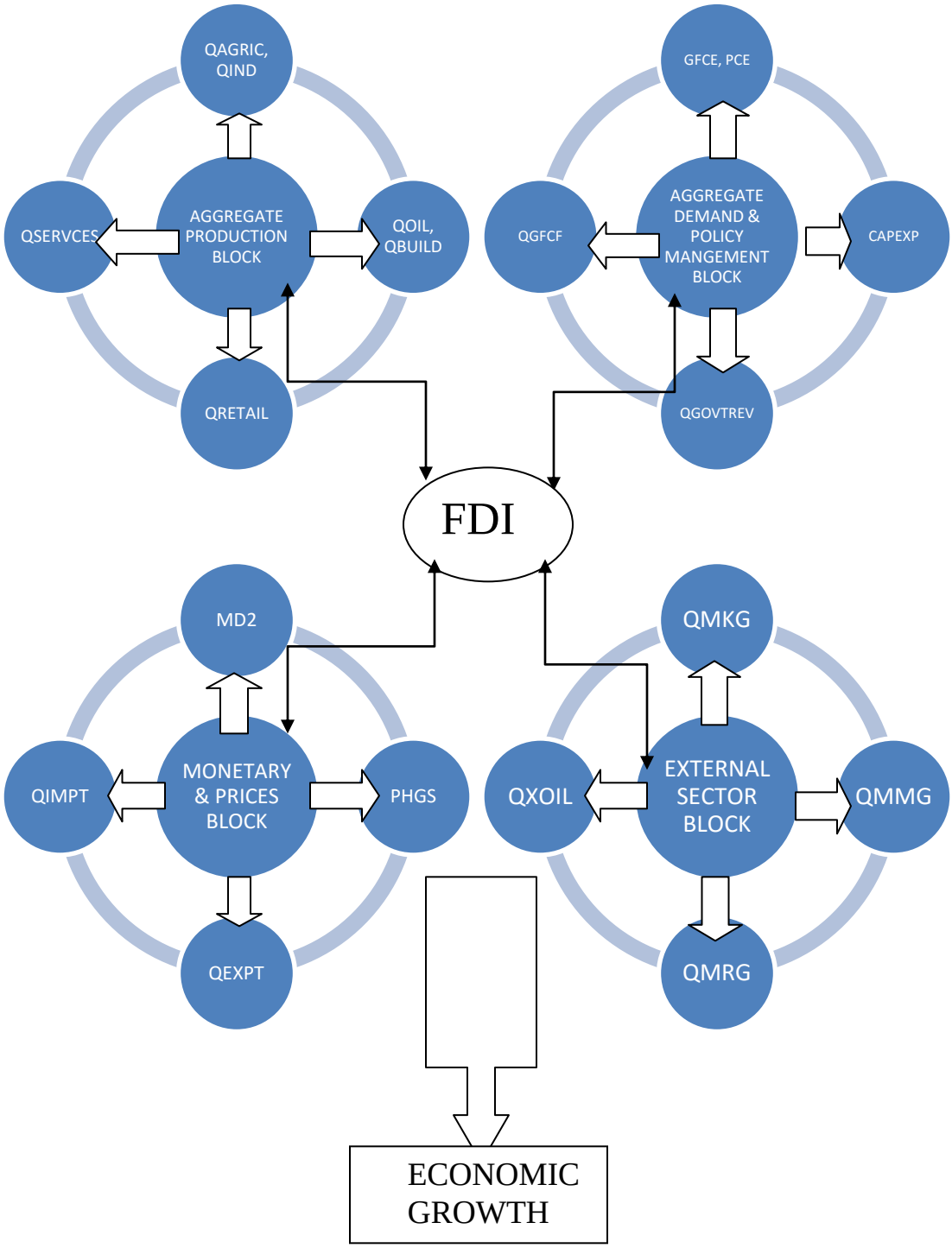


Fig. 2.1: Conceptual Flow of Transmission Channel between FDI and Growth

Where:

Big Circles = Output of the different blocks, which represents the different sectors of the economy.

Smaller Circle and Arrows = Flow of FDI to the different subsectors of the economy, the arrows depicts the flow.

Bigger (thicker) Arrow = Transmission channel from FDI to economic growth.

Rectangle = Represents economic growth.

The conceptualization of the linkages between the blocks is that the foreign exchange availability through foreign financial inflow through FDI is assumed to affect the value of exports in the external block together with terms of trade. The real exchange rate also determines the level of imports. The level of private investment in the monetary and prices block is then affected by level of imports which determine the capacity utilization rate of the economy in the aggregate production block; subject to availability of infrastructure in the aggregate demand and policy management block. The capacity utilization rate in the manufacturing sub sector is assumed to have direct impact on output which in turn affects government revenue and expenditure in the aggregate demand and policy management block and hence the fiscal deficit. The fiscal deficit in monetary and prices block has a feedback effect on prices through its effect on money demand and supply. The level of output (aggregate production) also determined the aggregate demand. The excess demand over the total output is assumed to be financed by foreign financial inflows (foreign direct investment), which subsequently leads to economic growth.

There are four blocks made up of aggregate production, aggregate demand and policy management, monetary and prices and the external sector blocks. The flow of FDI to the different sectors of the economy, captured by the blocks, produces an effect on the whole economy, which is depicted by the bigger arrow. The components of the production block are

outputs of agricultural (QAGR), manufacturing (QIND), oil and gas (QOIL), building and construction (QBUILD), wholesale and retail (QRTAIL) and services (QSERV). Also, components of aggregate demand and policy management block are private consumption expenditure (PCE) government expenditure (GEXP), foreign direct investment (FDIV), capital expenditure (CAPX), demand for money (MD2), exchange rate (EXCR), oil revenue (OREV), total federally collected revenue (GREV), capital flight (CAPFT), gross fixed capital formation (GFCF), commercial bank loans and advances (LOANS), and minimum rediscount rate (MRR). Also, in monetary and prices block, the components are government deficit (GDEF), currency held by non-banking public (PHGS), exchange rate (EXCHR), foreign exchange reserve (FNRES), terms of trade (TMTR), openness (OPNSS), oil price (OILP), export (EXPT), import (IMPT), consumer price index (CPDEX), import price (MPRICE), imports of raw materials (MRG) and imports of capital goods (MKG). The external sector consists of the following components; imports of capital goods (MKG), imports of manufactured goods (MMG), imports of raw materials (MRG) and exports of crude oil and natural gas (XOIL).

3.3. Theoretical Framework of the Study:

The Dual Gap Model

The theoretical framework of the study is provided by Chenery and Strout (1966) Dual-gap Model. As earlier mentioned, the theory postulates that domestic savings in developing countries is not sufficient to finance the desired investment to promote economic growth hence the need for these countries to resort to foreign capital. Dual-Gap Model of economic growth is contained in the Post-Keynesian growth models for closed economies as designed by Harrod and Domar. They tried to identify the pre-conditions for the economic growth of market economies. These two preconditions are essentially rooted in the Nigerian economy and these are:

(i) Internally: inadequate savings would definitely translate to investment. The gap between these constraints (saving gap). Closing this gap requires foreign direct investment (FDI).

(ii) Externally: inadequate foreign exchange arising from inability to export vis-à-vis high importation will lead to short fall in foreign exchange. The gap between these two is called foreign exchange constraints (trade gap) which can be corrected by foreign direct investment (World Bank, 2015). Nigerian leaders resorted to foreign direct investment drive from developed countries and multinational firms to salvage the economy from total collapse. Root (1978) used the following Keynesian macroeconomic national income identities to explain the Dual-gap thesis:

GDP = C + S ……..…Equation 3.1

Alternatively,

GDP = C + I + (X-M)……..Equation 3.2

Where:

GDP = Gross Domestic Product

S = Saving

C = Consumption

I = Investment

M = Import

X = Export

In equation 3.2, investment includes both private sector investment and government investment expenditure.

$I = I_p + I_g$……..…..…Equation 3.3

Where:

I_p = private sector investment

I_g = government investment expenditure

Since GDP equals domestic consumption plus domestic savings, it follows from equations 3.1 and 3.2 that the demand for domestic investment equals the sum of domestic savings and the balance of import on current accounts which can be financed by net foreign direct investment (FDI) (Chatterjee, 1999; Salisu, 2012).Therefore,

$I = S + (M-X)$ ……...Equation 3.4

Where (M-X) here represents net foreign direct investment.

Equation 3.4 suggests that the gap between investments and saving should be corrected by an identical gap between imports and exports. For instance if a country's investment in the previous year has exceeded its domestic savings, this gap must have been balanced in the national accounts by a current account deficit, equivalent to $M > X$. Similarly, if last year's imports (of a country) have exceeded its exports (that is $M > X$), then this implied that resources used by the country to permit this scenario must have exceeded the volume of domestic savings by the same amount (i. e $I > S$).

However, it should be emphasized that these qualities are ex-post results of national accounting procedures. Consequently it is not compulsory for the planned levels of saving and investment to equate planned levels of imports and exports. For example, there can be saving-investment gap which can be corrected by increasing the level of saving but this may prove difficult hence the need for foreign resources to fill the gap. Also, there is the possibility of foreign exchange gap to arise. In this case, foreign exchange is required to import capital goods such as machinery and spare parts in order to achieve the desired or targeted growth. Therefore, in relieving these

constraints, foreign direct investment if optimally utilized can enhance capital formation and accelerate economic growth (Salisu, 2012).

3.4. Empirical Framework of the Study

In line with CBN (2010) and Salisu (2012), this study employed input/output approach to capture the effect of foreign direct investment on the Nigerian economy. It is a derivative of Keynes-Klein model but has been extended to incorporate the productive sectors as well as demand and supply sides in its structure. In the optimal behavioural quantification, the medium open macroeconomic model assumed a stylized component of the institutional agent interacting as macroeconomic agents (Garba, 1998). Thus the framework of the model design presupposes that the instrumental variable in Neoclassical long run assumptions will for the Nigerian case be disaggregated into four blocks. Specifically, the study's macroeconomic model is captured in the inter-relationships between foreign direct investment and some key macroeconomic variables comprised of these blocks, namely: (i) aggregate production (ii) aggregate demand and policy management block (iii) monetary and prices block (iv) and the external sector block.

3.4.1. Aggregate Production Block

Each of the production sectors was assumed to employ a Cobb-Douglas technology. In a typical Cobb-Douglas production function the main inputs were labour and capital. In the equations that follow, other relevant inputs/factors that determined production in the Nigerian environment besides labour and capital were considered. However the functions are modified to include some critical factors such as exports of crude oil, government consumption, government expenditures etc, apart from labour and capital. The growth accounting model of Lin (1994) is adapted in which (Y) is assumed to be a function of productive inputs; capital (K) and labour (L). In this setting, output is a function of two factors of production and government expenditure (G). It is

assumed that government services affect the efficiency of productive units of capital and labour, but this could be in a positive or negative manner.

The Nigerian economy is basically divided into two; the Non-Oil Sector and the Oil Sector. The non-oil sector embraced all other sectors of the economy besides oil. Key components of this sector were agriculture, manufacturing, building and construction, wholesale and retail, and services. Production in this sector was influenced by cost of funds, which was represented by domestic maximum lending rate. This rate was chosen because participants in this sector were mostly small and medium scale enterprises with low credit ratings, thereby requiring a risk premium in the interest charged on loans. The quantum of credit available to this sector (represented by credit to the private sector) determined to a great extent the production activities. Firms in this sector relied substantially on capital; part of which were domestically available and part of which were imported through FDI. As such, both the domestic stock of capital in the non-oil sector and imported intermediate inputs were assumed to impact on production.

Also, the Oil Sector is the most important sector of the Nigerian economy due to the neglect of other sectors by successive administrations. This sector embraced oil and gas production. Firms in this sector were largely foreign-owned and production activity was largely capital-intensive, high-tech and import dependent. However, Nigeria belonged to a cartel – the organization of petroleum exporting countries (OPEC) which gave quota to member countries. As such, while a lot of factors had the possibility of driving production in the sector, including but not limited to foreign demand, foreign lending rate, import of capital goods, etc, it was not clear that they did because Nigeria had to produce in line with assigned quota. It was difficult though to discountenance the potential impact of oil price which determined the accruals to factors of production, and could influence investment decisions of agents in the sector.

In particular, outputs in the agricultural sector (QAGR), manufacturing sector (QIND) and oil and gas sector (QOIL) as represented by equations 3.5, 3.6 and 3.7 respectively, are determined by the traditional inputs of labour and capital and the non-traditional inputs such as government spending, imports of raw materials, import of capital goods, import of manufactured goods, rainfall, consumer price index, capital flight, foreign direct investment, external reserves, price of oil and gas and capacity utilization. Similarly, the outputs of building and construction (QBUILD), wholesale and retail services (QRTAIL) and services (QSERV) represented in equations 3.9, 3.10 and 3.11 respectively are determined by labour and capital inputs, government spending, import of raw materials, import of capital goods, import of manufactured goods, consumer price index, foreign direct investment and external reserves, etc. From equations (3.6 – 3.11) the functional relationships and the log form linearizing the sectoral specification are as follows:

$QTOTAL_1 = QAGR + QIND + QOIL + QBUILD + QRTAIL + QSERV$…….(3.5)

$\log QAGR = \log A + \alpha_1 logFDIV + \alpha_2 logOREV + \alpha_3 logGFCF + \alpha_4 logCAPX + \alpha_5 logRNFL + \alpha_6 logMRG + \alpha_7 logMKG + \alpha_8 logCINF + \mu_t$ ……..(3.6)

$\log QIND = \log A + \alpha_1 logFDIV + \alpha_2 logOREV + \alpha_3 logMKG + \alpha_4 log\ MRG + \alpha_5 logLOANS + \alpha_6 logCAPTL + \alpha_7 logCAPFT + \alpha_8 logCINFL + \mu_t$.....(3.7)

$LogQOIL = \log A + \alpha_1 logFDIV + \alpha_2 logOREV + \alpha_3 logGFCF + \alpha_4 logGFCE + \alpha_5 logMMG + \alpha_6 \log MKG + \mu_t$…….……..….…….(3.8)

$LogQBUILD = \log A + \alpha_1 logFDIV + \alpha_2 logOREV + \alpha_3 logLOANS + \alpha_4 logGFCE + \alpha_5 log\ GFCF + \alpha_6 logMKG +$ …….....(3.9)

$LogQRTAIL = \log A + \alpha_1 logFDIV + \alpha_2 logOREV + \alpha_3 logPCE + \alpha_4 logGFCE + \alpha_5 logMMG + \alpha_6 logMKG + \mu_t$…….....(3.10)

$logQSERV = \log A + \alpha_1 logFDIV + \alpha_2 logOREV + \alpha_3 logGFCF + \alpha_4 logGFCE + \alpha_5 logPCE + \alpha_6 logMKG + \mu_t$ …….…….…….….(3.11)

Where α_1…… α_n are the elasticities which are expected to have positive signs. (OREV) is oil revenue, (GFCF) is gross fixed capital formation, (CAPX) is capital expenditure, (CAPFT) is capital flight, (MRG) is import of raw materials, (MKG) is imports of capital goods, (CINFL) is core inflation, (FDIV) is foreign direct investment, (CAPTL) is capacity utilization, (MMG) is import of manufactured goods, and (GFCE) is government final consumption expenditure. $QTOTAL_1$ is total block production, while, QAGR, QIND, QOIL, QBUILD, QRTAIL and QSERV are sectoral production in agriculture, industry, oil and gas building and construction, wholesale and retail and services. On the basis of equations 3.5 to 3.11 the direct effects of these variables on economic growth have been be estimated and discussed. All the coefficients are expected to total up to unity. Constant returns to scale are thus assumed to hold.

3.4.2. Aggregate Demand and Policy Management Block

In formulating the aggregate demand segment of the block structure of equations, reckon was made of CBN model (2010) and Salisu (2012). Hence the theoretical framework of this study assumed that output is determined in a Keynesian manner. Thus the conventional Keynesian model of output determination is stated as follows:

Using Keynesian identities, we assume that domestic absorption is the sum of private consumption expenditure (PCE), government final consumption expenditure (GFCE), domestic investment (I_f) and foreign investment (I_f). A more conventional specification is as follows:

$Y = C + I + (X – M)$ ……..…..……..… (3.12)

Equation 3.26 depicts the composition of the national income which is made up of aggregate consumption expenditure, C, which is further disaggregated in equation 3.13 into private and government consumption.

$AGCON = PCE + GFCE$ ……..…….. (3.13)

Total investment which is also disaggregated in equation 3.14 into domestic and foreign investment.

$I = I_d + I_f$…….(3.14)

Net income from abroad consists of inflow of capital from FDI and revenue from the sale of oil and products from Nigeria.

Also the policy management segment of the block is structured to capture the interrelationships between policy and macroeconomic agents (i.e. household consumption, gross investment, government expenditure and net export). Foreign direct investment (FDIV) is included to allow for the effect of foreign capital inflow on revenue and expenditure. The increase in foreign direct investment has been accompanied by an increase in competition amongst the developing countries to attract FDI. As a result, higher investment incentives offered by the host government and removal of restrictions on operations of foreign firms in the countries. There is also an increase in number of bilateral investment treaties (BITs) and regional agreements of investment. Most emerging countries have liberalized their policies to attract foreign funds. FDI policy incentives have become one of tools in of government host countries to FDI attraction (Ibru, 2002). Policies for promoting FDI in order to sustain domestic investment and thus economic growth become important.Therefore, adopting the simple Keynesian macroeconomic framework and its extended versions, the following identities (in equations 3.15 to 3.17) were constructed:

RGDP = PCE + GFCF + (EXPT- IMPT)…….....….....…..3.15

GREV = NOILR + OILR……...….....3.16

GEXP = RECX + CAPX .....……...…….....3.17

Where, (PCE) private consumption, GREV is government revenue GEXP is government expenditure, NOILR is non oil revenue, RECX is recurrent expenditure, CAPX is capital expenditure while total foreign direct investment represented by FDIV, while, EXPT and IMPT

are exports and imports; EXPT-IMPT is the net export respectively. Based on the foregoing, the stochastic equations in the aggregate demand and policy management block include:

$QTOTAL_2 = QGFCE + QPCE + QCAPX + QGREV + QGFCF + QMD_2$ ……. (3.18)

Using the Keynesian identity consisting of output and its components, the stochastic variables are specified as follows:

$logGFCE = \log A + \alpha_1 logFDIV + \alpha_2 logCINFL + \alpha_3 logOREV + \alpha_4 \log FNRES + \alpha_5 \log QIND + \mu_t$…….....(3.19)

$logPCE = \log A + \alpha_1 logFDIV + \alpha_2 logQOIL + \alpha_2 logCINFL + \alpha_3 \log PCE_{t-1} + \alpha_4 \log QOIL_{t-1} + \alpha_5 logOREV + \mu t$…….....(3.20)

$logCAPX = \log A + \alpha_1 logFDIV + \alpha_2 logMD_2 + \alpha_3 logEXCR + \alpha_4 logCINFL_{t-1} + \alpha_5 logOREV + \mu_t$ ……...……...……..…(3.21)

$logGREV = \log A + \alpha_1 logFDIV + \alpha_2 logOREV \alpha_3 logCINFL + \alpha_4 logCAPFT + \alpha_5 logEXCR + \mu_t$ …….....(3.22)

$LogGFCF = \log A + \alpha_1 logFDIV + \alpha_2 logQOIL + \alpha_3 logBOP + \alpha_4 logCINFL + \alpha_5 logEXCR + \alpha_6 logGFCF_{t-1} + \alpha_7 logCAPFT + \alpha_8 logQOIL_{t-1} + \alpha_9 logOREV + \mu_t$ …….……..(3.23)

Where α_1…… α_n are the elasticities with *a priori* which are expected to have positive signs. (GFCE) is government final consumption expenditure; (PCE) is private consumption expenditure, (PCE_{t-1}) is previous year's private consumption; ($QOIL_{t-1}$) is previous year's output of oil and gas sector, (OREV) is oil revenue and (FDIV) is foreign direct investment. Also, (CAPX) is capital expenditure, (MD_2) is money demand, (EXCR) is exchange rate, (OREV) is oil revenue,(GREV) is the total federally collected revenue; (CAPFT) is capital flight. (GFCF) is gross fixed capital formation (QOIL) is oil and gas sector, (BOP) is balance of payments, ($GFCF_{t-1}$) is lagged gross fixed capital formation($QOIL_{t-1}$) is lagged output of the oil and gas sector, (LOANS) is total commercial bank loans and advances, (MRR) is minimum rediscount

rate, (MD_{2t-1}) is lagged money demand. $QTOTAL_2$ is total block production, while, QGFCE, QPCE, QCAPX, QGREV, QGFCF and $QMD_2$are sectoral expenditure on government final consumption expenditure, private consumption expenditure, capital expenditure, government revenue, gross fixed capital formation and money demand.

In equation 3.19, government final consumption expenditure (*gfce*) is determined by core inflation, oil revenue, exchange rate, output of industry or manufacturing sector and foreign direct investment. Private consumption expenditure (*pce*) is represented by equation 3.20, and is assumed to be determined by the output of oil and gas sector (*qoil*), core inflation (*cinfl*), previous year's private consumption or (pce_{t-1}), previous year's output of oil and gas sector or ($qoil_{t-1}$), oil revenue (*orev*), foreign direct investment (*fdiv*). Capital expenditure (*capx*) as represented in equation 3.21 is determined by exchange rate (*excr*), lagged core inflation ($cinfl_{t-1}$), oil revenue (*orev*) and foreign direct investment (*fdiv*). In equation 3.22, the total federally collected revenue (*grev*), is determined by oil revenue (*rev*), capital flight (*capft*), and foreign direct investment (*fdiv*). Also, equation 3.23 the specified gross fixed capital formation *gfcf*) is determined by output of oil and gas sector (*qoil*), balance of payments (*bop*), core inflation (*cinfl*), exchange rate (*excr*), lagged gross fixed capital formation ($gfcf_{t-1}$), capital flight (*capft*), lagged output of the oil and gas sector ($qoil_{t1}$), oil revenue o*rev*), foreign direct investment (*fdiv*).

3.4.3. Monetary and Price Block

Myriads of opinions exist on the importance of foreign direct investment (FDI) for economic growth. The standard view, however, appears to provide support for the existence of a close association between investment and economic prosperity. The standard approach to modeling money demand had, in recent times, come under strong criticisms due to perceived instability in the velocity of demand for money in an economy. Although the debate on money

demand in Nigeria was inconclusive, it was an acknowledged fact that currency outside banks was relatively high. Therefore, specifications in the monetary block in this work began with the money supply identity. An additional advantage of the supply approach was that the components were measurable and consistent with the CBN accounting system. The approach used the neo-classical identity of money supply as the sum of balance sheet of the banking system. The balance sheet consisted of net foreign assets, net domestic credit and other assets (net). Other assets (net) were assumed to be a residual in the money supply identity. Following the literature, the most pervasive determinant of the different components of money supply was money market interest rates. The size of government in Nigeria and the consequent relevance of fiscal deficits in the determination of money supply were also captured in the equations. Real demand for money balances function was specified as the mirror image of supply and the block was closed by equating both (CBN, 2010).

Also, prices in Nigeria were not entirely market determined and free of any intervention. Given the size and structure of the informal economy, a number of underground institutions interplayed to set wages and prices. Unions and associations, often by a combination of sanctions and incentives influenced the behaviour of their members and ultimately influenced the direction and magnitude of price changes. Public sector wage setting and intervention in price setting were also familiar phenomena. Consequently, prices were often sticky downwards. However, as in every market economy, the forces of demand and supply remained an integral part of price-setting in Nigeria and conventional laws of prices still obtained. As a result, the modeling approach adopted in the price block was structuralist. Price in the block comprised major price indices and deflators (consumer price index and output deflator), exchange rate and interest rates. Emphasis in the block was laid on proper linkages within other blocks and with the rest of the

model. Therefore, in this study, it is ensured that the demand for real money balance (MD) is equal to the money supply and positively related to the real GDP. Therefore a highly simplifying assumption of equating money supply (MS) with money demand (MD) is made. This is the rationale behind the specification below

$MS_t = MD_t$……....3.24

The total demand for money is disaggregated into demand deposit (DDPST) and currency held by non – banking public (CRHP), defined as

$MD_t = DDPST_t + CRHP_t$……3.25

Another variable that exerts so much influence on the demand for money is the public holding of government securities (PHGS). According to Keynes Liquidity Preference theory, it is inversely related to changes in the rate of interest. Also, in the prices segment of the block, the broad analytical framework of the monetary policy represents the linkage between the demands for money, interest rate, exchange rate and balance of payments, on one hand and the endogenisation of the foreign direct investment and prices provide the necessary linkage between production block, aggregate demand and monetary and prices block (see Garba, 1998).

Headline consumer price index captured the overall trend in prices of final demand products. Even though the National Bureau of Statistics splitted the index into food (non-core) and non-food (core) CPI, the two consumer price indices are aggregated in the model. This was because most policy analyses were based on the overall index, rather than individual components of the index. Given Nigeria's high import dependence and the probable exchange rate pass through, the exchange rate was considered an important variable in the determination of the headline consumer price index. The contribution of Government to GDP was relatively high and so was the impact of its expenditure on consumer prices. Activities of commercial banks in the setting of

the lending rate influenced money supply and liquidity and therefore consumer prices. A significant part of price changes in Nigeria was assumed to be the outcome of both demand pressure and supply constraints. Overall productivity in the economy generally fell short of aggregate demand and so was heavily complemented by imports. Such supply constraints manifested in the difference between potential and actual output. Demand pressure on the other hand, mounted with increased demand by agents – in private consumption and government expenditure. Of course, the impact of such pressure was fuelled by domestic money supply. Thus, headline CPDEX was specified as a function of nominal exchange rate (EXCR), domestic maximum lending rate (INTR), private consumption (PCE), output (GDP), total government expenditure (GEXP), and money supply (MD2).

$QTOTAL_3 = MD_2 + PHGS + EXCR + CPDEX$…….....3.26

$\log MD_2 = + \log A + \alpha_1 \log FDIV + \alpha_2 \log OREV + \log\alpha_3 EXCR + \log\alpha_4 GDP + \alpha_5 \log LOANS + \alpha_6 \log PHGS + \alpha_7 \log MRR + \mu_t$……..3.27

$\log PHGS = \log A + \alpha_1 \log FDIV + \alpha_2 \log GDEF + \alpha_3 \log FNRES + \alpha_4 \log MRG + \alpha_5 \log MKG + \mu_t$…….……..……3.28

$\text{LogCPDEX} = \log A + \alpha_1 \log FDIV + \alpha_2 \log INTR + \alpha_3 \log PCE + \alpha_4 \log GDP + \alpha_5 \log GEXP + \mu_t$…….…….…3.29

$\text{LogEXCR} = \log A + l\alpha_1 \text{ogFDIV} + \alpha_2 \log MD_2 + \alpha_3 \log GDP + \alpha_4 \log CPDEX + \alpha_5 \log OILP + \alpha_6 \log GEXP + \mu_t$…….……...3.30

Where (GDEF) is government deficit, (CRHP) is currency held by non-banking public; (PHGS) is public holding of government securities. The real exchange (EXCR), defined as ratio of the tradable goods prices is given as the ratio of export price (in local currency) to the domestic price level. (FNRES) is foreign exchange reserve, (GEXP) is total government expenditure, (OILP) is oil price, (CPDEX) is domestic price level which is related to the rate of inflation because it

shows the nature of the mark-up pricing and (INTR) is interest rate. The parameters are α_1.....α_N with a priori expectation that the entire variables will have positive signs.

3.4.4. External Sector Block

Within macroeconomic models, different techniques have been employed in the modeling of the external sector arising from theoretical underpinnings, accounting systems and definition of variables. In principle, the estimation of the external sector should reflect trade flows, services flows, transfers as well as direct and portfolio capital flows (Matlanyane, 2005). In Nigeria, exports were categorized into oil and non-oil exports. The former represented up to 95 percent of exports. While this presently helped the government to maintain a ready source of revenue, the aim of government was to restructure exports to give advantage and priority to non-oil exports. So even though non-oil exports still constituted a small proportion of total exports, it was nonetheless modeled. Oil exports depended on oil production and as in the supply block, production was in turn determined by quota allowances from OPEC. But in addition to these standard determinants of oil export, it was regularly acknowledged that since most of Nigeria's oil exports were to the OECD, output of those countries critically determined its oil exports. The majority of Nigeria's exports until recently went to the United States.

Modeling non-oil exports was a bit less straightforward. Nigeria's non-oil export items consisted mainly of natural resources and primary products from agriculture; industrial and processed commodities remained insignificant minority. An assumption made in this work was that non-oil exports depended on a supply constrained domestic non-oil production structure. Such factors as energy supply and domestic credit availability went a long way to determine exports of non-oil items. Since a significant proportion consisted of agricultural products, agricultural production mattered for overall non-oil exports. Changes in the exchange rate

impacted returns to exports and could create a positive incentive for exporting. So non-oil exports (EXPT) were determined by production in the agriculture sector, the nominal exchange rate (EXCR) and credit to the private sector (LOANS).

Imports constituted a significant share of inputs for both domestic production and final consumption. Import demand was traditionally a function of output and price. Income remained relevant whether in relation to imports of capital/intermediate products for further production or in relation to importation of products for final consumption. However, given that a number of importers relied on commercial bank loans and guarantees for their operating capital, the domestic lending rates became an important factor. Trade policy effects were captured using implicit tariff; in the present model though, the variable played an additional role in representing other prices. In addition to the exchange rate, it showed the prices of imports and defines capacity to pay for imported products. The stock of reserves was important in defining ability of the economy to fund imports. So on the whole, imports (IMPT) were determined by gross domestic product (GDP), nominal exchange rate (EXCHR), domestic maximum lending rate (INTR), implicit tariff rate (TRFF) and foreign reserves FNRES.

More so, the connections between productions block, aggregate demand and policy management block and monetary and price block ensures that the growth of the export and/ or import sector is accompanied by increase in investment, an increase in greater utilization or productive capacity, an increase in employment, economies of scale, and technological advancement (Tuluce and Ibrahim, 2014). These are the direct effects of export expansion and the rate of output growth. Again, foreign direct investment may be stimulated by the expansion of the export sector, since investment decisions take into consideration ability to provide necessary foreign exchange for importation of capital goods and raw materials for which there

are no convenient domestic substitutes. Therefore, greater export performance is assumed to be associated with better growth performance as argued by Lamine and Yang (2010). Export expansion according to him accelerates the rate of economic growth through its positive effect on investment, capacity utilization, employment and improvement in technology, while imports are assumed to be directly related to domestic credit level, gross domestic product, exchange rate and foreign reserve. Also, export function is broken down into oil and non– oil and in the model. The identities components are specified as follows:

NX = EXPT – IMPT……..……..……..……..…3.31

EXPT = XNOIL + XOIL …….……..…..3.32

IMPT = MKG + MRG + MMG ……..3.33

Where NX is net exports, EXPT is exports, IMPT is imports, XNOIL is non-oil exports, and XOIL is oil exports, MKG is import of capital goods, MRG is import of raw material, MMG is import of manufactured goods. Based on the above discussions, the sectoral output of the external sector,

$QTOTAL_4 = QIMPT + QEXPT + QMRG + XOIL$…….…(3.34)

$logIMPT = \log A + \alpha_1 logFDIV + \alpha_2 logQOIL + \alpha_3 logEXCR + \alpha_4 logFNRES + \alpha_5 logTRFF + \alpha_6 logBOP + \alpha_7 logGDP\ \mu_t$ …….……...(3.35)

$logEXPT = \log A + \alpha_1 logFDIV + \alpha_2 logQOIL + \alpha_3 logEXCR + \alpha_4 logGFCF + \alpha_5 log\ LOANS + \alpha_6 logBOP + \alpha_7 logGDP + \mu_t$ ….....(3.36)

$logMRG = \log A + \alpha_1 logFDIV + \alpha_2 logQOIL + \alpha_3 logCAPTL + \alpha_4 logEXCR + \alpha_5 logQIND_{t-1} + \alpha_6 logBOP + \mu_t$ ……...….(3.37)

$logXOIL = \log A + \alpha_1 log\ FDIV + \alpha_2 logGDP + \alpha_3 logGFCF + \alpha_4 logEXCR + \alpha_5 logBOP + \mu_t$ ……...…….……(3.38)

Where TRFF is tariff and all other variables are as previously defined.

The imports of capital goods (IMPT), imports (EXPT), and import of raw material (MRG), are individually and severally determined by output of oil and gas, output of the manufacturing sector, gross fixed capital formation, gross domestic product, capacity utilization, exchange rate, external reserves, balance of payments, foreign direct investment, lagged imports of raw materials, lagged imports of capital goods, and lagged imports of manufactured goods, etc. Lastly, in equation 3.38, export of crude oil and natural gas (XOIL) is determined by foreign direct investment, total gross domestic product, gross fixed capital formation, exchange rate, balance of payments. The α_1…….. α_N are the parameters with *a priori* expectation that they are all positive.

3.5. Estimation Technique

A model is said to be identified if it is in unique statistical form, enabling unique estimates of its parameters to be subsequently made from sample data. If a model is not identified, then the estimates of parameters of relationships between variables measured in samples may relate to the model in question, or to a mixture of models. Also, a function belonging to a system of simultaneous equations is identified if it has a unique statistical form, that is, if there no other equation in the system or formed by algebraic manipulation of the other equations in the system which contains the same variables as the function in question, the identification of a function depends on the variables absent from it, while at the same time being operative in the other function(s) of the model. A function can be identified by what variables it does not include (Koutsoyiannis, 1976). The deduction that can be made from the above discussion is that:

(a)The identification of a system boils down to the identification of each one of its equations;

(b) Identification of the parameters of any equation is established if we can prove that its statistical form is unique.

From the foregoing therefore, after a thorough consideration of the macro econometric model above, we assume that the model is over identified because each equation in the model is unique in their statistical form. Koutsoyiannis, 1976, recommends that when a model is over identified the proper technique or method of analysis to be used is two – stage least squares (2SLS), three – stage least squares (3SLS) or maximum likelihood methods. This study uses the three – stage least squares (3SLS). Therefore the stochastic equations of the model was estimated individually, block by block and as a complete system using Three – Stage (3SLS) method. The E-Views software was used both for estimating individual equations and for simulation experiments.

3.6. Theoretical Aspects of Simulation.

Ikhide (1988) assumed the following linear, non – stochastic dynamic system exists

$$\sum_{j=1}^{n} a_{ij} + \sum_{j=1}^{nn} b_{ij} XY_{jt-1} + \ldots + \sum_{j=1}^{m} z_{ij} Y_{jip} + \sum_{k-1} dik_{kt} = v_{i1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.39)$$

where i = 1, 2, 3 ….n; b_{ij}, c_{kj}, d_{ik}, are co-efficient of the variables Y_j and xk, and v_i represent constants. For a_{ij} = 1and i = j, this is equivalent to a system of n simultaneous equations with, in turn, each of $\mathbf{Y_1, Y_2, \ldots..,Y_n}$ as independent variable or regressand in the corresponding regression. If **n=m=p=2**; then the following set of two simultaneous equations will emerge,

$$\mathbf{Y_{1t} + a_{12} + b_{11}Y_{1t-1} + c_{12}Y_{2t-2} + d_{11}X_{1t} + d_{12}X_{2t} = v_1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.40)}$$

$$\mathbf{A_{21}Y_{1t} + Y_{2t} + b_{21}\,Y_{1t-1} + b_{22}Y_{2t-1} + c_{21}Y_{1t-1} + c_{22}Y_{2t-2} + d_{22}X_{2t} = v_2 \ldots\ldots\ldots\ldots\ldots\ldots (3.41)}$$

Coefficients of the variable Y and X as well as the constant $\mathbf{g_i}$ are either specified on *a priori* grounds, or they are least square estimates. Thus the set of regressors in an equation include contemporaneous endogenous variables, that is, any $\mathbf{Y_{it}}$, lagged values of these and endogenous variables indicated by **XK.** For actual values of all regressors each equation provides series of estimated values of all regressors and each equation provides series of estimated values of the

dependent variables. Ikhide therefore defined simulation as the solution of the ***n*** equation system for values of the endogenous variables over the period **t** to **t+r.** Put differently therefore, $\mathbf{Y_{it}}$, $\mathbf{Y_{it+2}}$, **…** $\mathbf{Y_{it+r}}$ using the values of the exogenous variables $\mathbf{XK_t}$, $\mathbf{XK_{t+1}}$, $\mathbf{XK_{t+2}}$**…**$\mathbf{XK_{t+r}}$ and the predetermined values of the endogenous variables determined prior to ***t*** or

$\mathbf{Y_{it-1}}$,$\mathbf{Y_{it-2}}$, $\mathbf{Y_{it-3}}$, **…** $\mathbf{Y_{it-p}}$ ……..….**(3.42)**

The later were taken as the starting point of simulation and are called the initial conditions. Given these two sets of variables, namely exogenous and predetermined variables as well as the estimated parameters, simulated values of Y_i over **t … t+r**can be traced as follows. The first-period computed values, $\mathbf{Y^s_{it}}$ are obtained from the system merely by using values of the exogenous variables for the first period and all the initial conditions. In the next period the computed values of the exogenous variables in period **t+1**are used to compute the next series of simulated values $\mathbf{Y^s_{it}}$, the first t-1 initial conditions and the given values of the exogenous variables in the period t+1 to compute the next series of simulated values $\mathbf{Y^s_{it+1}}$. We continue in the manner until **t+r** is reached, so that the initial conditions are eventually phased out and any past values of endogenous variables used are the simulated ones. Thus, a solution to the system is obtained through an iterative manner as demonstrated by Pindyck and Rubinfeld (1976).

Having obtained the solution to the system of non-linear dynamic equations, there are several methods which can be used to appraise the predictive performance of the simulation model. Some ofthe measures employed by Ikhide include the following:

The Root-Mean Square Error (RMSE) is defined as

$$\textit{RMS Error} = \frac{1}{T}\sum_{i=1} (Y^s_t - T^a t)^2 \quad \text{…….. (3.43)}$$

Where Y^s_t = simulated value, T^a_t = actual values, and T = time period. This is a measure of the deviation of the simulated variable from its actual time path. Here, the magnitude of the error is

compared with the average size of the variable in question. The RMS percent error (RMSPE) is defined as

$$RMSPE = \frac{1}{T}\sum_{i=1}^{T}\frac{(Y^s_t - T^a_t)^2}{T^a_t} \quad \text{.....(3.43)}$$

which is also a measure of the deviation of the simulated variable from its actual time path in percentage terms. The mean simulation error (MSE), defined as

$$MSE = \frac{1}{T}\sum_{i=1}^{T}(Y^s_t - T^a_t)^2 \quad \text{.....(3.44)}$$

The mean percentage error (MPE), defined as

$$MPE = \frac{1}{T}\sum_{i=1}^{T}\frac{(Y^s_t - T^a_t)^2}{Y^s_t} \quad \text{.....(3.45)}$$

What is required of these test statistics is that their values be as low as possible to provide evidence of good predictive ability of the model. Another good criterion for testing a simulation fit is to examine how well the model replicates turning points in historical data. It is possible for a simulation model to replicate the historical time series but fail to pick sharp turning points in the actual data. To test for this, the stimulated series is plotted against the actual series using the same scale. Also, an additional criterion for model performance is given by the overall sensitivity of the model to such factors as the initial period in which the simulation is begun. All the criteria enumerated above were employed by Ikhide (1988).

3.7. Simulation Experiments

The simulation experiments comprise of a baseline simulation and four experiments. The baseline simulations are designed to validate the model to ensure that it is suitable for the simulation experiments. The baseline simulation requires the solving of the model by using the

simple data. By solving the model and the generation of the equilibrium values for the endogenous variables of the model will suffice. In validating the model, the focus will be on the tracking powers of the model. Foreign Direct Investment is among other things a great stimulus to economic growth. The study conducted the following four sets of simulation experiments: 10%, 15%, 20% and 25% increase in foreign direct investment inflow into the Nigerian economy. It was observed that the average FDI/GDP rate of growth within the study period is 3%, World Bank (2014). The study discovers that immediately SAP was introduced in 1986, with its attendant reforms as it affected FDI, there was an increase of 2% in FDI flow to the country. When 2% is added to the 3% average, we get 5%. Consequently, since there was no official benchmark for FDI growth projection for the country, the 5% is adopted by the study as the base for simulation. But in order to get robust results, considering the fact that we are using 3SLS method, we have to use higher percentages, in multiples of 5%, for our scenario analysis. The choice of these scenarios is to allow for comparison of results. In other words, it is intended to find out if 10%, 15%, 20% or 25 % scenarios will reveals similar results. This will enable the study to conclude as to whether or not the relationship of the variables of the study converges over the ling-run.

3.8. Sources of Data

A research of this nature requires the analysis of secondary data for parametric analysis and other analytical reviews. In this regard some major sources of data used for this study are; Federal Ministry of Finance (FMOF), where the annual national budget were obtained; National Bureau of Statistics (NBS), where the consumer price index were obtained; the Central Bank of Nigeria (CBN), where the time series data for government revenue, capacity utilization, net exports, and so on were obtained; the International Monetary Fund (IMF), where international

capital movements were obtained; the World Bank, where international factor movements were obtained; the United Nations Conference on Trade and Development(World Investment Report UNCTAD-WIR), where the international net flow of FDI were obtained.

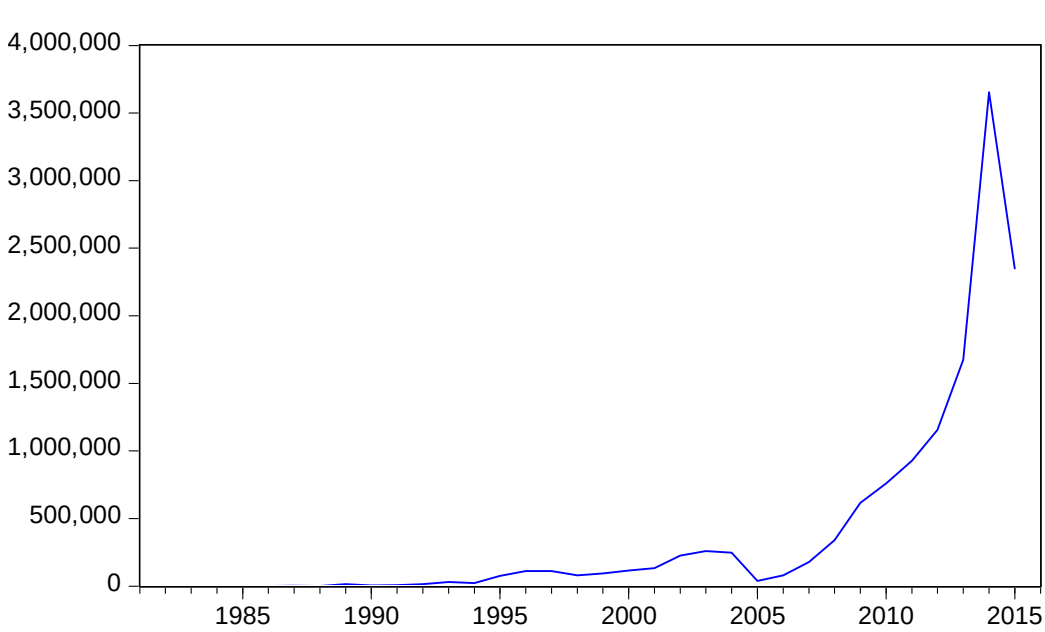
CHAPTER FOUR

4.0. RESULTS AND DISCUSSIONS

4.1. Trend and Structure of FDI in Nigeria.

4.1.1. Trend of FDI in Nigeria

Figure 4.1: Trend of Foreign direct investment (FDI) in Nigeria from 1981 to 2016



Source: Computed by the Author from the CBN's Statistical Bulletin, Various Issues.

Figure 4.1 shows the trend of FDI in Nigeria over the study period. The result indicates that FDI inflow to Nigeria was very low from 1980 to 1990 but rises marginally in 1995 and continues into 2005 without significant fluctuation. One factor that may account for low FDI in the 1980s and 1990s is military regimes of the periods and the indigenization policy introduced and sustained by them. Also, the non-democratic style of governance that characterizes military dispensation did not make the country an investment friendly economy. The military decrees and edicts could not be trusted as they could be changed anytime to suit the government even at the expense of the masses. For example, during Abacha's regime (1992-1997), fixed exchange rate

was maintained over a reasonable period despite the economic implication of the policy on FDI. As such, investors were scared of bringing their resources and money into Nigeria for investment. From the year 2005, FDI trended upward and increases sharply until the year 2015 when it, again, dropped drastically. The reason for the sharp increase could be attributed to the investment enabling environment created by the democratic government of President Olusegun Obasanjo and his successors, Presidents Umaru Musa Yar'adua and Good luck Jonathan. During President Olusegun Obasanjo for example, some enterprises, including telecommunication, were privatized and this attracted investors into the economy. In the mid 2015, FDI shows a downward trend by decreasing sharply. This was due partly to the drastic fall in the value of Nigeria's domestic currency relative to dollar and partly due to the economic recession Nigeria went through from late 2014 which affected many investors.

4.1.2. FDI Structure in Nigeria.

The structure of FDI in Nigeria as shown by table 4.1 is approached by looking at samples of multinational companies operating in the key sectors of the economy, country of origin, type of product and amount of FDI inflow. For example in mining and quarrying, Shell petroleum Plc and Chevron Ltd from USA, which are involved in exploration of crude oil are operating, while in manufacturing and processing sector, PZ Plc from UK and Coca cola Plc from USA are involved in the production of chemical products and beverages respectively. Again, in agriculture, forestry and fishing, Nestle Plc from Switzerland and Dizengoff Ltd from UK produce food, beverages and agricultural machinery. In transport and communication, Panalpina Ltd from Switzerland and MTN from South Africa Ltd are involved in providing air transport and telecommunication services.

Table 4.1. FDI Structure in Nigeria.

SECTOR OF THE ECONOMY	SELECTED FOREIGN COMPANIES	COUNTRY OF ORIGIN	PRODUCTS	SECTORAL FDI INFLOW (₦'M) TO NIGERIA: 1981 – 2016.
Mining & Quarrying	(1) Elf Petroleum Ltd	France	Petroleum	₦ 526 (1981)
	(2)Shell Petroleum Ltd	USA	Petroleum	₦1,868 (1991)
	(3) Agip Nig. PLC	Italy	Petroleum	₦61,611.9 (2001)
	(4) SINOPEC Ltd	China	Petroleum	₦658,171.1(2011)
	(5) Chevron Nig. Ltd.	USA	Petroleum	₦802,145.6(2014)
Manufacturing & Processing	(1)GlaxoSmithKline Ltd.	UK	Chemical Products	₦ 1,705.7 (1981)
	(2) Ashakem Ltd.	France	Metallic Products	₦8,692.4 (1991)
	(3) PZ Industries Ltd.	UK	Chemical Products Chemicals	₦37,779.6 (2001)
	(4)Unilever Nig. Plc.	Netherlands	Beverages	₦1,088,751.2 (2011)
	(5) Coca-Cola Plc.	USA		₦1,534,876.1 (2014)
Agriculture, Forestry & Fisheries.	(1) Araromi Estates	France	Forestry & Fishing	₦120.5 (1981)
	(2) Nestle Nig. Plc	Switzerland	Food & beverages	₦382.8 (1991)
	(3) Nampak Nig. Plc	USA	Wood products	₦1,209.0 (2001)
	(4)Reckitt Benckiser Ltd.	UK	Agric chemicals	₦167,527 (2011)
	(5)Dizengoff Nig. Ltd.	UK	Agric Machineries	₦123,987.6 (2014)
Transport & Communication	(1) Panalpina Ltd.	Switzerland	Air transport	₦608 (1981)
	(2) MTN Ltd.	South Africa	Telecom	₦373.2 (1991)
	(3) Etisalat Ltd.	Kuwait	Telecom	₦955.3 (2001)
	(4) Airtel	India	Telecom	₦814,026 (2011)
	(5) Huawei	China	Telecom	₦1,263,560.5 (2014)
Building & Construction	(1)Westminster Dredging Ltd.	Netherland	Construction	₦325.9 (1981)
	(2)Globestar Eng. Ltd.	Luxembourg	Construction	₦1,471.6 (1991)
	(3) Julius Berger Nig. Ltd.	Germany	Building & Construction	₦4,211.9 (2001)
	(4) CGC	China	Construction	₦23,193.3 (2011)
	(5)Trevi Foundation	Italy	Construction	₦25,870.9(2014)
Trading & Business Services	(1)John Holt Plc.	UK	Wholesale & Trade Retails	₦767.2 (1991)
	(2) Shoprite Ltd.	South Africa	Wholesale	₦1.452.2 (1991)
	(3) Siemens Ltd.	Germany	Holding	₦12,016.3 (2001)

	(4) CFAO Plc. (5) Kia Motors Ltd.	France South Korea	Automobiles sales.	₦86,688.5 (2011) ₦110,509.1(2014)
Financial Services	(1) First Brokers (2)Standard Chartered Bank (3) Stanbic/IBTC (4)Philips Consulting (5) ECOBANK	India South Africa South Africa UK Abidjan	Brokerage Banking Banking Consultancy Banking	N/A N/A N/A N/A N/A
Others	(1)Longman Nig. Ltd. (2) Thermo Cool Ltd. (3) PPC Nig. Ltd. (4) SEPCO Nig. Ltd. (5) Multi Choice	UK UK Netherlands China South Africa	Printing & Publishing Home Equipments Research & Development Power Broadcasting	₦251.8 (1981) ₦682.0 (1991) ₦43,657.6 (2001) ₦123,515 (2011) ₦148,679 (2014)

Sources: CBN, 2014, Daily Independent Newspaper (20th Feb, 2016)

Furthermore, building and construction sector, Julius Berger from Germany and CGC from China are involved in construction of road and bridges. John Holt from UK and Shoprite from South Africa are involved in wholesale and retail trade. Looking at the financial services sector, First Brokers from India and Standard Chartered Bank from South Africa provide brokerage and banking services. However, other multinational firms are engaged in general activities in the economy, two of them are, Longman Nig. Ltd from UK and Multi Choice Ltd from South Africa engages in publishing and broadcasting respectively.

4.2: Effects of FDI on Sectoral Output Growth in Nigeria

In analyzing FDI the effect on economic growth, the Nigerian economy was disaggregated four sectoral blocks representing different sectors of the economy: Aggregate production block, Aggregate demand and policy management block, Monetary and price block and the External sector block. Macroeconometric models were specified for each of the block. These models consisted of set of stochastic and identity equations. These equations were estimated using Three Stage Least Square (3SLS).

4.2.1: Effect of FDI on Aggregate Production Block

Table 4.2 shows the estimated results for the equations QAGR, QIND, QOIL, QBUILD, QRTAIL and QSERV of the aggregate production block. The second row of table 4.2 represents the estimated results for equation QAGR, third row for equation QIND, fourth row for equation QOIL, fifth row for equation QBUILD, sixth row for equation QRTAIL and seventh row for equation QSERV. The equations established a linear relationship between FDIV and the production sector unit of the Nigerian economy. The important variables used as proxies in the aggregate production sector are represented in the first row of table 4.2. The variables are foreign direct investment (FDIV), oil revenue (OILR), gross fixed capital formation (GFCF), capital expenditure (CAPX), capital flight (CAPF), import of raw materials (IMPR), imports of capital goods (IMPC), core inflation (CINF), capacity utilization (CAPU), and government final consumption expenditure (GFCE), rainfall (RNFL) and loans (LOANS). These variables are assumed to be the input variables that influence the system of equations in the estimated models.

The R-squares from the estimated results in table 4.2 show that all the equations representing subsectors of aggregate production, except building, have good fits. The R^2 value of 0.61 shows that over 61 percent of the variability in the output of agriculture (QAGR) is explained by the joint independent variables in the model. Similarly, the estimated R^2 for QIND, QOIL, QBUILD, QRTAIL and QSERV are 0.66, 0.53, 0.44, 0.60 and 0.72 respectively. What could be inferred from the result is that all the aggregate production subsectors, except building, included in the model are fairly robust. Furthermore, all the estimated Durbin-Watson values for the subsectors, except the service subsector, are within acceptable limit. They are closer to the value 2 than to the value 0, suggesting the absence of autocorrelation in the residuals of the estimated models.

4.2.1: Effect of FDI on Aggregate Production Block

Table 4.2: Estimated Result for Aggregate Production Block

Variable	FDIV	OILR	GFCF	CAPX	CIFN	IMPR	IMPC	PCE	GFCE	RNFL	LOAN	CAPU	R^2, R^{-2}, (D-W)
Ln QAGR	0.278* (2.34) [0.02]	0.213* (3.16) [0.002]	-0.008 (-0.100) [0.920]	0.1560* (2.7631) [0.0062]	---------	0.2020 (1.5435) [0.1242]	0.1829* (2.2820) [0.0235]	------	-------	0.281* (1.639) [0.052]	--------	--------	0.610, 0.610 (1.58)
ln QIND	0.281* (2.44) [0.02]	0.201* (3.04) [0.003]	---------	0.171* (3.017) [0.003]	--------	--------	-------	-------	0.100** (1.668) [0.097]	……	0.255* (5.007) [0.000]	-0.011 (0.611) [0.541]	0.660, 0.660 (1.89)
ln QOIL	0.209* (2.34) [0.02]	0.213* (3.16) [0.002]	-0.008 (-0.100) [0.920]	0.1560* (2.7631) [0.0062]		0.2020 (1.5435) [0.1242]	0.1829* (2.2820) [0.0235]	------	------	……	------	------	0.530, 0.520 (1.81)
ln QBULD	0.257* (2.19) [0.03]	--------	-0.012 (0.155) [0.879]	---------	--------	------	---------	0.020 (0.75) [0.46]	0.101** (1.695) [0.092]	……..	0.2403 (4.455) [0.000]	------	0.440, 440, (1.29)
ln QRTAL	0.217* 2.186 0.030]	------	-0.011 -0.134) [0.893]	------	-0.004 -0.02 [0.985]	------	------	0.020 (0.75) [0.46]	------	……	0.240* (4.455) [0.000]	------	0.600, 0.600 (1.29)
ln QSERV	0.238* (2.54) [0.023]	0.213* (3.16) [0.002]	-0.008 (-0.100) [0.920]	0.1560* (2.7631) [0.0062]	------	0.2020 (1.5435) [0.1242	0.1829* (2.2820) [0.0235	------	------	…….	------	------	0.720, 0.723, (1.88)

Source: E-Views Econometrics Computer Software Application (Version 9)

Note:

** means significant at 5 %*

***means significant at 10 %*

Figures in parenthesis ( ) are t-values while figures in square bracket [ ] are probability values

The estimated coefficients of the variables FDIV in table 4.2 are also impressive as they satisfy the a priori expectations. All the coefficients of FDIV for all the subsectors have positive signs suggesting that foreign direct investment affects the aggregate production sector of the Nigerian economy positively. A one per cent increase in FDIV in the agricultural sector increases the elasticity of output of agriculture by about 28 per cent and the estimate is statistically significant at 5 per cent. The implication of this is that the attraction of FDI to that sub sector will boost agricultural production and subsequently employment and government revenue. This is not surprising given that FDIV flow to the agricultural sector within the period of study has been increasing, for example as shown in table 4.3 below, in 1981,about₦120.5 million flowed to the sector, while in 1990, over ₦334 million worth of FDI flowed to the sector, also, in 2010, the FDI flow had increased to ₦45,432.4 billion and in 2015, over ₦80 billion flowed to the agricultural sector. Despite this level of FDI inflow agriculture is still at subsistence level due to the neglect of the sector by the government in favour of oil and gas. However, this finding disagrees with Adegbemi (2012) whose study reveals that foreign direct investment in the agricultural sector is negatively related to the output of agriculture and explained further that the introduction of foreign goods and tastes has often led to the abandonment of local farming thereby deteriorating the output of agriculture.

TABLE 4.3: SECTORAL FDI INFLOW TO NIGERIA: 1981 – 2015 (M ₦).

YEAR	AGRIC	INDUSTRY	MINNING & QUARRYING	BUILDING & CONST.	TRANSP. & COMM.	RETAIL	SERVICES
1981	120.5	1,705.7	526.0	325.9	60.8	767.2	251.8
1985	126.0	2,280.1	744.0	453.2	85.9	2,697.9	418.9
1990	334.7	6,339.0	1,091.6	473.6	240.5	1,710.4	23.7
1995	1,209.0	27,668.8	56,747.3	1,553.0	374.8	2,990.7	28,848.0
2000	1,209.0	37,333.6	60,710.9	3,995.9	820.3	11,201.3	42,237.6
2005	1,209.0	133,894.5	80,789.4	6,713.3	5,565.5	26,315.1	69,642.6
2010	45,432.4	534,453.5	170,355.3	19,500.2	11,383.3	75,670.7	150,100.9
2015	80,399.9	1,001,590.5	174,608.2	23,422.1	61,086.8	112,555.0	146,222.0

Source: CBN Statistical Bulletin, Various Issues.

The result in table 4.2 also shows that FDIV to industrial sector is positively related to the output of industrial sector and statistically significant at 5 per cent. A one per cent increase in FDIV to the sector increases the elasticity of output of industry by about 28 per cent. This result supports the existing data on inflow of FDI to industrial sector in Nigeria as shown in table 4.3 below; for example the flow of FDI to sector in 1981 was over 1.70 billion, in 1990, over ₦6.33 billion flowed to the sector, while in 2000, over ₦37.33 billion worth of FDI flowed to the sector. In the year 2010, the flow of FDI to industry was over ₦534 billion and by 2015the FDI inflow to the sector was over ₦1trillion. The positive impact of FDIV on industry corroborates Uxanda and Muraru (2010). This is because industrial sector is less volatile and as such, foreign investors prefer to invest their resources more in industries than other sectors of an economy. However, the finding does not share the same fate with the study by Ford, Sen and Wei (2010) in China. These authors found that depreciating domestic currency would always raise the price of import goods, thereby rendering FDI less attractive to those industries that would require imported raw materials or components of final products.

With respect to the outputs of oil (QOIL), FDIV is positive and significantly related at 5 per cent. It has a coefficient value of (0.208) which indicates that a percentage increase in foreign investment in the oil sector would yield an increase of about 21 per cent in the output of oil sector. This result is supported by data in table 4.3 above, which shows the flow of FDI to the mining sector of which oil and gas dominates; in 1981, the flow of FDI to the sector was ₦526 million, while in 1990, ₦1.1 billion worth of FDI flowed to the sector, by the year 2000 the flow had increased to ₦60.7billion, in 2010, the flow of FDI was ₦170 billion and by 2015, it was about ₦175billion.The upstream segment of the oil and gas sector including crude, petroleum, natural gas and oil refining is dominated by foreign multinational companies. As De Gregorio (2003) observes, FDI may allow a country to bring in technologies and knowledge that are not readily available to domestic investors and in this way increase productivity growth in the economy.

Furthermore, output of building, output retail and output of services increase by about 26 per cent, 22 per cent and 24 per cent respectively following a 1 per cent increase in FDIV in building subsector, in retail subsector and services subsector of the Nigerian economy. The estimates are statistically significant at 5 per cent. These results support the raw data of FDI flow to these sectors as shown in table 4.3 above. The FDI flow to these subsectors in 1981, are: ₦325, ₦767 and ₦251 million to building and construction, retail and services respectively. Also in 1990, the FDI flows to these subsectors are: ₦473 million, ₦1.7 billion and ₦23 million respectively. By the end of the year 2000, these subsectors attracted FDI worth of₦3.9,₦11.2 and ₦42.2 billion respectively and by the year 2010, the flow of FDI to the subsectors are ₦19.5, ₦75.6 and ₦150.1 billion respectively. These findings are in tandem with Todaro (1994) who notes that the primary factors which stimulate economic growth are investments that improve the

quality of existing physical and human resources in infrastructures such as building and in services that increase the quantity of these same productive resources. The author adds that FDI raises the productivity of all or specific resources through invention, innovation and technological progress and as such contribute to the growth rates of macroeconomic variables.

4.2.2: Effect of FDI on Aggregate Demand and Policy Management Block

Table 4.4 shows the estimated results for the equations QGFCE, QPCE, QCAPX, QGREV and GFCF of the aggregate demand and policy management block. The important variables used as proxies in the block are represented in the first row of table 4.4. The variables are foreign direct investment (FDIV), government final consumption expenditure (GFCE), oil revenue (OILR), capital expenditure (CAPX), money demand (MD_2) exchange rate (EXCR), capital expenditure (CAPX), total federally collected revenue (GREV), gross fixed capital formation (GFCF) output of industry (QIND) and balance of payments (BOP). The results show that there exist positive and significant relationships between FDIV and all the economic growth proxies used as dependent variables in the system of equation for aggregate demand and policy management block. A one per cent increases in FDIV increases the elasticity of government final consumption expenditure (GFCE) by about 28 units and that of personal consumption expenditure (PCE) by about 32 units. The result is consistent with the actual figures as shown in table 4.5 above, in 1981, ₦11.5 and ₦254.3 million worth of FDI flowed to GFCE and PCE respectively. Again, in the year 1990, the value of FDI inflow to the two variables are ₦13.9 and₦177.2 million respectively, and in 2000, it increased to ₦16.6 and ₦225.7 million respectively. Both variables had increased flow in 2010 and 2015 respectively; as the inflow in 2015 was ₦289.3 and ₦264.2 respectively.

4.2.2: Effect of FDI on Aggregate Demand and Policy Management Block

Table 4.4: Estimated Result for Aggregate Demand and Policy Management Block

Variables	FDIV	CINF	OILR	FREX	QIND	EXCR	CAPX	MD2	EXCR	GREV	BOP	R^2, R^{-2} (D-W)
lnGFCE	0.282* (2.44) [0.02]	-0.029 (0.154) [0.877]	0.2012* (3.034) [0.002]	0.158 (1.091) [0.277]	0.030** (1.773) [0.086]	-------	--------	------	-------	--------	--------	0.530, 0.530 (2.19)
lnPCE	0.322* (2.828) [0.016]	0.429* (2.256) [0.027]	0.302* (3.138) [0.002]	0.171* (3.017) [0.003]	--------	--------	0.171* (3.017) [0.009]	-------	0.169 (0.832) [0.406]	--------	--------	0.742, 0.743 (2.15)
lnCAPX	0.212* (2.115) [0.016]	0.024 (0.154) [0.877]	0.201* (3.035) [0.003]	--------- -	-------	0.169 (0.832) [0.406]	0.1829* (2.2820) [0.0235]	0.211* (10.30) [0.000]	------	0.199* (3.500) [0.000]	------	0.62, 0.620, (1.81)
lnGREV	0.400* (2.299) [0.023]	0.0347 (0.173) [0.863]	0.234* (3.111) [0.002]	---------	--------	0.071 (0.431) [0.667]	---------				------	0.660, 0.660 (2.41)
lnGFCF	0.260* (2.280) [0.024]	-0.016 (0.086) [0.932]			-0.004 -0.02 [0.985]	0.170 (0.865) [0.388]	------	0.020 (0.75) [0.46]	------	0.240* (4.455) [0.000]	0.181 (0.648) [0.518]	0.530, 0.530 (1.94)

Source: E-Views Econometrics Computer Software Application (Version 9)

Note:

** means significant at 5 %*

***means significant at 10 %*

Figures in parenthesis ( ) are t-values while figures in square bracket

TABLE 4.5: SECTORAL FDI INFLOW TO NIGERIA: 1981 – 2015 (M ₦).

YEAR	GFCE	PCE	CAPX	GREV	GFCF
1981	11,550.03	254,390.84	6,567.00	13,290.5	133,217.52
1985	12,629.86	209,872.14	5,564.70	15,050.40	40,934.55
1990	13,977.39	177,234.63	24,048.60	98,102.40	28,937.12
1995	15,156.99	201,972.20	70,918.30	459,987.30	40,404.28
2000	16,674.46	225,754.20	498,027.60	1,106,159.70	35,325.93
2005	86,735.03	436,267.79	351,300.00	5,547,500.00	44,443.72
2010	258,070.99	471,793.01	1,152,796.50	7,303,671.55	120,273.64
2015	289,342.45	264,234.45	890,876.76	7,456,567.23	116,678.96

Source: CBN Statistical Bulletin, Various Issues.

These findings are consistent with the Keynesian claim that increase in consumption expenditure, all other things being equal, will translate into higher national income and hence, economic growth. This is because consumption is a key component of aggregate demand and when it increases; it indicates increase in aggregate demand, then aggregate supply (in less than full employment economy) and finally economic growth.

Furthermore a unit increase in FDIV increases the elasticities of capital expenditure (CAPX), total federally collected revenue (GREV), gross fixed capital formation (GFCF) by about 21 units, 40 units and 26 units respectively. All the estimates are statistically significant at 5 per cent. Table 4.5 above confirms the results as CAPX, GREV and GFCF have FDI flows of ₦6.5, 13.2 and 133.2 million respectively in 1981, while the inflow increased in 1990 to ₦24.0, ₦98.1, ₦28.9 million respectively. In the year, 2000, FDI flow to these variables further increased to ₦498.0 million ₦1.1 trillion ₦35.3 million respectively. By the year 2010, the flow of FDI to the variables was ₦1.1 trillion, ₦7.3 trillion ₦120.1 million. These are as expected. This is due to the facilitating role of government by repealing the indigenization decree, giving incentives in terms of tax holidays to new investors like MTN and progressive liberalization of

the economy in period under study. This result is in conformity with the work of Akanbi and Du Toit (2010).The R-squares from the estimated results in table 4.5 show that the entire model has good fits as a very significant proportion of variations in the dependent variables have been explained by the combined effect of the independent variables in the models. Furthermore, all the estimated the Durbin-Watson values for the subsectors are within acceptable limit. They are closer to the value 2 than to the value 0, suggesting the absence of autocorrelation in the residuals of the estimated model.

4.2.3: Effect FDI on Monetary and Price Block

Table 4.6 shows the estimated results for the equations MD2, PHGS, CINF and EXCR of the monetary and price block. FDIV included as independent variable was highly significant for all the estimated equations and was positively signed. This is as expected. The results show that a one per cent increase in FDIV increases the elasticity of broad money supply (MD2) by about 29 per cent. An increase in money supply is expected to stimulate the economy especially during recession. This is in consensus with Aliyu (2014).Table 4.7 below show the performance of the broad money supply during the period of study and it confirm the results of the estimation. MD2 increases steadily throughout the period under consideration. For example, in 1981, 1990, 2000, 2010 and 2015, it was ₦16.1 million, ₦68.2 million, ₦1 trillion, ₦11.1 trillion and ₦14.9 trillion respectively.

PHGS, CIFN and EXCR have elasticities of 31 per cent, 27 per cent and 37 per cent respectively and all the estimates are highly statistically significant. These results conform to the *a priori* expectation. The flow of FDI in Table 4.7 supports this result as the following values of the variables are obtained ₦6.1 million, 21.42. 0.61 in 1981 for PHGS, CIFN and EXCR respectively. Also, in 1990, the following values are obtained, ₦48.8 million, 7.5 and 8.03

respectively. In the year 2000, these values are obtained for the variables, ₦513 million, 36.1 102.1 respectively. By the year 2015, ₦3.9 trillion, 12.5, 257.4 are recorded for the variables respectively. This suggests that that FDIV flows to Nigeria led to an increase in the economic activity in the country. The increase in economic activities results from the combined effect of FDIV stimulus on public holding of government securities (PHGS), core inflation (CINF) and real exchange rate (EXCR) on the economy. For example, an increase in PHGS means that there is cash money available to government to be expended on the economy. The Keynesians claimed that increase in government spending will boost aggregate demand and increase the level of economic activities in the country.

Table 4.6: Estimated Result for Monetary and Price Block

Variables	FDIV	CINF	OILR	EXCR	GDP	INTR	PHGS	IMPR	GDEF	FREX	IMPC	R^2, R^{-2}, {D-W}
LnMD2	0.282* (2.44) [0.02]	-------	0.2012* (3.034) [0.002]	0.169 (0.832) [0.406]	0.040* (3.410) [0.0008]	0.021 (0.539) [0.590]	0.196** (1.770) [0.078]	0.22** (1.737) [0.084]	-------	--------	--------	0.560, 0.555, {1.09}
LnPHGS	0.309* (3.912) [0.000]	-------	------	--------	--------	--------	0.171* (3.017) [0.009]	0.225** (1.908) [0.058]	0.204 (0.553) [0.581]	0.012 (0.063) [0.949]	0.173** (1.662) [0.099]	0.513, 0.513 {2.14}
LnCIFN	0.272* (3.368) [0.001]			--------- -	0.027* (3.062) [0.003]	0.309* (5.096) [0.000]	0.1829* (2.2820) [0.0235]	0.211* (10.30) [0.000]	0.201 (0.571) [0.569]	0.199* (3.500) [0.000]	------	0.582, 0.582 {3.13}
LnEXCR	0.368* (5.550) [0.000]	0.308 (1.044) [0.300]	0.083 (1.295) [0.199]	---------	0.059* (0.005) [0.000]		--------		0.250 (0.818) [0.416]		0.181* (2.049) [0.044]	0.561 0.561, {2.58}

Source: E-Views Econometrics Computer Software Application (Version 9)

Note:

** means significant at 5 %*

***means significant at 10 %*

Figures in parenthesis ( ) are t-values while figures in square bracket

TABLE 4.7: SECTORAL FDI INFLOW TO NIGERIA: 1981 – 2015 (M ₦).

YEAR	MD2	PHGS	CINF	EXCR
1981	16,161.70	6,131.90	21.42	0.61
1985	26,277.60	11,598.10	4.67	0.89
1990	68,622.50	48,878.40	7.5	8.03
1995	318,763.50	438,481.30	72.81	21.88
2000	1,036,079.50	513,003.40	36.1	102.1
2005	2,814,846.10	188,298.08	8.8	132.1
2010	11,116,900.00	664,994.08	13.7	150.3
2015	14,980,234.43	3,900,786.46	12.5	257.4

Source: CBN Statistical Bulletin, Various Issues.

Similarly, low CINF increases the level of economic activities because it encourages the producer to produce more output. Theoretically, inflation is undesirable but certain level of it should be allowed in an economy. After all the classical economists argued that a zero per cent inflation will mean that a 100 per cent unemployment since they believed in the existence of a trade-off between the two. Furthermore, the behaviour of real exchange rate (EXCR) in an economy determines the level of economic activities in the country. When EXCR appreciates, the value of domestic currency is strengthened. This increases the inflow more foreign investment into the economy, but in recent years the opposite has been the case in Nigeria as shown in table 4.7 above. The R-squares from the estimated results in table 4.6 show that the entire model has good fits. Furthermore, all the estimated the Durbin-Watson values for the subsectors are within acceptable limit. They are closer to the value 2 than to the value 0, suggesting the absence of autocorrelation in the residuals of the estimated model.

4.2.4: Effect of FDI on External Sector Block

Table 4.8 shows the estimated results for the equations QIMPT, QEXPT, IMPR and QOIL of the external sector block. FDIV has positive impact on imports (IMPT), exports (EXPT), imports of raw materials (IMPR) and oil exports (XOIL). Also, all the estimates are highly statistically significant. A unit increase in FDIV increases the elasticity of IMPT by about 26 per cent. This result confirms the data on the performance of imports within the period under investigation as shown in table 4.9 below; in 1981, the value of import was ₦12.8 billion, while in 1990, it increased to ₦45.7 billion, and in the year 2000 it was ₦985 billion. By the year 2010, it further increased to ₦10.9 trillion, however, in 2015, it reduced to ₦6.5 billion. There was steady increase in the value of imports to the economy within the period of study.

However, this does not satisfy *a priori* expectation. An increase in FDIV is expected to decrease imports and accelerates exports. Excessive dependent on imports could hamper the progress of an economy as it may suggest selling domestic labour abroad. However, the finding corroborates Babatunde (2013).

4.2.4. Effects of FDI on External Sector Block

Table 4.8: Estimated Result for External Sector Block

Variables	FDIV	QOIL	EXCR	FEXR	BOP	GDP	GFCF	CAPU	R^2, R^{-2}, {D-W}
LnIMPT	0.260* (2.280) [0.024]	0.155* (12.59) [0.000]	0.1702 (0.866) [0.388]	0.146 (1.033) [0.303]	0.181* (6.048) [0.000]	0.035* (2.977) [0.003]	0.22** (1.737) [0.084]	--------	0.550, 0.550 {1.09}
LnEXPT	0.252* (2.186) [0.003]	0.013 (1.082) [0.281]	0.175 (0.866) [0.387]	--------	0.393* (2.104) [0.023]	0.036* (2.897 [0.004	- 0.110 (0.136) [0.892]		0.886, 0.886 {2.33}
LnIMPR	0.260* (2.280) [0.024]	0.115* (9.402) [0.000]	0.170 (0.866) [0.388]	-------- --	0.181 (0.648) [0.518]	-------	---------	0.102* (6.08) [0.000]	0.520, 0.519 {2.78}
LnXOIL	0.258* (2.186) [0.030]		0.175 (0.866) [0.388]	-------- -	0.284* (1.639) [0.052]	0.035* (2.89) [0.002	- 0.110 (0.136) [0.892]		0.577, 0.577, {2.19}

Source: E-Views Econometrics Computer Software Application (Version 9)

Note:

** means significant at 5 %*

***means significant at 10 %*

Figures in parenthesis ( ) are t-values while figures in square bracket [ ] are probability values

TABLE 4.9: SECTORAL FDI INFLOW TO NIGERIA: 1981 – 2015 (M ₦).

YEAR	IMPT	EXPT	IMPR	XOIL
1981	12,800	11,000	218.9	10,650.80
1985	7,100	11,700	350.5	11,223.70
1990	45,700	109,000	1,417.20	106,626.50
1995	755,100	950,700	5,046,.50	927,565.30
2000	985,000	1,945,700	38,808.70	1,920,500.20
2005	2,800,900	7,246,500	101,970.40	7,140,578.90
2010	10,995,900	12,011,500	77,181.11	11,136,167.80
2015	6,245,271.58	7,545,371.30	234,800.89	10,456,786.34

Source: CBN Statistical Bulletin, Various Issues.

A unit increase in FDIV increases elasticity of EXPT by about 25 per cent while a unit increases and that of IMPR and XOIL by about 26 per cent and 26 per cent respectively. The values of these variables as recorded in table 4.9 confirm these results. For example, in 1981, the values of these variables are ₦11 billion, ₦218.9 million and ₦10.6 billion respectively. Again, in the year 1990, the values of the variables are ₦109 billion, ₦1.7billion and ₦106.6 billion respectively. Also, in the year 2000, the values of EXPT, IMPR and XOIL are as follows,₦950.7 billion, ₦101.7 billion, ₦7.1 trillion respectively, and in 2010, the values increase to ₦12 billion, ₦77 million,₦11.1 trillion respectively. In 2015, the values are as follows, ₦7.5 trillion, ₦234.8 million and ₦10.4 trillion respectively.

These results conform to the *a priori* expectation. Also, the R-squares from the estimated results in table 4.8 show that the entire model has good fits. All the estimated the Durbin-Watson values for the subsectors are within acceptable limit. They are closer to the value 2 than to the value 0, suggesting the absence of autocorrelation in the residuals of the estimated model.

4.3. Effects of FDI on Aggregate Output Growth in Nigeria.

Since the empirical result suggested that the models have good fit, explanatory powers and satisfactory parameters, we subsequently conducted both baseline and scenario simulation experiments with a view to ascertaining the relevance and validity of our estimated models and evaluate the effects of FDI on aggregate output in Nigeria which forms one of our objectives. The simulation experiments consist of four scenarios; 10%, 15%, 20% and 25% increase in the inflow of foreign direct investment to Nigeria between 1981 and 2016.

4.3.1. Baseline Simulation

In order to validate the performance of our models, we considered the size of the Root Mean Square Error (RMSE) as suggested by Ikhide (1988). Theoretically, on average, the difference between the predicted and the actual values of the explanatory variables should be very small, and in our study it is less than 2%. Another step is to consider the closeness of the graphs of both the simulated and historical data of all the explanatory variables in the model within the study period. Specifically, if simulated or predicted values of explanatory variables of the model are able to closely track the historical data very well during the period of study, then the model performance is said to be very satisfactory, or otherwise it is not.

Figure 4.2: Graphs of the Stochastic Dynamic Baseline Simulation Experiments

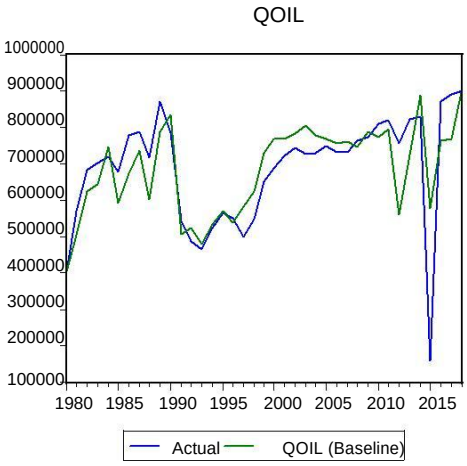


Fig 4.1 oil output

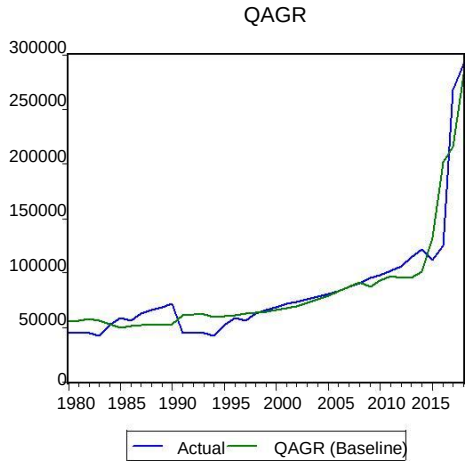


Fig 4.2 output of agriculture

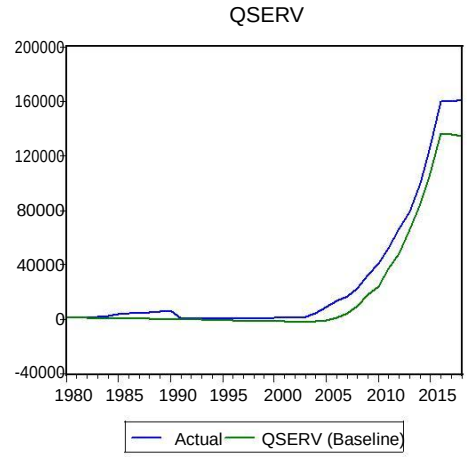


Fig. 4.3 output of service

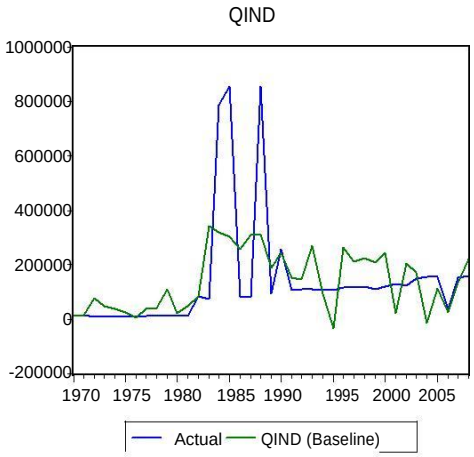


Fig. 4.4 output of industry

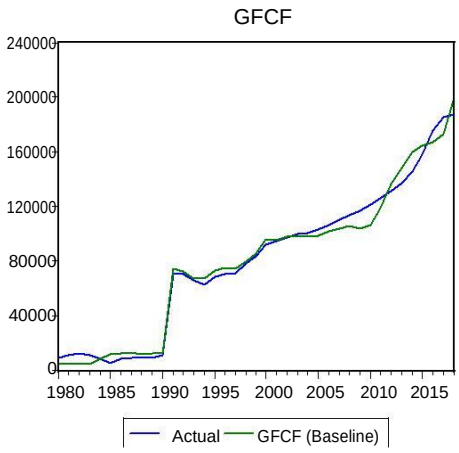


Fig. 4.5 gross fixed capital formation

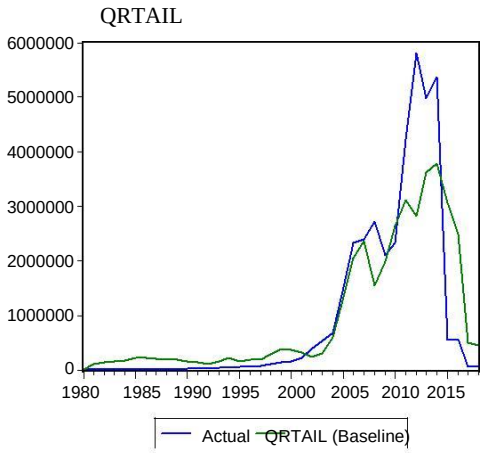


Fig. 4.5 output of retail

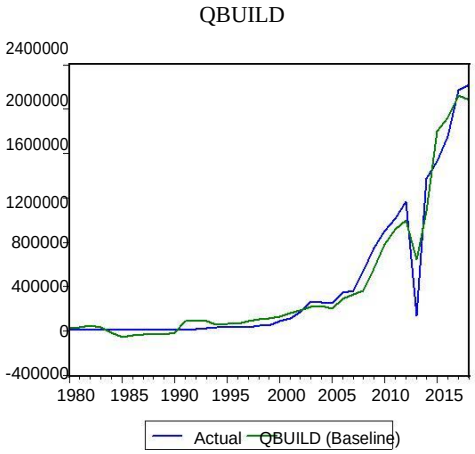


Fig. 4.7 Output of Building

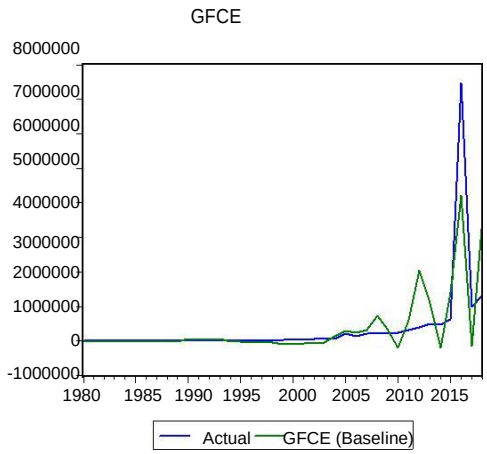


Fig. 4.8 government final consumption expenditures

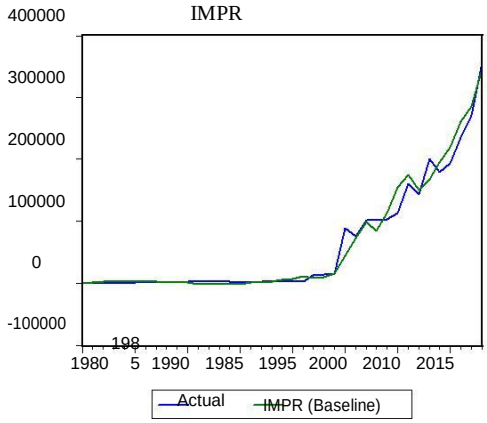


Fig. 4.9 import capital goods

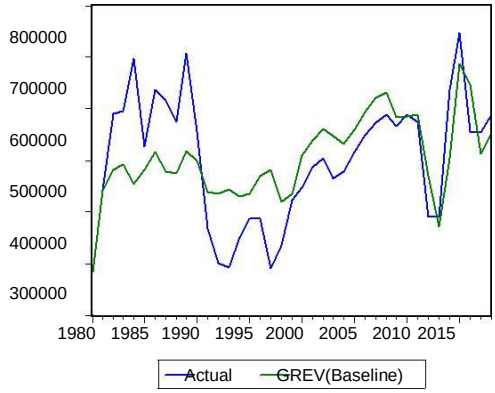


fig. 4.10 government revenue

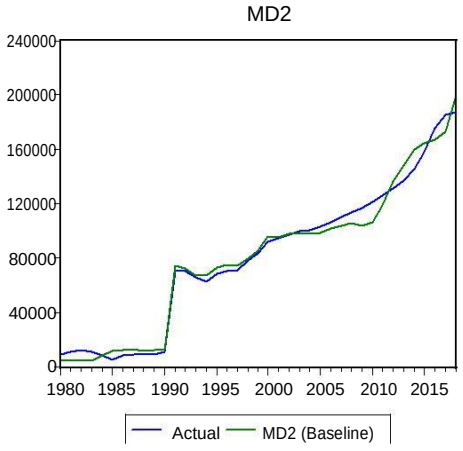


Fig. 4. 11 Demand for money

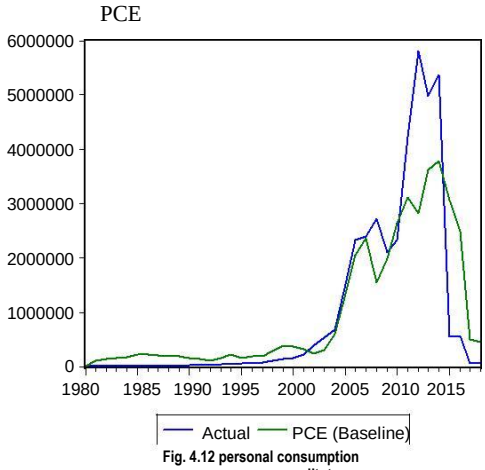


Fig. 4.12 personal consumption expenditutures

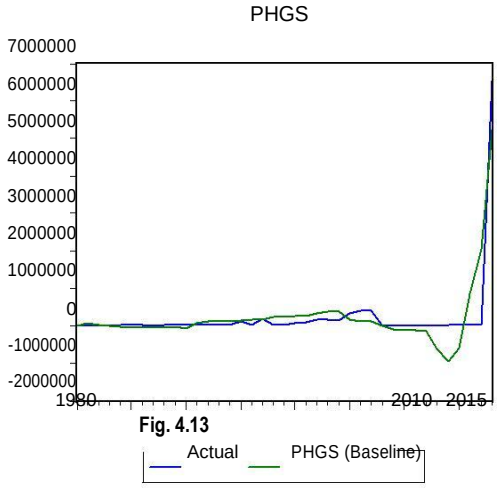


Fig. 4.13

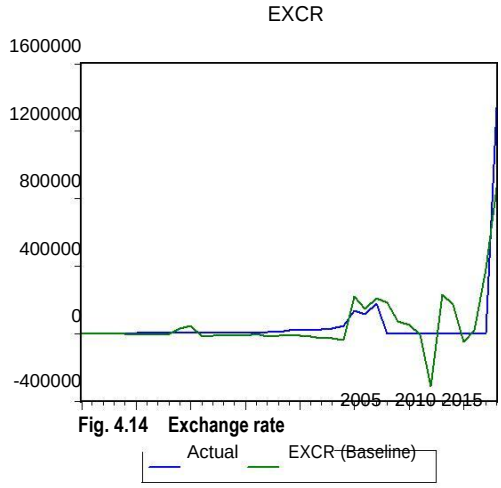


Fig. 4.14 Exchange rate

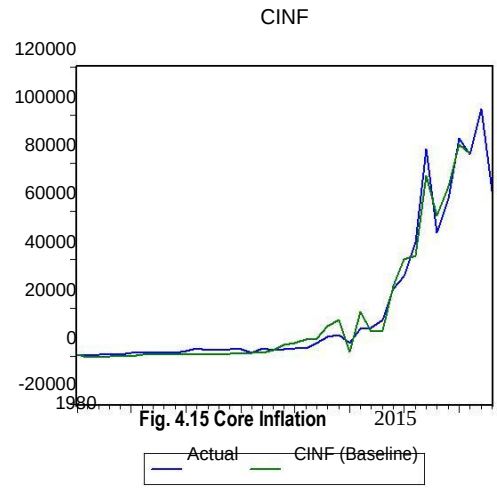


Fig. 4.15 Core Inflation

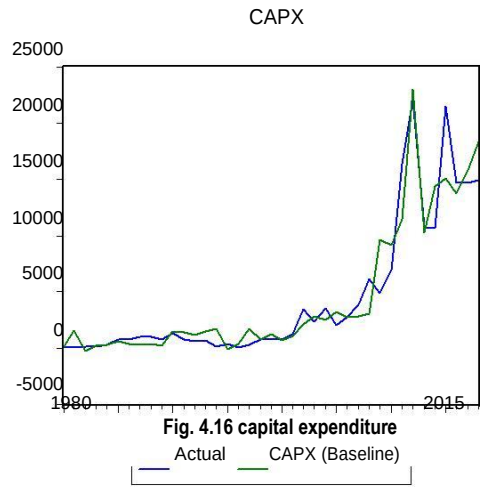


Fig. 4.16 capital expenditure

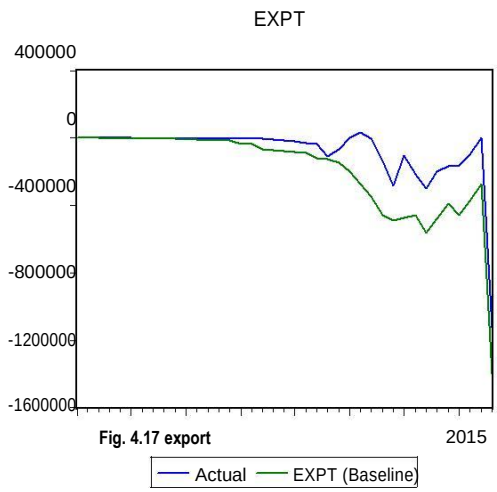


Fig. 4.17 export

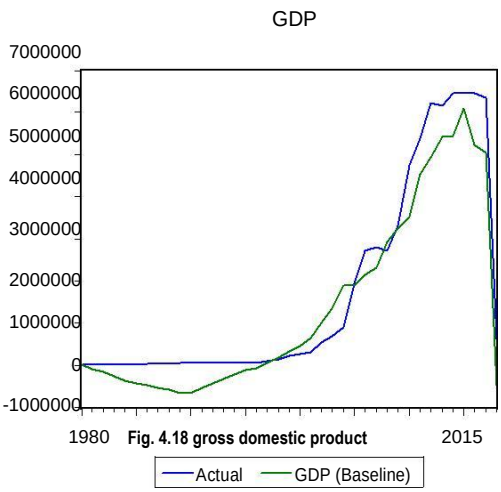
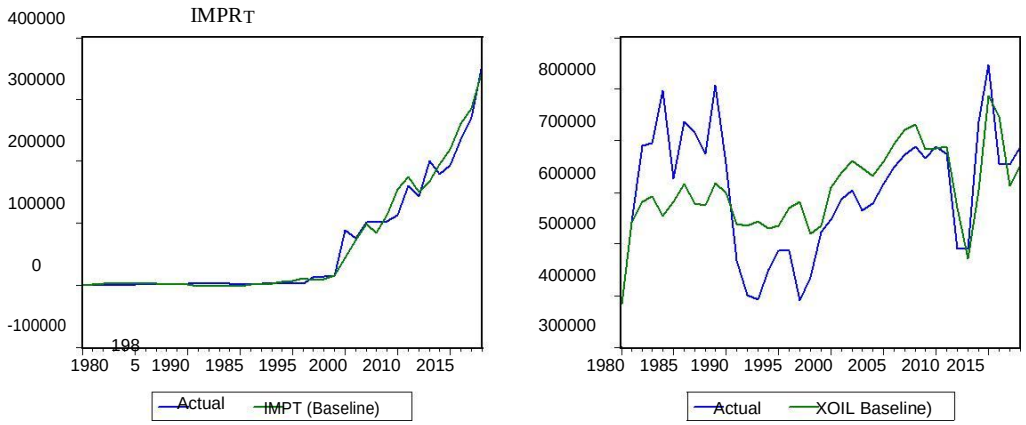


Fig. 4.18 gross domestic product

XOIL



The figures 4.1 - 4.20 above show the graph of simulation experiment for the endogenous variables included in the experiment. The horizontal axis represents the time period and the vertical axis indicates the number of deviation of each variable from baseline value. The baseline solution explains the equilibrium path of the structural blocks (aggregate production, aggregate demand and policy management, monetary and prices and external sector) to be consistent with those economic and foreign direct investment policies and structure of the model.

Figure 4.1 – 4.20 represents the baseline simulated values for the endogenous variables of the models. The series of graphs reveal that as a one-step ahead predictor, the model performed quite well. The ability of the model to predict output of oil (QOIL), agricultural output (QAGR), gross fixed capital formation (GFCF) and retail (QRTAIL) in figure 4.1, 4.2, 4.5, and 4.6 respectively tracked consistently throughout the sample period. This was clearly demonstrated by the closeness of dynamic actual to the baseline simulation.

Similarly, output of service (QSERV) in figure 4.3, industry (QIND) in figure 4.4, government revenue (GREV) in figure 4.10, capital expenditures (CAPX) in figure 4.16, import of raw materials (IMPR) in 4.9 and export (EXPT) in figure 4.17 reveal a good tracking power.

However, the ability of output of retail (QRTAIL) and import (IMPT) to track their historical data closely was not adequate as it diminishes and appreciates at various points. However, this result does not reduce the good predictive power of the model and as such is particularly a very convincing forecast for the endogenous variables.

The baseline simulation for the gross domestic product in figure 4.18 and oil exports in figure 4.20 demonstrated a good tracking power of the actual from the baseline simulation. The nature of the oscillation suggests a good tracking power of the model. On the whole, the graphs have shown that the models have good tracking powers, that is, the actual values are close to their baseline simulation which is an indication of the ability of the model to forecast and replicate most of the critical turning points of the historical data.

4.3.2. Simulation Experiment

Although the result of 3SLS shown in tables 4.2 to table 4.5 reveal that a 1 per cent increase in FDI increases the various proxies for sectoral growth of the economy in Nigeria, but if we suppose that FDI increases by say 10%, 15%, 20% or 25 % what would have been the performance of the aggregate output of the Nigerian economy? In order to examine this phenomenon, this study conducts a simulation experiment of 10%, 15%, 20% and 25% increase in FDI. In this regard FDI variable is the exogenous variable that introduces shocks on the macroeconomic endogenous variables considered.

An increase in FDI in Nigeria can results from favouarble investment conditions such as low inflation, low cost of borrowings and less volatility in exchange rate. The need for increased FDI may result from inability of total domestic investment to meet the country's economic growth requirements. In this study, the high scenarios experiment was used for simulation. This is on the basis that FDI has been on the increase over the years especially after the introduction

of SAP in 1986 by the Babangida administration; the FDI/GDP growth jumped to 5% from less than 3% (Computed from CBN, Statistical Bulletin Various Issues). The scenario experiment that was conducted in this study is on *ex post* simulation of the effect of a 10%, 15%, 20% and 25% increase in FDI in Nigeria. The result is shown in table 4.6:

Table 4.10: Results of Simulation Experiments of Impact of 10%, 15%, 20% and 25% Increase in Foreign Direct Investment

Endogenous variables	**Baseline Solution**	**10% and 15% increase in FDI Inflow**		**20% and 25% increase in FDI Inflow**	
		Scenario one 10 %	**Scenario two 15 %**	**Scenario three 20 %**	**Scenario four 25 %**
QAGR	1.98	0.41	0.21	1.51	0.31
QIND	1.20	0.09	0.25	0.23	0.27
QOIL	-0.03	-0.17	-0.31	0.21	-0.22
QBUILD	0.04	0.08	0.09	0.18	0.11
QRTAIL	0.12	0.02	0.08	0.19	0.22
QSERV	0.43	0.47	0.13	0.21	0.14
GFCE	0.45	0.18	0.12	-0.30	0.15
PCE	-0.13	-0.39	-0.41	-0.47	-0.31
CAPX	0.34	-0.32	-0.11	-0.33	-0.44
GREV	0.89	0.16	0.12	0.29	0.16
GFCF	0.11	0.40	0.18	0.33	0.17
MD2	0.41	0.33	0.36	0.26	0.27
PHGS	-0.22	-0.18	-0.19	0.11	0.21
CIFN	-0.18	-0.19	-0.16	-0.14	-0.19
EXCR	-0.27	-0.03	-0.14	-0.24	-0.18
IMPT	-0.15	-0.28	-0.22	-0.13	-0.33
EXPT	0.42	0.35	0.17	0.28	0.22
IMPR	-0.61	-0.13	-0.17	0.12	-0.06
XOIL	0.58	0.49	0.51	-0.32	0.54
GDP	0.17	1.55	1.43	1.32	1.56

Source: E-Views Econometrics Computer Software Application (Version 9)

4.3.2.1. Effect of 10% and 15% increase in FDI on Aggregate Output in Nigeria.

Table 4.10 presents the values of the dynamic baseline simulation and the different percentage estimations for scenario solutions. Form table 4.6 above, the simulation result for the 10%, 15% increases in the exogenous FDIV show interesting behaviours of the endogenous

macroeconomic variables used in the experiment. The result of the experiment shows that some endogenous variables have positive values while others have negative values. The values of output of agriculture (QAGR) for 10% and 15% increase in FDIV show that the impact of the exogenous FDIV is significant and positive on QAGR. Increase in FDIV by 10% will increase the performance of output of agriculture (QAGR) by 41%, while a 15% increase in FDIV will lead to an increase of 21% in the production of QAGR. This result conforms to the earlier sectoral result of aggregate production block estimates reported in table 4.2. Furthermore, a positive relationship also exists between FDIV and other exogenous variables (QIND, QBUILD, QRTAIL, QSERV, GFCE, GREV, GFCF, MD2, EXPT, XOIL and GDP). For example, a 10% increase in FDIV will increases QIND by 9% while a 15% increase in FDIV will increase QIND by about 25%. More so, QBUILD, QRTAIL, QSERV, GFCE, GREV, GFCF, MD2, EXPT, XOIL and GDP will increases by 8%, 2%, 47%, 18%, 16%, 40%, 33%, 35%, 49% and 155% respectively following a 10 per cent increase in FDIV. Whereas, for 15% increase in FDIV, there will be 9%, 8%, 13%, 12%, 12%, 18%, 36%, 17%, 51% and 143% increases in QBUILD, QRTAIL, QSERV, GFCE, GREV, GFCF, MD2, EXPT, XOIL and GDP respectively. What could be inferred from the result is that both scenario one experiment at 10% and scenario two have similar positions for all the variables considered. In other word, estimates which are positive for scenario one experiment are also positive for scenario two experiments.

4.3.2.2. Effect of 20% and 25% increase in FDI on Aggregate Output in Nigeria.

The result of simulation experiment for 20% and 25% increase in the exogenous FDIV in Nigeria is shown in Table 4.5. The baseline simulation was compared with the scenario three and scenario four. The result reveals that a 20% increase in FDIV will positively impact on the endogenous variables of QAGR (151%), QIND (23%), QOIL (21%), QBUILD (18%), QRTAIL

(0.19%), QSERV (21%), GREV (29%), GFCF (33%), MD2 (26%), PHGS (11%), EXPT (28%), IMPT (12%) and GDP (132%). However, the result of the 20% increase in FDIV shows some negative impacts on the endogenous variables of GFCE (-30%), PCE (-47%), CAPX (-33%), CIFN (-14%), EXCR (-24%), IMPT (-13%) and XOIL (-32%). The negative results of these variables indicates that increasing the flow of FDI alone to the economy without increasing efforts towards infrastructural development especially in the area of power supply, road construction, tackling the problems of insecurity, balance of payment and exchange rate problems, etc would be counterproductive. The implication is that the positive flow of FDI into the economy alone will not guarantee economic growth without efforts also to create positive environment for the growth of other factors that influence it. This agrees with the Classical theory's diminishing marginal productivity, which states that if there is constant increase in a variable input without an increase in other associated inputs, then diminishing returns will set in.

The 25% increase in FDIV reveals that QAGR (31%), QIND (27%), QBUILD (11%), QRTAIL (22%), QSERV (14%), GFCE (15%), GREV (16%), GFCF (17%), MD2 (27%), PHGS (21%), EXPT (22%), XOIL (54%) and GDP (156%) are significant and positive whereas, QOIL (-22%), PCE (-31%), CAPX (-44%), CIFN (-19%), EXCR (-18%), IMPT (-33%) and IMPR (-6%) indicates significant and negative effect of the25% increase in exogenous FDIV. What could be inferred from the result is that foreign direct investments' relationships with the different sectors are different. Whereas, FDI is negatively related to the oil sector, it is positively related to the agricultural sector, the industrial sector, building, and services, implying that it contributes positively to the growth of the aggregate output in Nigeria over the study period.

Findings from this study reveals that, although, FDI affects the different sectors of the economy investigated differently, however, in term of signs of the estimated coefficients, it

shows positive impact on all the sectors of the economy. This suggests that foreign direct investment contributes positively to the sectoral growth in output of the Nigeria economy over the period of study. The result of trend analysis shows that FDI inflow to Nigeria trend was inconsistent within the sample period. While the trend was low in the 1980s and 1990s during military regimes in Nigeria, it was high in the 2000s and 2010s, but drops sharply in the mid 2015. Factors such as drastic fall in the value of Nigeria's domestic currency relative to dollar and economic policies of the government such as direct intervention in the foreign exchange market in which forces of demand and supply are no longer allowed to work feely whereby the CBN was rationing it among buyers. Also, two regimes were allowed in which one was official and the other parallel; this gave room for corruption as government officials can purchase from official market and resell at parallel market, making huge profit. Many investors considered these too harsh and may be responsible for the sharp decrease in FDI in 2015 and 2016.This finding agrees with Chatterjee, (2009), Abiola (2003), Imoughele and Ismaila (2014) but disagrees with Makki and Somwani (2000).

The result of 3SLS shows that FDI affects the different sectors of the economy investigated differently. This is a confirmation of inter connectivity across the sectors. The various economic blocks and sectors are linked as consequence of externalities and spill-over effects of the FDI on the economy. However, FDI shows a positive impact on all the sectors of the economy, suggesting that foreign direct investment contributes positively to the different sectors of the economy under study. The positive impact of FDI as witnessed in the result is consistent for economic growth rate and some macroeconomic variables in the 3SLS. In other word, an increase in FDI will lead to increases in the output of agriculture (QAGR), output of industry (QIND) and output of oil (QOIL), among others. The result of 3SLS also indicates that

the effect of FDI on the output of these sectors is highly significant. This result disagrees with Adegbemi (2012) who found that FDI distorts economic growth but agrees with quite a number of studies including Aregbeyen & Ibrahim (2016).

The result of effect of exogenous FDI on growth of aggregate output in Nigeria, the results of the stochastic endogenous variables showed some positive and negative values for the scenarios simulation solutions. In essence, 10%, 15%, 20% and 25% increase in FDI produce similar effects on macroeconomic endogenous variables. From the series of simulation analysis obtains from this study, which is majorly positive and significant; it is obvious that increase in FDI is necessary and required for the growth of the aggregate output of the Nigerian economy. This result is consistent with the earlier result of 3SLS regression model. On this basis, the third null hypothesis (v) that there are no significant effects of FDI on the aggregate output of the Nigerian economy over the period of study is rejected and the alternatives is accepted. Therefore, the third research question is said to have been answered and the third specific objective of the study achieved.

CHAPTER FIVE

5.0. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary

This study assesses the effects of foreign direct investment (FDI) on the economy of Nigeria using three stages least square (3SLS) regression. The choice of 3SLS is to overcome the shortcoming of the OLS method of analysis. The use of 3SLS regression allows one to overcome problems usually encountered when using OLS such as constancy of error terms across a distribution, sensitivity to extreme outliers, and loss of information about the tails.

Results from the study shows that FDI has significant and positive impact on the various sectors of the economy in Nigeria. This is evident in the estimated results for all the structural blocks considered in the study. For aggregate production block, all the coefficients of FDI for all the subsectors have positive signs suggesting that foreign direct investment impacts positively on production sector of the Nigerian economy. A one per cent increase in FDI in the agricultural sector increases the elasticity of output of agriculture by about 28 per cent and the estimate is statistically significant at 5 per cent.

Also, the results of aggregate demand and policy management block show that there exist positive and significant relationships between FDI and all the economic growth proxies used as dependent variables in the system. A one per cent increases in FDI increases the elasticity of government final consumption expenditure (GFCE) by about 28 units and that of personal consumption expenditure (PCE) by about 32 units. This findings are consistent with the Keynesian claim that increase in consumption expenditure, all other things being equal, will translate into higher national income and hence, economic growth. Similar results are found for both monetary and price block and external block sectors. The result of simulation experiments

shows some positive and negative values for the scenarios simulation solutions, which in essence confirms that FDI has positive and significant effect on the aggregate output of the Nigerian economy. In essence, a 10%, 15%, 20% and 25% increase in FDI produce similar effect as those of FDI on macroeconomic endogenous variables (sectoral outputs).

5.2. Conclusions

The effects of foreign direct investment (FDI) on economic growth of the host country have been long debated in the literature. One major focus of the debate has been whether or not FDI has the potentials to contribute to the economic growth of the host country. While the proponent of modernization approach see FDI as capable of accelerating economic growth, the dependency theorists argued that FDI may hamper short-term economic growth and will eventually generate and accelerate internal distortions that will ultimately depress or retard host country's economic growth.

This study makes contribution to this ongoing debate by examining the effect of foreign direct investment on the economy in Nigeria. Based on the findings of this study, conclusions are that FDI has the potentials of contributing significantly to economic growth in Nigeria. This is supported by both the results of 3SLS at sectoral level and simulation experiments at aggregate level. Generally, the result shows that a 10%, 15%, 20% and 25% increase in FDIV will have an increasing effect on output of agriculture, output of industry, output retail output of services and other sectors investigated. This outcome is a pointer to the relevance of the modernization view on FDI, that it is capable of accelerating economic growth if properly used by the host country.

However, FDI alone cannot lead to economic growth without influences of other macroeconomic variables such as gross fixed capital formation (GFCF), exports of oil (XOIL)

and government expenditure, among others. In the light of the above, attention should be paid by policy makers on policies that can make Nigeria harness the economic gains of FDI.

5.3. Recommendations

Given the finding of the study, the following recommendations are made:

(i) The inflow of FDI to Nigeria will not make much impact on the Nigerian economy if it is used to finance consumption expenditures. FDI should be used in financing capital projects such good road networks, rail lines across the country and stable power supply in the country. This will reduce the fixed and the overhead costs of doing business in Nigeria and increase profitability of business firms in the country. The multiplier effect of good road networks, rail lines across the country and stable power is that they translate into economic growth of the country.

(ii) It is imperative to frame policies that will eliminate the barriers to capital flows: such policies as floating exchange rate, discouragement of double taxation; for gross fixed capital formation, policies such as massive construction and repairs of depreciated infrastructure, recapitalizing the mortgage institutions to grant loans to individuals and the private sector for construction of houses for the citizens and lower tariff for import of capital goods that are essential for the revitalization of dilapidated machines for abandoned industries like textile firms in Kaduna, Ajaokuta steel firm in Kogi State and the Aluminion firm in Oku-Iboku, Cross River State, as these subsectors have positive relationship with economic growth. These, in addition would be effective in boosting and increasing the FDI; when FDI increases, employment, income, and output would promote the long-term growth of the Nigerian economy.

(iii) Part of the findings of the study is the fact that increased inflow of FDI without simultaneous increase in the factors that influence it would lead to diminishing marginal productivity, hence

the negative signs of coefficients some endogenous variables. To overcome these, there is the need to remove all kinds of impediments that make returns on investment uncertain in Nigeria. These impediments include inadequate power supply, exchange rate volatility, insecurity, corruption, poor infrastructure, unstable regulatory environment and unreliable dispute resolution mechanisms. When all these are removed, foreign investors will be more willing to invest in Nigeria and this will increase FDI inflows and lead to economic growth in the country.

5.4. Suggestions for Further Study

Generally, the main objective of foreign direct investment is to act as a catalyst for economic growth through its various interventions at the different sectors of the economy. This dissertation has however focused on the effect of FDI on economic growth in Nigeria. It is therefore suggested that future researches should focus on the impact of foreign direct investment on telecommunications and power sectors which is unfolding presently in Nigeria.

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Appendix

Appendix I: Raw Data of Macro-economic Variables in Nigeria, 1981 – 2016.

YEAR	QAGRIC	QIND	QOIL	QBUILD	QRETAIL	QSERVICES
1981	84,428.61	14,076.58	73,170.47	7,099.20	35,577.64	34,501.70
1982	86,494.21	15,902.93	65,486.11	5,662.28	37,116.46	33,841.41
1983	85,283.57	10,987.60	59,572.60	4,991.86	36,208.60	31,634.91
1984	80,978.77	9,701.57	66,997.15	4,069.50	33,405.66	30,653.82
1985	96,783.86	12,234.72	72,312.78	2,803.39	34,725.54	33,345.49
1986	106,676.27	11,777.06	70,871.85	2,799.12	35,947.19	29,276.82
1987	102,759.74	12,245.98	69,133.77	3,059.60	38,201.33	30,142.99
1988	113,497.68	13,944.52	70,973.70	3,371.32	41,675.09	31,452.42
1989	119,486.25	14,245.90	79,498.89	3,511.54	43,342.10	34,506.46
1990	131,230.59	16,121.22	90,088.54	3,670.20	47,105.98	39,639.71
1991	129,605.80	16,534.19	91,500.42	3,834.60	46,070.93	40,734.65
1992	132,699.20	15,619.59	93,797.12	3,984.14	47,499.11	43,117.70
1993	135,185.18	15,039.70	93,991.09	4,183.34	48,924.07	44,606.51
1994	138,753.57	14,840.67	91,565.67	4,308.84	48,933.58	46,188.57
1995	143,706.30	14,071.75	93,726.27	4,425.18	48,967.86	47,100.34
1996	149,512.02	14,191.38	100,450.29	4,478.28	49,384.07	48,564.67
1997	155,934.80	14,248.62	101,924.86	5,564.90	50,124.81	50,138.79
1998	162,248.76	13,275.66	104,110.04	4,650.79	51,628.57	51,385.21
1999	170,813.88	13,732.03	96,324.38	5,242.71	52,919.28	58,278.16
2000	175,876.60	14,204.73	107,020.82	5,452.42	53,765.99	55,175.19
2001	182,660.00	15,191.30	112,980.11	6,106.72	55,110.13	59,166.28
2002	190,369.10	16,723.71	106,520.47	6,371.97	58,682.62	55,455.38
2003	203,012.61	17,669.80	131,904.18	6,929.51	62,062.74	72,751.55
2004	216,208.46	19,436.78	136,295.05	7,622.47	68,082.83	79,175.44

2005	231,463.61	21,305.05	137,032.31	8,544.22	77,283.07	85,478.81
2006	248,598.96	23,305.87	130,949.17	9,754.79	89,035.21	93,327.28
2007	266,477.18	25,535.50	125,116.89	12,712.57	102,616.11	102,528.38
2008	283,175.43	27,806.76	117,509.51	12,338.82	117,002.89	113,165.81
2009	299,823.86	29,990.92	118,099.89	13,816.34	130,438.75	125,411.87
2010	317,281.65	32,260.63	124,318.64	15,454.02	145,074.31	140,333.77
2011	335,180.07	34,680.54	124,560.49	17,325.57	161,519.91	154,857.27
2012	348,490.80	37,300.44	123,502.11	19,504.63	177,049.69	135,862.62
2013	314,709.10	14,642.76	113,750.73	22,700.57	167,287.99	145,129.34
2014	318,018.61	18,402.19	119,616.19	23,188.8	155,704.13	133,729.86
2015	334,587.67	35,567.34	123,786.34	14,897.55	180,567.91	129,298.54
2016	258,567.23	19,346.45	108,765.16	11,675.99	156,978.22	101,453.44

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, Various Issues.

Appendix I: Raw Data of Macro-economic Variables in Nigeria, 1981 – 2016.

YEAR	FORDINV	OILREV	QGFCF	QCAPEXP	CAPFLIGHT	MRG
1981	334.7	8,564.40	133,217.52	6,567.00	1,350.30	218.9
1982	290	7,814.90	103,313.02	6,417.20	1,500.50	207.2
1983	264.3	7,253.00	67,751.34	4,885.70	1,980.80	277.6
1984	360.4	8,269.20	43,363.02	4,100.10	2,100.10	300.1
1985	434.1	10,923.70	40,934.55	5,464.70	2,570.70	350.5
1986	735.8	8,107.30	35,536.21	8,526.80	4,502.40	193.9
1987	2,457.80	19,027.00	27,159.19	6,372.50	15,124.00	799.6
1988	1,718.20	19,831.70	28,937.12	8,340.10	17,433.00	591.5
1989	13,877.40	39,130.50	28,937.12	15,034.10	20,320.00	1,080.70
1990	4,686.00	71,887.10	40,121.31	24,048.60	32,320.00	1,417.20
1991	6,916.10	82,666.40	39,968.52	28,340.90	33,018.40	1,566.40
1992	14,463.10	164,078.10	38,771.57	39,763.30	104,915.40	3,939.60
1993	29,660.30	162,102.40	44,973.00	54,501.80	47,707.10	1,328.80
1994	22,229.20	160,192.40	40,404.28	70,918.30	51,335.70	5,046.50
1995	75,940.60	324,547.60	29,820.29	121,138.30	188,206.70	31,715.40
1996	111,290.90	408,783.00	35,216.28	212,138.30	260,688.20	26,443.50
1997	110,457.70	416,811.10	38,329.17	269,651.70	255,173.50	38,084.60
1998	80,749.00	324,311.20	36,390.66	309,015.60	185,370.10	37,683.90
1999	92,792.50	724,422.50	35,325.93	498,027.60	222,853.40	38,808.70
2000	115,952.20	1,591,675.80	41,342.64	239,450.90	100,755.50	44,296.60
2001	132,433.70	1,707,562.80	6,331.64	438,696.50	95,070.20	62,454.30

2002	225,224.80	1,230,851.20	7,936.78	321,378.10	164,795.10	75,763.30
2003	258,388.60	2,074,280.60	12,991.61	241,688.30	182,026.00	105,211.60
2004	248,224.60	3,354,800.00	44,443.72	351,300.00	229,190.90	101,970.40
2005	39,347.58	4,762,400.00	39,795.29	519,500.00	2,034,621.00	165,250.50
2006	80,102.05	5,287,566.90	63,428.72	552,385.80	2,158,875.20	185,402.65
2007	177,712.37	4,462,910.00	89,896.86	759,323.00	177,024.80	230,805.22
2008	339,975.1	6,530,600.10	89,244.50	1,123,458.00	45,881.70	285,439.14
2009	616,013.82	3,191,937.98	120,273.64	1,152,796.50	49,027.60	77,181.11
2010	759,476.60	5,396,100.05	142,316.45	883,874.50	37,568.90	104,313.91
2011	928,188.74	8,879,000.00	126,942.84	918,500.00	35,417.20	582,799.71
2012	1,155,886.18	8,025,953.48	101,699.74	874,800.00	24,784.30	103,419.12
2013	1,392,004.10	7,006,809.23	115,301.84	1,301,108.39	27,811.10	220,520.23
2014	1,113,043.40	6,300,793.12	121,506.33	1,100,783.12	32,125.50	316,115.56
2015	2,345,806.12	4,456,786.89	138,678.96	890,876.76	52,234.78	234.800.89
2016	1,345,765.12	2,564,987.54	112,400.12	694,675.98	64,765.21	113,765.33

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, Various Issues.

Appendix I: Raw Data of Macro-economic Variables of Nigeria, 1981 – 2016.

YEAR	MKG	COREINF	CAPUTIL	MMG	CAPIFORM	GFCE
1981	5,668.10	21.42	73.3	2,590.70	1,299.00	11,550.03
1982	4,569.90	7.16	63.6	2,287.00	968.3	11,819.74
1983	3,213.40	23.22	49.7	2,006.10	1,026.50	12,089.45
1984	2,568.10	40.41	43	1,354.20	237.6	12,359.15
1985	2,414.40	4.67	38.3	1,611.80	1,154.00	12,628.86
1986	2,277.80	5.39	38.8	1,237.10	655.4	12,898.57
1987	6,827.70	10.18	40.4	4,484.90	619.1	13,168.27
1988	8,900.60	56.04	42.4	4,547.40	1,726.00	13,437.98
1989	12,362.70	50.47	43.8	6,541.40	1,844.80	13,707.69
1990	18,515.80	7.5	40.3	10,240.80	2,096	13,977.39
1991	17,926.20	12.7	42	51,951.10	1,491.70	14,125.49
1992	62,158.30	44.81	38.1	35,310.60	2,132.60	14,531.80
1993	74,579.10	57.17	37.2	42,023.40	3,575.30	14,952.43
1994	46,232.00	57.03	30.4	40,046.00	4,994.40	15,165.86
1995	206,905.00	72.81	29.29	175,944.80	9,215.60	15,156.99
1996	129,404.10	15.8	32.46	156,410.20	8,656.20	15,595.63
1997	202,964.90	5.6	30.4	246,963.60	6,902.00	15,865.34
1998	195,956.00	14.7	32.4	248,713.40	23,365.00	16,135.05
1999	204,392.30	1.4	34.6	253,550.00	17,253.50	16,404.75
2000	234,075.80	22.7	36.1	289,261.30	27,965.20	16,674.46

2001	327,206.70	6	42.7	406,734.10	53,336.00	14,660.42
2002	378,826.50	12.5	54.9	473,478.80	32,467.30	15,507.66
2003	498,815.90	27.5	56.5	650,365.20	55,736.00	11,797.26
2004	458,917.10	15.5	55.7	584,645.40	30,032.50	78,515.30
2005	613,387.50	8.8	54.8	899,074.90	71,361.20	86,735.03
2006	680,765.76	12.8	53.3	1,004,051.80	78,681.30	117,745.35
2007	856,717.67	5.4	53.38	1,263,560.77	150,895.20	184,622.28
2008	1,141,756.57	11.6	53.84	1,712,634.87	152,174.60	228,961.37
2009	2,359,345.40	12.5	55.53	1,224,134.85	120,696.90	230,618.04
2010	3,762,610.95	13.7	56.22	1,616,764.75	147,409.50	258,070.99
2011	3,219,250.43	10.8	50.85	1,223,562.74	91,900.00	276,962.52
2012	2,217,192.24	12.2	54.12	1,172,908.59	97,400.00	242,000.95
2013	2,226,010.60	8	53.82	1,213,402.76	100,506.34	251,234.78
2014	2,433,543.20	8.1	52.16	1,123,308.89	115,000.45	245,786.76
2015	2,198,345.56	12.5	49.34	980,567.89	102,345.82	289,342.45
2016	1,780,765.34	16.5	44.82	832,452.66	96,876.55	250,432.67

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, Various Issues.

Appendix I: Raw Data of Macro-economic Variables of Nigeria, 1981 – 2016.

YEAR	PCE	GOVTREV	MD2	FOREXRES	EXCHR	BOP
1981	254,390.84	13,290.50	16,161.70	2,441.60	0.61	3,020.80
1982	240,691.19	11,433.70	18,093.60	1,043.30	0.67	1,398.30
1983	209,987.38	10,508.70	20,879.10	224.4	0.72	301.3
1984	193,701.17	11,253.30	23,370.00	710.1	76.49	354.9
1985	209,872.14	15,050.40	26,277.60	1,657.90	0.89	349.5
1986	170,797.50	12,595.80	27,389.80	2,836.60	2.02	4,099.10
1987	134,696.91	25,380.60	33,667.40	7,504.59	4.01	17,964.80
1988	149,944.77	27,596.60	45,446.90	5,229.10	4.53	20,795.00
1989	144,529.21	53,870.40	47,055.00	3,047.62	7.39	22,993.50
1990	177,234.63	98,102.40	68,622.50	4,541.45	8.03	5,761.90
1991	182,791.11	100,991.60	87,449.80	4,149.30	9.9	15,796.60
1992	203,357.14	190,453.20	129,085.50	1,554.61	17.29	101,404.90
1993	199,399.95	192,769.40	198,479.20	1,429.59	22.05	41,736.80
1994	190,187.90	201,910.80	266,944.90	9,009.11	21.88	42,623.30
1995	201,972.20	459,987.30	318,763.50	1,611.11	21.88	195,216.30
1996	242,627.16	523,597.00	370,333.50	3,403.91	21.88	53,152.00
1997	234,220.17	582,811.10	429,731.30	7,222.22	21.88	1,076.20
1998	235,866.87	463,608.80	525,637.80	7,107.50	21.88	220,671.30

1999	221,682.68	949,187.90	699,733.70	5,424.60	92.69	326,634.30
2000	225,754.90	1,906,159.70	1,036,079.50	9,386.10	102.1	314,139.20
2001	245,334.28	2,231,600.00	1,315,869.10	10,267.10	111.9	24,729.90
2002	352,275.62	1,731,837.50	1,599,494.60	7,681.10	121	563,483.90
2003	416,105.55	2,575,095.90	1,985,191.80	7,467.78	129.4	162,298.40
2004	399,488.61	3,920,500.00	2,263,587.90	16,955.02	133.5	1,124,157.20
2005	436,267.79	5,547,500.00	2,814,846.10	28,279.06	132.1	3,394,864.30
2006	359,494.76	5,965,101.90	4,027,901.70	42,298.11	128.7	2,206,500.50
2007	487,955.26	5,715,600.00	5,832,488.50	51,333.15	125.8	1,811,849.38
2008	393,440.76	7,866,590.10	9,166,835.50	53,000.36	118.6	2,463,370.01
2009	518,223.39	4,844,592.34	10,780,621.10	42,382.49	148.9	3,927,487.97
2010	471,793.01	7,303,671.55	11,525,530.34	32,339.25	150.3	2,470,728.58
2011	513,953.65	11,116,900.00	13,303,494.50	32,639.78	153.9	1,099,997.48
2012	456,037.32	10,654,724.87	15,483,847.50	43,830.42	157.5	1,242,324.17
2013	432,346.67	9,000,759.79	16,001,313.90	547,355.30	157.3	4,000,205.70
2014	390,567.80	10,000,068.85	17,002,437.50	446,644.70	158.7	2,000,265.90
2015	264,234.45	7,456,567.23	14,980,234.43	345,765.78	257.4	1,398,987.34
2016	476,463,12	4,345,897.34	14,567,234.67	234,876.23	345.6	965,200.75

Appendix I: Raw Data for Macro-economic Variables in Nigeria, 1981 – 2016.

YEAR	LOANS	MRR	XOIL	GDP	CPINDEX	PHGS
1981	582.90	6	10,680.50	268,548.94	1.03	6,131.90
1982	275.30	8	8,003.20	265,720.62	1.1	8,226.60
1983	1,093.90	8	7,201.20	252,300.53	1.53	12,250
1984	1,503.60	10	8,840.60	247,200.18	1.87	11,147.40
1985	2,170.20	10	11,223.70	267,774.23	1.8	11,598.10
1986	5,701.60	10	8,368.50	244,332.80	2.15	17,800.80
1987	7,561.20	12.75	28,208.60	218,062.87	2.36	19,276.40
1988	9,561.20	12.75	28,435.40	234,510.31	3.8	28,165.70
1989	2,008.00	18.5	55,016.80	249,676.54	5.5	28,482.60
1990	6,000.10	18.5	106,626.50	281,550.27	5.7	48,878.60
1991	1,306.20	14.5	116,858.10	279,810.71	7	83,102.20
1992	2,736.80	17.5	201,383.90	281,024.32	10.42	139,847
1993	5,665.30	26	213,778.80	286,898.79	16.8	211,408.60
1994	4,185.90	13.5	200,710.20	289,508.89	29.7	308,857.80
1995	44,569.60	13.5	927,565.30	288,618.74	21	438,481.30
1996	69,437.10	13.5	1,286,275.90	303,031.51	24	313,846.60
1997	85,550.50	13.5	1,212,499.40	311,523.23	26.4	406,053.40
1998	72,895.90	14.31	717,786.50	319,983.08	29.6	456,984.60
1999	22,764.90	18	1,169,476.90	321,500.56	29.6	532,292.10

2000	08,302.20	13.5	1,920,900.40	338,598.26	33.9	513,003.40
2001	96,164.80	14.31	1,839,945.30	353,534.05	39.5	738,585.40
2002	54,628.80	19	1,649,445.80	366,914.04	44.3	532,453.20
2003	210,033.10	15.75	2,993,110.00	404,905.03	54.9	592,234.10
2004	519,242.70	15	4,489,472.20	541,502.88	60.4	441,590
2005	976,711.20	13	7,140,578.90	560,155.80	67.4	188,298.90
2006	254,297.90	12.25	7,191,085.60	606,150.05	73.1	652,493.10
2007	813,488.80	8.75	8,110,500.40	647,540.40	77.9	97,038.50
2008	799,400.10	9.81	9,861,834.40	688,142.88	89.7	636,973.70
2009	912,143.10	7.44	8,105,455.10	735,861.58	102.2	401,504.50
2010	706,430.40	6.13	11,136,167.80	793,551.21	114.2	664,994.08
2011	9,600,113.20	9.19	13,742,623.60	847,444.27	126	2,962,978.16
2012	1,203,594.40	12	14,526,756.00	902,793.97	141.1	3,071,364.71
2013	6,000,448.80	12	14,000,131.80	842,396.77	152.3	2,709,432.98
2014	5,000,900.70	12.25	12,000,007.00	989,043.62	164.4	3,100,700.12
2015	3,398,987.34	15.7	10,456,786.34	897,453.67	165.7	3,900,786.46
2016	1,965,200.75	21.7	8,786,234.21	765,346.33	151.7	2,456.987.42

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, Various Issues.

Appendix I: Raw Data for Macro-economic Variables in Nigeria, 1981 – 2016.

YEAR	GDEF	TMTR	OPENESS	OILP	MPRICE	EXPT
1981	3,902.10	112.1	0.09	11.67	56.3	11,000
1982	6,104.10	110.21	0.07	10.95	45.23	8,200
1983	3,364.50	115.56	0.07	12.98	59.61	7,500
1984	3,590,12	113.34	0.07	15.11	76.21	9,100
1985	6,784.23	105.13	0.07	23.54	67.57	11,700
1986	12,982.10	104.5	0.06	32.13	43.98	8,900
1987	16,754.23	100.45	0.22	35.18	57.9	30,400
1988	18,800.67	109.12	0.22	33.45	69.12	31,200
1989	23,670.54	111.45	0.45	45.34	71.94	58,000
1990	31,800.34	106.23	0.55	47.23	74.65	109,000
1991	35,755.20	103.89	0.75	56.45	77.56	121,500
1992	39,532.50	108.68	1.25	60.23	79.23	205,000
1993	65,157.70	102.17	1.37	66.74	80.45	218,800
1994	70,270.60	106.9	1.29	64.57	85.5	206,100
1995	111,000	99.87	5.89	69.1	89.45	950,700
1996	132,049.40	95.12	6.49	71.98	93.67	1,309,500
1997	150,000	100.87	6.89	77.49	97.19	1,241,700
1998	133,389.30	97.78	5.1	80.95	94.56	751,900

1999	285,104.70	107.12	6.41	86.99	101.23	1,189,000
2000	103,777.30	98.24	9.12	96.72	108.99	1,945,700
2001	221,048.90	95.78	9.53	95.98	107.2	1,868,000
2002	301,401.60	95.72	9.21	84.84	99.5	1,744,200
2003	202,724.70	85.05	14.09	80.58	108.9	3,087,900
2004	300,560.09	86.43	16.27	74.13	145	4,602,800
2005	459,000.00	103.31	18.55	105.75	111.83	7,246,500
2006	550,870.00	107.97	18.63	119.59	143.98	7,324,700
2007	603,576.00	69.12	20.11	67.65	112.51	8,309,800
2008	747,379.60	61.96	23.71	118.18	136.7	10,387,700
2009	810,008.48	115.75	19.65	115.96	106.65	8,606,300
2010	1,105,401.41	111.43	26.03	104.25	176.68	12,011,500
2011	1,158,518.50	144.59	30.84	246.6	171.33	15,236,700
2012	975,724.00	99.62	28.45	154.13	154.14	15,139,300
2013	1,100,153.49	108.82	0.36	161.81	154.18	15,262,000
2014	1,215,978.43	107.58	0.15	187.21	189.79	12,960,500
2015	2,875,765.98	98.76	18.80	112.80	176.98	6,245,271.58
2016	2,985,987.11	87.9	11.75	64.72	156.76	N/A

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, Various Issues.

Appendix I: Raw Data for Macro-economic Variables in Nigeria, 1981 – 2016.

YEAR	IMPT	NOILR	RECEXP	CRHP	MS
1981	12,800	4,700	6,570	3,900	9,900
1982	10,800	3,600	6,420	4,200	10,300
1983	8,900	3,260	4,890	4,800	11,500
1984	7,200	2,980	4,100	4,900	12,500
1985	7,100	4,130	5,460	4,900	13,900
1986	6,000	4,490	8,530	5,200	13,600
1987	17,900	6,350	6,370	6,200	15,200
1988	21,400	7,770	8,340	9,400	22,200
1989	30,900	14,740	15,030	9,800	26,300
1990	45,700	26,220	24,050	15,000	39,200
1991	89,500	18,330	28,340	23,100	50,100
1992	143,200	26,380	39,760	36,800	76,000
1993	165,600	30,670	54,500	57,800	118,800
1994	162,800	41,720	70,920	90,600	169,400
1995	755,100	135,440	121,140	106,800	201,400
1996	562,600	114,810	212,930	116,100	227,500
1997	845,700	166,000	269,650	130,700	268,600

1998	837,400	139,300	309,020	156,700	318,600
1999	862,500	224,770	498,030	186,500	393,100
2000	985,000	314,480	239,450	274,000	637,700
2001	1,358,200	908,460	438,700	816,700	816,700
2002	1,512,700	500,990	321,380	946,300	947,300
2003	2,080,200	500,820	241,690	1,225,600	1,225,600
2004	1,987,000	565,700	351,300	1,330,700	1,330,700
2005	2,800,900	785,100	519,500	1,725,400	1,725,400
2006	3,108,500	677,540	552,390	2,280,600	2,280,600
2007	3,912,000	1,264,600	759,320	3,116,300	3,116,300
2008	5,593,200	1,336,000	960,890	4,857,300	4,857,300
2009	5,480,700	1,652,650	1,152,800	5,017,100	5,017,100
2010	8,164,000	1,907,508	883,870	5,571,300	5,571,300
2011	10,995,900	2,237,880	918,550	6,771,600	6,771,600
2012	9,766.60	2,628,780	874,830	7,420,900	7,420,900
2013	9,439,400	2,950,560	1,108,390	27,204,300	27,204,300
2014	10,538,800	3,275,120	783,120	28,986,400	28,986,400
2015	6,245,271.58	N/A	N/A	N/A	N/A
2016	N/A	N/A	N/A	N/A	N/A

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, Various Issues

Appendix I: Raw Data for Macro-economic Variables in Nigeria, 1981 – 2016.

YEAR	DDPST	GOVTEXP	RNFL
1981	6,100	11,400	210.4
1982	6,100	11,920	262.1
1983	6,700	9,640	262.3
1984	7,600	9,630	264.0
1985	9,000	13,040	219.3
1986	8,400	16,220	235.5
1987	8,900	22,020	159.5
1988	12,800	27,750	200.4
1989	16,500	41,030	211.0
1990	24,400	60,270	349.3
1991	27,000	66,580	196.6
1992	39,200	92,800	177.3
1993	60,900	191,230	290.7
1994	78,800	160,890	169.7
1995	94,000	248,770	221.3
1996	111,300	337,220	211.2
1997	138,000	428,220	186.9
1998	161,900	487,110	310.0
1999	206,600	947,690	345.4
2000	363,700	701,060	274.6
2001	478,000	1,018,030	358.5
2002	559,300	1,018,160	450.3
2003	813,400	1,225,970	482.7
2004	872,100	1,426,200	261.1
2005	1,162,200	1,822,100	275.6
2006	1,629,200	1,938,000	189.8
2007	2,378,400	2,450,900	314.9
2008	3,964,600	3,240,820	202.0
2009	4,089,900	3,352,990	154.7
2010	4,489,000	4,194,580	314.8
2011	5,526,400	4,712,060	227.6
2012	6,119,800	4,605,390	376.1
2013	22,219,100	5,185,320	198.8
2014	23,752,300	4,578,060	74.9
2015	N/A	4,108,455.07	254.1
2016	N/A	3,509.567.08	314.5

CBN Statistical Bulletin, Various Issues.

APPENDIX II: RAW ESTIMATION RESULTS

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/10/17 Time: 14:06
Sample: 1982 2014
Included observations: 32
Total system (unbalanced) observations 223
Stacked instruments: (FDIV,*) (OILREV,*) (GFCF,*) (CAPX,*) (IMPR,*) (IMPC, *)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.044630	0.007374	6.052069	0.0000
C(2)	0.278994	0.119239	2.339793	0.0202
C(3)	0.212749	0.067397	3.156631	0.0018
C(4)	-0.008382	0.083448	-0.100448	0.9201
C(5)	0.156013	0.056464	2.763065	0.0062
C(6)	0.201960	0.130847	1.543478	0.1242
C(7)	0.182835	0.080115	2.282162	0.0235
C(8)	0.281611	0.287053	1.639641	0.0523
Determinant residual covariance		9.23E-08		

Equation: DLOG(QAGR) = C(1)
Eqn specific instruments: C
Observations: 32

R-squared	0.630210	Mean dependent var	0.044630
Adjusted R-squared	0.610150	S.D. dependent var	0.042383
S.E. of regression	0.042383	Sum squared resid	0.055687
Durbin-Watson stat	2.182733		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.278994
Adjusted R-squared	0.000000	S.D. dependent var	0.685309
S.E. of regression	0.685309	Sum squared resid	14.55910
Durbin-Watson stat	2.577376		

Equation: DLOG(OILREV) = C(3)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.212749
Adjusted R-squared	0.000000	S.D. dependent var	0.387358
S.E. of regression	0.387358	Sum squared resid	4.651426
Durbin-Watson stat	2.379282		

Equation: DLOG(GFCF) = C(4)
Eqn specific instruments: C
Observations: 31

R-squared	-0.000000	Mean dependent var	-0.008708
Adjusted R-squared	-0.000000	S.D. dependent var	0.472358
S.E. of regression	0.472359	Sum squared resid	6.693678

Durbin-Watson stat	1.881332		

Equation: DLOG(CAPX) = C(5)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.156013
Adjusted R-squared	0.000000	S.D. dependent var	0.324517
S.E. of regression	0.324517	Sum squared resid	3.264652
Durbin-Watson stat	2.131700		

Equation: DLOG(IMPR) = C(6)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.201960
Adjusted R-squared	0.000000	S.D. dependent var	0.752026
S.E. of regression	0.752026	Sum squared resid	17.53184
Durbin-Watson stat	2.559746		

Equation: DLOG(IMPC) = C(7)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.182835
Adjusted R-squared	0.000000	S.D. dependent var	0.460449
S.E. of regression	0.460449	Sum squared resid	6.572415
Durbin-Watson stat	2.428883		

Equation: DLOG(RNFL) = C(8)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.183611
Adjusted R-squared	0.000000	S.D. dependent var	1.674562
S.E. of regression	1.674562	Sum squared resid	89.73303
Durbin-Watson stat	2.641586		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/10/17 Time: 14:17
Sample: 1982 2014
Included observations: 33
Total system (balanced) observations 231
Stacked instruments: (FDIV,*) (OILREV,*) (CAPX,*) (GFCE,*) (LOANS,*) (CAPU,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.030412	0.017599	1.728107	0.0853
C(2)	0.281461	0.115658	2.436166	0.0156
C(3)	0.201282	0.066323	3.034869	0.0027
C(4)	0.171420	0.056816	3.017116	0.0028
C(5)	0.100051	0.059966	1.668469	0.0966
C(6)	0.255121	0.050951	5.007194	0.0000
C(7)	-0.010726	0.017537	-0.611615	0.5414

Determinant residual covariance	5.13E-09

Equation: DLOG(QIND) = C(1)
Eqn specific instruments: C
Observations: 33

R-squared	0.674900	Mean dependent var	0.030412
Adjusted R-squared	0.660021	S.D. dependent var	0.102663
S.E. of regression	0.102663	Sum squared resid	0.337273
Durbin-Watson stat	1.885723		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 33

R-squared	0.660021	Mean dependent var	0.281761
Adjusted R-squared	0.640003	S.D. dependent var	0.674703
S.E. of regression	0.674703	Sum squared resid	14.56719
Durbin-Watson stat	2.508571		

Equation: DLOG(OILREV) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.660021	Mean dependent var	0.201282
Adjusted R-squared	0.640003	S.D. dependent var	0.386905
S.E. of regression	0.386905	Sum squared resid	4.790264
Durbin-Watson stat	2.242566		

Equation: DLOG(CAPX) = C(4)
Eqn specific instruments: C
Observations: 33

R-squared	0.660021	Mean dependent var	0.171420
Adjusted R-squared	0.640003	S.D. dependent var	0.331442
S.E. of regression	0.331442	Sum squared resid	3.515329
Durbin-Watson stat	2.153003		

Equation: DLOG(GFCE) = C(5)
Eqn specific instruments: C
Observations: 33

R-squared	0.660021	Mean dependent var	0.100051
Adjusted R-squared	0.640003	S.D. dependent var	0.349818
S.E. of regression	0.349818	Sum squared resid	3.915919
Durbin-Watson stat	2.188745		

Equation: DLOG(LOANS) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.255121
Adjusted R-squared	0.000000	S.D. dependent var	0.297229
S.E. of regression	0.297229	Sum squared resid	2.827036
Durbin-Watson stat	2.478976		

Equation: DLOG(CAPU) = C(7)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	-0.010726
Adjusted R-squared	0.000000	S.D. dependent var	0.102303
S.E. of regression	0.102303	Sum squared resid	0.334909

Durbin-Watson stat	1.123605

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/10/17 Time: 22:14
Sample: 1982 2014
Included observations: 32
Total system (unbalanced) observations 223
Stacked instruments: (FDIV,*) (OILREV,*) (GFCF,*) (CINF,*) (IMPC,*) (IMPR, *)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.017700	0.012168	1.454649	0.1472
C(2)	0.278994	0.119239	2.339793	0.0202
C(3)	0.212749	0.067397	3.156631	0.0018
C(4)	-0.008689	0.083458	-0.104117	0.9172
C(5)	-0.017202	0.195836	-0.087839	0.9301
C(6)	0.182835	0.080115	2.282162	0.0235
C(7)	0.201960	0.130847	1.543478	0.1242
Determinant residual covariance		3.45E-06		

Equation: DLOG(QOIL) = C(1)
Eqn specific instruments: C
Observations: 32

R-squared	0.530092	Mean dependent var	0.017700
Adjusted R-squared	0.520010	S.D. dependent var	0.069932
S.E. of regression	0.069932	Sum squared resid	0.151603
Durbin-Watson stat	1.812979		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 32

R-squared	0.530092	Mean dependent var	0.278994
Adjusted R-squared	0.520010	S.D. dependent var	0.685309
S.E. of regression	0.685309	Sum squared resid	14.55910
Durbin-Watson stat	2.577376		

Equation: DLOG(OILREV) = C(3)
Eqn specific instruments: C
Observations: 32

R-squared	0.530061	Mean dependent var	0.212749
Adjusted R-squared	0.520000	S.D. dependent var	0.387358
S.E. of regression	0.387358	Sum squared resid	4.651426
Durbin-Watson stat	2.379282		

Equation: DLOG(GFCF) = C(4)
Eqn specific instruments: C
Observations: 31

R-squared	0.549141	Mean dependent var	-0.008708
Adjusted R-squared	0.530061	S.D. dependent var	0.472358

S.E. of regression	0.472358	Sum squared resid	6.693675
Durbin-Watson stat	1.881333		

Equation: DLOG(CINF) = C(5)
Eqn specific instruments: C
Observations: 32

R-squared	0.530061	Mean dependent var	-0.017202
Adjusted R-squared	0.520000	S.D. dependent var	1.125542
S.E. of regression	1.125542	Sum squared resid	39.27217
Durbin-Watson stat	2.821790		

Equation: DLOG(IMPC) = C(6)
Eqn specific instruments: C
Observations: 32

R-squared	0.530061	Mean dependent var	0.182835
Adjusted R-squared	0.520000	S.D. dependent var	0.460449
S.E. of regression	0.460449	Sum squared resid	6.572415
Durbin-Watson stat	2.428883		

Equation: DLOG(IMPR) = C(7)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.201960
Adjusted R-squared	0.000000	S.D. dependent var	0.752026
S.E. of regression	0.752026	Sum squared resid	17.53184
Durbin-Watson stat	2.559746		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/10/17 Time: 22:20
Sample: 1982 2015
Included observations: 33
Total system (unbalanced) observations 197
Stacked instruments: (CINF,*) (FDIV,*) (PCE,*) (LOANS,*) (GFCF,*) (GFCE,
*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.023855	0.024832	0.960684	0.3379
C(2)	0.257109	0.117617	2.185993	0.0300
C(3)	0.020265	0.027051	0.749138	0.4547
C(4)	0.240251	0.053930	4.454862	0.0000
C(5)	-0.012320	0.080833	-0.152406	0.8790
C(6)	0.101388	0.059828	1.694665	0.0918

Determinant residual covariance	2.70E-07

Equation: DLOG(QBUILD) = C(1)
Eqn specific instruments: C
Observations: 33

R-squared	0.440210	Mean dependent var	0.023855
Adjusted R-squared	0.043100	S.D. dependent var	0.144858

S.E. of regression	0.144858	Sum squared resid	0.671484
Durbin-Watson stat	1.299299		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 33

R-squared	0.450675	Mean dependent var	0.257109
Adjusted R-squared	0.440210	S.D. dependent var	0.686132
S.E. of regression	0.686132	Sum squared resid	15.06487
Durbin-Watson stat	2.590949		

Equation: DLOG(PCE) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.440210	Mean dependent var	0.020265
Adjusted R-squared	0.043100	S.D. dependent var	0.157806
S.E. of regression	0.157806	Sum squared resid	0.796889
Durbin-Watson stat	2.448817		

Equation: DLOG(LOANS) = C(4)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.240251
Adjusted R-squared	0.000000	S.D. dependent var	0.314608
S.E. of regression	0.314608	Sum squared resid	3.167306
Durbin-Watson stat	2.334287		

Equation: DLOG(GFCF) = C(5)
Eqn specific instruments: C
Observations: 32

R-squared	-0.000010	Mean dependent var	-0.010860
Adjusted R-squared	-0.000010	S.D. dependent var	0.464837
S.E. of regression	0.464839	Sum squared resid	6.698338
Durbin-Watson stat	1.940670		

Equation: DLOG(GFCE) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.101388
Adjusted R-squared	0.000000	S.D. dependent var	0.349014
S.E. of regression	0.349014	Sum squared resid	3.897951
Durbin-Watson stat	2.256144		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/11/17 Time: 04:23
Sample: 1982 2015
Included observations: 33
Total system (unbalanced) observations 197
Stacked instruments: (GFCF,*) (CINF,*) (FDIV,*) (PCE,*) (LOANS,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.047520	0.009525	4.989273	0.0000

C(2)	-0.010915	0.080873	-0.134962	0.8928
C(3)	-0.003533	0.190378	-0.018560	0.9852
C(4)	0.257109	0.117617	2.185993	0.0300
C(5)	0.020265	0.027051	0.749138	0.4547
C(6)	0.240251	0.053930	4.454862	0.0000

Determinant residual covariance	5.25E-07

Equation: DLOG(QRTAIL) = C(1)
Eqn specific instruments: C
Observations: 33

R-squared	0.6200410	Mean dependent var	0.047520
Adjusted R-squared	0.6000270	S.D. dependent var	0.055562
S.E. of regression	0.055562	Sum squared resid	0.098790
Durbin-Watson stat	1.296122		

Equation: DLOG(GFCF) = C(2)
Eqn specific instruments: C
Observations: 32

R-squared	0.6000270	Mean dependent var	-0.010860
Adjusted R-squared	0.5801900	S.D. dependent var	0.464837
S.E. of regression	0.464837	Sum squared resid	6.698270
Durbin-Watson stat	1.940689		

Equation: DLOG(CINF) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.6000270	Mean dependent var	-0.003533
Adjusted R-squared	0.5801900	S.D. dependent var	1.110595
S.E. of regression	1.110595	Sum squared resid	39.46947
Durbin-Watson stat	2.809583		

Equation: DLOG(FDIV) = C(4)
Eqn specific instruments: C
Observations: 33

R-squared	0.6100270	Mean dependent var	0.257109
Adjusted R-squared	0.5901900	S.D. dependent var	0.686132
S.E. of regression	0.686132	Sum squared resid	15.06487
Durbin-Watson stat	2.590949		

Equation: DLOG(PCE) = C(5)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.020265
Adjusted R-squared	0.000000	S.D. dependent var	0.157806
S.E. of regression	0.157806	Sum squared resid	0.796889
Durbin-Watson stat	2.448817		

Equation: DLOG(LOANS) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.6100270	Mean dependent var	0.240251
Adjusted R-squared	0.5901900	S.D. dependent var	0.314608
S.E. of regression	0.314608	Sum squared resid	3.167306
Durbin-Watson stat	2.334287		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/11/17 Time: 04:28
Sample: 1982 2014
Included observations: 32
Total system (unbalanced) observations 223
Stacked instruments: (GFCF,*) (FDIV,*) (IMPC,*) (IMPR,*) (OILREV,*) (CAPX, *)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.040276	0.014504	2.776794	0.0060
C(2)	-0.008341	0.083450	-0.099948	0.9205
C(3)	0.278994	0.119239	2.339793	0.0202
C(4)	0.182835	0.080115	2.282162	0.0235
C(5)	0.201960	0.130847	1.543478	0.1242
C(6)	0.212749	0.067397	3.156631	0.0018
C(7)	0.156013	0.056464	2.763065	0.0062
Determinant residual covariance		3.37E-07		

Equation: DLOG(QSERV) = C(1)
Eqn specific instruments: C
Observations: 32

R-squared	0.7320451	Mean dependent var	0.040276
Adjusted R-squared	0.7231014	S.D. dependent var	0.083363
S.E. of regression	0.083363	Sum squared resid	0.215430
Durbin-Watson stat	1.884577		

Equation: DLOG(GFCF) = C(2)
Eqn specific instruments: C
Observations: 31

R-squared	-0.000001	Mean dependent var	-0.008708
Adjusted R-squared	-0.000001	S.D. dependent var	0.472358
S.E. of regression	0.472359	Sum squared resid	6.693679
Durbin-Watson stat	1.881332		

Equation: DLOG(FDIV) = C(3)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.278994
Adjusted R-squared	0.000000	S.D. dependent var	0.685309
S.E. of regression	0.685309	Sum squared resid	14.55910
Durbin-Watson stat	2.577376		

Equation: DLOG(IMPC) = C(4)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.182835
Adjusted R-squared	0.000000	S.D. dependent var	0.460449
S.E. of regression	0.460449	Sum squared resid	6.572415
Durbin-Watson stat	2.428883		

Equation: DLOG(IMPR) = C(5)
Eqn specific instruments: C

Observations: 32

R-squared	0.000000	Mean dependent var	0.201960
Adjusted R-squared	0.000000	S.D. dependent var	0.752026
S.E. of regression	0.752026	Sum squared resid	17.53184
Durbin-Watson stat	2.559746		

Equation: DLOG(OILREV) = C(6)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.212749
Adjusted R-squared	0.000000	S.D. dependent var	0.387358
S.E. of regression	0.387358	Sum squared resid	4.651426
Durbin-Watson stat	2.379282		

Equation: DLOG(CAPX) = C(7)
Eqn specific instruments: C
Observations: 32

R-squared	0.000000	Mean dependent var	0.156013
Adjusted R-squared	0.000000	S.D. dependent var	0.324517
S.E. of regression	0.324517	Sum squared resid	3.264652
Durbin-Watson stat	2.131700		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/14/17 Time: 23:16
Sample: 1982 2014
Included observations: 33
Total system (balanced) observations 198
Stacked instruments: (FDIV,*) (CINF,*) (OILREV,*) (FOREXRES,*) (QIND,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.100051	0.059966	1.668469	0.0969
C(2)	0.281761	0.115658	2.436166	0.0158
C(3)	-0.029469	0.190285	-0.154865	0.8771
C(4)	0.201282	0.066323	3.034869	0.0027
C(5)	0.157852	0.144719	1.090744	0.2768
C(6)	0.030412	0.017599	1.728107	0.0856
Determinant residual covariance		4.60E-05		

Equation: DLOG(GFCE) = C(1)
Eqn specific instruments: C
Observations: 33

R-squared	0.551919	Mean dependent var	0.100051
Adjusted R-squared	0.530320	S.D. dependent var	0.349818
S.E. of regression	0.349818	Sum squared resid	3.915919
Durbin-Watson stat	2.188745		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.281761

Adjusted R-squared	0.000000	S.D. dependent var	0.674703
S.E. of regression	0.674703	Sum squared resid	14.56719
Durbin-Watson stat	2.508571		

Equation: DLOG(CINF) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	-0.029469
Adjusted R-squared	0.000000	S.D. dependent var	1.110054
S.E. of regression	1.110054	Sum squared resid	39.43106
Durbin-Watson stat	2.734881		

Equation: DLOG(OILREV) = C(4)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.201282
Adjusted R-squared	0.000000	S.D. dependent var	0.386905
S.E. of regression	0.386905	Sum squared resid	4.790264
Durbin-Watson stat	2.242566		

Equation: DLOG(FOREXRES) = C(5)
Eqn specific instruments: C
Observations: 33

R-squared	0.510040	Mean dependent var	0.157852
Adjusted R-squared	0.500231	S.D. dependent var	0.844239
S.E. of regression	0.844239	Sum squared resid	22.80769
Durbin-Watson stat	2.209357		

Equation: DLOG(QIND) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.030412
Adjusted R-squared	0.000000	S.D. dependent var	0.102663
S.E. of regression	0.102663	Sum squared resid	0.337273
Durbin-Watson stat	1.885723		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/14/17 Time: 23:22
Sample: 1982 2014
Included observations: 33
Total system (balanced) observations 198
Stacked instruments: (FDIV,*) (CINF,*) (OILREV,*) (CAPX,*) (EXCHR,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.029721	0.026482	1.122304	0.2631
C(2)	0.321761	0.115658	2.827888	0.0158
C(3)	0.429469	0.190285	2.256567	0.0271
C(4)	0.302272	0.096314	3.138409	0.0027
C(5)	0.171420	0.056816	3.017116	0.0029
C(6)	0.168517	0.202531	0.832055	0.4064

Determinant residual covariance	0.000130

Equation: DLOG(PCE) = C(1)
Eqn specific instruments: C
Observations: 33

R-squared	0.7499981	Mean dependent var	0.029721
Adjusted R-squared	0.7430190	S.D. dependent var	0.154486
S.E. of regression	0.154486	Sum squared resid	0.763711
Durbin-Watson stat	2.314891		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.281761
Adjusted R-squared	0.000000	S.D. dependent var	0.674703
S.E. of regression	0.674703	Sum squared resid	14.56719
Durbin-Watson stat	2.508571		

Equation: DLOG(CINF) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	-0.029469
Adjusted R-squared	0.000000	S.D. dependent var	1.110054
S.E. of regression	1.110054	Sum squared resid	39.43106
Durbin-Watson stat	2.734881		

Equation: DLOG(OILREV) = C(4)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.201282
Adjusted R-squared	0.000000	S.D. dependent var	0.386905
S.E. of regression	0.386905	Sum squared resid	4.790264
Durbin-Watson stat	2.242566		

Equation: DLOG(CAPX) = C(5)
Eqn specific instruments: C
Observations: 33

R-squared	0.560140	Mean dependent var	0.171420
Adjusted R-squared	0.551700	S.D. dependent var	0.331442
S.E. of regression	0.331442	Sum squared resid	3.515329
Durbin-Watson stat	2.153003		

Equation: DLOG(EXCHR) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.168517
Adjusted R-squared	0.000000	S.D. dependent var	1.181491
S.E. of regression	1.181491	Sum squared resid	44.66948
Durbin-Watson stat	3.067938		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/14/17 Time: 23:25
Sample: 1982 2014
Included observations: 33
Total system (balanced) observations 231

Stacked instruments: (FDIV,*) (CINF,*) (OILREV,*) (EXCHR,*) (MD2,*) (GOVTREV,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.161220	0.042316	3.809906	0.0011
C(2)	0.211753	0.100124	2.114907	0.0156
C(3)	0.024469	0.188285	0.154865	0.8771
C(4)	0.201282	0.066323	3.034869	0.0027
C(5)	0.168517	0.202531	0.832055	0.4063
C(6)	0.211233	0.020501	10.30364	0.0000
C(7)	0.199705	0.057054	3.500283	0.0006

Determinant residual covariance	2.22E-07

Equation: DLOG(CAPX) = C(1)
Eqn specific instruments: C
Observations: 33

R-squared	0.630111	Mean dependent var	0.171420
Adjusted R-squared	0.620043	S.D. dependent var	0.331442
S.E. of regression	0.331442	Sum squared resid	3.515329
Durbin-Watson stat	1.853003		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.281761
Adjusted R-squared	0.000000	S.D. dependent var	0.674703
S.E. of regression	0.674703	Sum squared resid	14.56719
Durbin-Watson stat	2.508571		

Equation: DLOG(CINF) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	-0.029469
Adjusted R-squared	0.000000	S.D. dependent var	1.110054
S.E. of regression	1.110054	Sum squared resid	39.43106
Durbin-Watson stat	2.734881		

Equation: DLOG(OILREV) = C(4)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.201282
Adjusted R-squared	0.000000	S.D. dependent var	0.386905
S.E. of regression	0.386905	Sum squared resid	4.790264
Durbin-Watson stat	2.242566		

Equation: DLOG(EXCHR) = C(5)
Eqn specific instruments: C
Observations: 33

R-squared	0.590510	Mean dependent var	0.168517
Adjusted R-squared	0.580000	S.D. dependent var	1.181491
S.E. of regression	1.181491	Sum squared resid	44.66948
Durbin-Watson stat	3.067938		

Equation: DLOG(MD2) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.211233
Adjusted R-squared	0.000000	S.D. dependent var	0.119594
S.E. of regression	0.119594	Sum squared resid	0.457688
Durbin-Watson stat	1.095896		

Equation: DLOG(GOVTREV) = C(7)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.199705
Adjusted R-squared	0.000000	S.D. dependent var	0.332831
S.E. of regression	0.332831	Sum squared resid	3.544856
Durbin-Watson stat	2.185703		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/14/17 Time: 23:30
Sample: 1986 2014
Included observations: 28
Total system (unbalanced) observations 194
Stacked instruments: (FDIV,*) (CINF,*) (OILREV,*) (EXCHR,*) (CAPF,*) (GFCF,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.233960	0.063909	3.660839	0.0003
C(2)	0.309563	0.134614	2.299642	0.0226
C(3)	0.034739	0.201079	0.172764	0.8630
C(4)	0.234451	0.075357	3.111213	0.0022
C(5)	0.185159	0.062156	2.978937	0.0033
C(6)	0.070642	0.163895	0.431018	0.6670
C(7)	0.033732	0.092371	0.365174	0.7154

Determinant residual covariance	3.49E-06

Equation: DLOG(GOVTREV) = C(1)
Eqn specific instruments: C
Observations: 28

R-squared	0.670490	Mean dependent var	0.233960
Adjusted R-squared	0.660011	S.D. dependent var	0.344379
S.E. of regression	0.344379	Sum squared resid	3.202119
Durbin-Watson stat	2.410778		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 28

R-squared	0.000000	Mean dependent var	0.309563
Adjusted R-squared	0.000000	S.D. dependent var	0.725379
S.E. of regression	0.725379	Sum squared resid	14.20673
Durbin-Watson stat	2.631852		

Equation: DLOG(CINF) = C(3)

Eqn specific instruments: C
Observations: 28

R-squared	0.000000	Mean dependent var	0.034739
Adjusted R-squared	0.000000	S.D. dependent var	1.083535
S.E. of regression	1.083535	Sum squared resid	31.69928
Durbin-Watson stat	2.916627		

Equation: DLOG(OILREV) = C(4)
Eqn specific instruments: C
Observations: 28

R-squared	0.000000	Mean dependent var	0.234451
Adjusted R-squared	0.000000	S.D. dependent var	0.406068
S.E. of regression	0.406068	Sum squared resid	4.452069
Durbin-Watson stat	2.404917		

Equation: DLOG(EXCHR) = C(5)
Eqn specific instruments: C
Observations: 28

R-squared	0.000000	Mean dependent var	0.185159
Adjusted R-squared	0.000000	S.D. dependent var	0.334934
S.E. of regression	0.334934	Sum squared resid	3.028874
Durbin-Watson stat	1.701435		

Equation: DLOG(CAPF) = C(6)
Eqn specific instruments: C
Observations: 27

R-squared	-0.000000	Mean dependent var	0.070653
Adjusted R-squared	-0.000000	S.D. dependent var	0.867844
S.E. of regression	0.867844	Sum squared resid	19.58198
Durbin-Watson stat	1.628219		

Equation: DLOG(GFCF) = C(7)
Eqn specific instruments: C
Observations: 27

R-squared	-0.000000	Mean dependent var	0.033706
Adjusted R-squared	-0.000000	S.D. dependent var	0.489122
S.E. of regression	0.489122	Sum squared resid	6.220260
Durbin-Watson stat	1.994496		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/14/17 Time: 23:34
Sample: 1982 2015
Included observations: 34
Total system (unbalanced) observations 202
Stacked instruments: (FDIV,*) (CINF,*) (EXCHR,*) (QOIL,*) (BOP,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.011460	0.080865	-0.141713	0.8875
C(2)	0.260438	0.114204	2.280458	0.0237
C(3)	-0.015841	0.185176	-0.085546	0.9319
C(4)	0.170164	0.196581	0.865620	0.3878
C(5)	0.015464	0.012280	1.259212	0.2095
C(6)	0.180529	0.278627	0.647923	0.5178

Determinant residual covariance	0.001392

Equation: DLOG(GFCF) = C(1)
Eqn specific instruments: C
Observations: 32

R-squared	0.540002	Mean dependent var	-0.010860
Adjusted R-squared	0.530002	S.D. dependent var	0.464837
S.E. of regression	0.464837	Sum squared resid	6.698281
Durbin-Watson stat	1.940686		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.260438
Adjusted R-squared	0.000000	S.D. dependent var	0.675935
S.E. of regression	0.675935	Sum squared resid	15.07730
Durbin-Watson stat	2.523042		

Equation: DLOG(CINF) = C(3)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	-0.015841
Adjusted R-squared	0.000000	S.D. dependent var	1.095990
S.E. of regression	1.095990	Sum squared resid	39.63943
Durbin-Watson stat	2.724986		

Equation: DLOG(EXCHR) = C(4)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.170164
Adjusted R-squared	0.000000	S.D. dependent var	1.163492
S.E. of regression	1.163492	Sum squared resid	44.67252
Durbin-Watson stat	3.068773		

Equation: DLOG(QOIL) = C(5)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.015464
Adjusted R-squared	0.000000	S.D. dependent var	0.072683
S.E. of regression	0.072683	Sum squared resid	0.174335
Durbin-Watson stat	1.732648		

Equation: DLOG(BOP) = C(6)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.180529
Adjusted R-squared	0.000000	S.D. dependent var	1.649092
S.E. of regression	1.649092	Sum squared resid	89.74369
Durbin-Watson stat	2.563595		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/23/17 Time: 04:44

Sample: 1982 2014
Included observations: 33
Total system (balanced) observations 264
Stacked instruments: (FDIV,*) (OILREV,*) (EXCHR,*) (GDP,*) (INTR,*) (PHGS,*) (IMPR,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.211233	0.020501	10.30364	0.0000
C(2)	0.281761	0.115658	2.436166	0.0155
C(3)	0.201282	0.066323	3.034869	0.0027
C(4)	0.168517	0.202531	0.832055	0.4062
C(5)	0.039506	0.011585	3.410260	0.0008
C(6)	0.021629	0.040152	0.538685	0.5906
C(7)	0.196287	0.110869	1.770440	0.0778
C(8)	0.223373	0.128622	1.736659	0.0837
Determinant residual covariance		2.08E-08		

Equation: DLOG(MD2) = C(1)
Eqn specific instruments: C
Observations: 33

R-squared	0.539001	Mean dependent var	0.211233
Adjusted R-squared	0.555501	S.D. dependent var	0.119594
S.E. of regression	0.119594	Sum squared resid	0.457688
Durbin-Watson stat	1.095896		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.281761
Adjusted R-squared	0.000000	S.D. dependent var	0.674703
S.E. of regression	0.674703	Sum squared resid	14.56719
Durbin-Watson stat	2.508571		

Equation: DLOG(OILREV) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.201282
Adjusted R-squared	0.000000	S.D. dependent var	0.386905
S.E. of regression	0.386905	Sum squared resid	4.790264
Durbin-Watson stat	2.242566		

Equation: DLOG(EXCHR) = C(4)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.168517
Adjusted R-squared	0.000000	S.D. dependent var	1.181491
S.E. of regression	1.181491	Sum squared resid	44.66948
Durbin-Watson stat	3.067938		

Equation: DLOG(GDP) = C(5)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.039506

Adjusted R-squared	0.000000	S.D. dependent var	0.067580
S.E. of regression	0.067580	Sum squared resid	0.146145
Durbin-Watson stat	1.465603		

Equation: DLOG(INTR) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.021629
Adjusted R-squared	0.000000	S.D. dependent var	0.234232
S.E. of regression	0.234232	Sum squared resid	1.755666
Durbin-Watson stat	2.288254		

Equation: DLOG(PHGS) = C(7)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.196287
Adjusted R-squared	0.000000	S.D. dependent var	0.646768
S.E. of regression	0.646768	Sum squared resid	13.38589
Durbin-Watson stat	3.106900		

Equation: DLOG(IMPR) = C(8)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.223373
Adjusted R-squared	0.000000	S.D. dependent var	0.750334
S.E. of regression	0.750334	Sum squared resid	18.01605
Durbin-Watson stat	2.819513		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/23/17 Time: 04:52
Sample: 1982 2014
Included observations: 22
Total system (unbalanced) observations 130
Stacked instruments: (FDIV,*) (GDEF,*) (FOREXRES,*) (IMPR,*) (IMPC,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.313747	0.110099	2.849675	0.0051
C(2)	0.308962	0.078964	3.912697	0.0001
C(3)	0.204236	0.369208	0.553175	0.5811
C(4)	0.012445	0.196198	0.063433	0.9495
C(5)	0.225248	0.118003	1.908396	0.0581
C(6)	0.173802	0.104536	1.662606	0.0989

Determinant residual covariance		0.003556	

Equation: DLOG(PHGS) = C(1)
Eqn specific instruments: C
Observations: 22

R-squared	0.523411	Mean dependent var	0.313747
Adjusted R-squared	0.513371	S.D. dependent var	0.528564
S.E. of regression	0.528564	Sum squared resid	5.866980
Durbin-Watson stat	2.143395		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 22

R-squared	0.000000	Mean dependent var	0.308962
Adjusted R-squared	0.000000	S.D. dependent var	0.379089
S.E. of regression	0.379089	Sum squared resid	3.017883
Durbin-Watson stat	1.923213		

Equation: DLOG(GDEF) = C(3)
Eqn specific instruments: C
Observations: 20

R-squared	-0.000230	Mean dependent var	0.229311
Adjusted R-squared	-0.000230	S.D. dependent var	1.697062
S.E. of regression	1.697257	Sum squared resid	54.73294
Durbin-Watson stat	3.134613		

Equation: DLOG(FOREXRES) = C(4)
Eqn specific instruments: C
Observations: 22

R-squared	0.000000	Mean dependent var	0.012445
Adjusted R-squared	0.000000	S.D. dependent var	0.941905
S.E. of regression	0.941905	Sum squared resid	18.63087
Durbin-Watson stat	2.299888		

Equation: DLOG(IMPR) = C(5)
Eqn specific instruments: C
Observations: 22

R-squared	0.000000	Mean dependent var	0.225248
Adjusted R-squared	0.000000	S.D. dependent var	0.854557
S.E. of regression	0.854557	Sum squared resid	15.33563
Durbin-Watson stat	2.991231		

Equation: DLOG(IMPC) = C(6)
Eqn specific instruments: C
Observations: 22

R-squared	0.000000	Mean dependent var	0.173802
Adjusted R-squared	0.000000	S.D. dependent var	0.501855
S.E. of regression	0.501855	Sum squared resid	5.289029
Durbin-Watson stat	2.792036		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/23/17 Time: 05:12
Sample: 1982 2015
Included observations: 23
Total system (unbalanced) observations 136
Stacked instruments: (FDIV,*) (INTR,*) (GDEF,*) (GDP,*) (GOVTEXP,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.096491	0.221509	0.435609	0.6638
C(2)	0.276259	0.082024	3.368043	0.0010
C(3)	0.309290	0.051878	5.096184	0.0000
C(4)	0.201180	0.352170	0.571258	0.5688

C(5)	0.027274	0.008905	3.062685	0.0027
C(6)	0.146112	0.068383	2.136689	0.0345

Determinant residual covariance	2.22E-06

Equation: DLOG(CINF) = C(1)
Eqn specific instruments: C
Observations: 23

R-squared	0.592123	Mean dependent var	0.096491
Adjusted R-squared	0.582165	S.D. dependent var	1.086196
S.E. of regression	1.086196	Sum squared resid	25.95607
Durbin-Watson stat	3.132058		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 23

R-squared	0.000000	Mean dependent var	0.276259
Adjusted R-squared	0.000000	S.D. dependent var	0.402212
S.E. of regression	0.402212	Sum squared resid	3.559040
Durbin-Watson stat	2.084667		

Equation: DLOG(INTR) = C(3)
Eqn specific instruments: C
Observations: 23

R-squared	0.000000	Mean dependent var	0.030929
Adjusted R-squared	0.000000	S.D. dependent var	0.254388
S.E. of regression	0.254388	Sum squared resid	1.423693
Durbin-Watson stat	2.461667		

Equation: DLOG(GDEF) = C(4)
Eqn specific instruments: C
Observations: 21

R-squared	-0.000068	Mean dependent var	0.214468
Adjusted R-squared	-0.000068	S.D. dependent var	1.655489
S.E. of regression	1.655545	Sum squared resid	54.81661
Durbin-Watson stat	3.113410		

Equation: DLOG(GDP) = C(5)
Eqn specific instruments: C
Observations: 23

R-squared	0.000000	Mean dependent var	0.027274
Adjusted R-squared	0.000000	S.D. dependent var	0.043669
S.E. of regression	0.043669	Sum squared resid	0.041953
Durbin-Watson stat	1.001043		

Equation: DLOG(GOVTEXP) = C(6)
Eqn specific instruments: C
Observations: 23

R-squared	0.000000	Mean dependent var	0.146112
Adjusted R-squared	0.000000	S.D. dependent var	0.335322
S.E. of regression	0.335322	Sum squared resid	2.473696
Durbin-Watson stat	2.595443		

System: UNTITLED

Estimation Method: Three-Stage Least Squares
Date: 10/23/17 Time: 05:16
Sample: 2000 2014
Included observations: 11
Total system (unbalanced) observations 75
Stacked instruments: (FDIV,*) (GDEF,*) (GDP,*) (CINF,*) (OILP,*) (IMPC,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.051372	0.021523	2.386801	0.0198
C(2)	0.367957	0.066291	5.550608	0.0000
C(3)	0.249534	0.305177	0.817669	0.4164
C(4)	0.059474	0.005345	11.12652	0.0000
C(5)	0.307562	0.294577	1.044081	0.3001
C(6)	0.083232	0.064282	1.294806	0.1998
C(7)	0.180886	0.088264	2.049381	0.0443
Determinant residual covariance		1.97E-11		

Equation: DLOG(EXCHR) = C(1)
Eqn specific instruments: C
Observations: 11

R-squared	0.581202	Mean dependent var	0.051372
Adjusted R-squared	0.561008	S.D. dependent var	0.074869
S.E. of regression	0.074869	Sum squared resid	0.056054
Durbin-Watson stat	2.584872		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 11

R-squared	0.000000	Mean dependent var	0.367957
Adjusted R-squared	0.000000	S.D. dependent var	0.230594
S.E. of regression	0.230594	Sum squared resid	0.531738
Durbin-Watson stat	1.374317		

Equation: DLOG(GDEF) = C(3)
Eqn specific instruments: C
Observations: 10

R-squared	-0.000285	Mean dependent var	0.265829
Adjusted R-squared	-0.000285	S.D. dependent var	1.018072
S.E. of regression	1.018216	Sum squared resid	9.330882
Durbin-Watson stat	1.233652		

Equation: DLOG(GDP) = C(4)
Eqn specific instruments: C
Observations: 11

R-squared	0.000000	Mean dependent var	0.059474
Adjusted R-squared	0.000000	S.D. dependent var	0.018593
S.E. of regression	0.018593	Sum squared resid	0.003457
Durbin-Watson stat	1.834167		

Equation: DLOG(CINF) = C(5)
Eqn specific instruments: C
Observations: 11

R-squared	0.000000	Mean dependent var	0.307562

Adjusted R-squared	0.000000	S.D. dependent var	1.024686
S.E. of regression	1.024686	Sum squared resid	10.49982
Durbin-Watson stat	2.347727		

Equation: DLOG(OILP) = C(6)
Eqn specific instruments: C
Observations: 10

R-squared	-0.000002	Mean dependent var	0.083531
Adjusted R-squared	-0.000002	S.D. dependent var	0.214325
S.E. of regression	0.214325	Sum squared resid	0.413418
Durbin-Watson stat	1.755274		

Equation: DLOG(IMPC) = C(7)
Eqn specific instruments: C
Observations: 11

R-squared	0.000000	Mean dependent var	0.180886
Adjusted R-squared	0.000000	S.D. dependent var	0.307026
S.E. of regression	0.307026	Sum squared resid	0.942652
Durbin-Watson stat	1.563970		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/23/17 Time: 05:26
Sample: 1982 2015
Included observations: 34
Total system (unbalanced) observations 235
Stacked instruments: (FDIV,*) (QOIL,*) (EXCHR,*) (FOREXRES,*) (BOP,*) (GDP,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.116025	0.121458	0.955267	0.3405
C(2)	0.260438	0.114204	2.280458	0.0235
C(3)	0.154604	0.012280	12.59212	0.0000
C(4)	0.170164	0.196581	0.865620	0.3876
C(5)	0.145680	0.140974	1.033380	0.3025
C(6)	0.180529	0.027867	6.047923	0.0000
C(7)	0.035486	0.011921	2.976789	0.0032

Determinant residual covariance	6.24E-06

Equation: DLOG(IMPT) = C(1)
Eqn specific instruments: C
Observations: 31

R-squared	0.555003	Mean dependent var	0.114902
Adjusted R-squared	0.550003	S.D. dependent var	0.687445
S.E. of regression	0.687446	Sum squared resid	14.17746
Durbin-Watson stat	1.460355		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.260438
Adjusted R-squared	0.000000	S.D. dependent var	0.675935

S.E. of regression	0.675935	Sum squared resid	15.07730
Durbin-Watson stat	2.523042		

Equation: DLOG(QOIL) = C(3)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.015464
Adjusted R-squared	0.000000	S.D. dependent var	0.072683
S.E. of regression	0.072683	Sum squared resid	0.174335
Durbin-Watson stat	1.732648		

Equation: DLOG(EXCHR) = C(4)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.170164
Adjusted R-squared	0.000000	S.D. dependent var	1.163492
S.E. of regression	1.163492	Sum squared resid	44.67252
Durbin-Watson stat	3.068773		

Equation: DLOG(FOREXRES) = C(5)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.145680
Adjusted R-squared	0.000000	S.D. dependent var	0.834374
S.E. of regression	0.834374	Sum squared resid	22.97392
Durbin-Watson stat	2.193491		

Equation: DLOG(BOP) = C(6)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.180529
Adjusted R-squared	0.000000	S.D. dependent var	1.649092
S.E. of regression	1.649092	Sum squared resid	89.74369
Durbin-Watson stat	2.563595		

Equation: DLOG(GDP) = C(7)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.035486
Adjusted R-squared	0.000000	S.D. dependent var	0.070556
S.E. of regression	0.070556	Sum squared resid	0.164278
Durbin-Watson stat	1.452269		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/23/17 Time: 05:29
Sample: 1982 2015
Included observations: 33
Total system (unbalanced) observations 227
Stacked instruments: (FDIV,*) (QOIL,*) (EXCHR,*) (GFCF,*) (BOP,*) (GDP,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.200282	0.096230	2.081279	0.0386
C(2)	0.257109	0.117617	2.185993	0.0299

C(3)	0.013516	0.012497	1.081559	0.2806
C(4)	0.175356	0.202469	0.866084	0.3874
C(5)	-0.011011	0.080861	-0.136171	0.8918
C(6)	0.393611	0.187053	2.104275	0.0231
C(7)	0.035584	0.012282	2.897281	0.0041

Determinant residual covariance	9.04E-07

Equation: DLOG(EXPT) = C(1)
Eqn specific instruments: C
Observations: 30

R-squared	0.896048	Mean dependent var	0.203927
Adjusted R-squared	0.886044	S.D. dependent var	0.536767
S.E. of regression	0.536779	Sum squared resid	8.355832
Durbin-Watson stat	2.337361		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.257109
Adjusted R-squared	0.000000	S.D. dependent var	0.686132
S.E. of regression	0.686132	Sum squared resid	15.06487
Durbin-Watson stat	2.590949		

Equation: DLOG(QOIL) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.013516
Adjusted R-squared	0.000000	S.D. dependent var	0.072904
S.E. of regression	0.072904	Sum squared resid	0.170081
Durbin-Watson stat	1.776047		

Equation: DLOG(EXCHR) = C(4)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.175356
Adjusted R-squared	0.000000	S.D. dependent var	1.181131
S.E. of regression	1.181131	Sum squared resid	44.64229
Durbin-Watson stat	3.166800		

Equation: DLOG(GFCF) = C(5)
Eqn specific instruments: C
Observations: 32

R-squared	-0.000000	Mean dependent var	-0.010860
Adjusted R-squared	-0.000000	S.D. dependent var	0.464837
S.E. of regression	0.464837	Sum squared resid	6.698270
Durbin-Watson stat	1.940689		

Equation: DLOG(BOP) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.183611
Adjusted R-squared	0.000000	S.D. dependent var	1.674562
S.E. of regression	1.674562	Sum squared resid	89.73303
Durbin-Watson stat	2.641586		

Equation: DLOG(GDP) = C(7)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.035584
Adjusted R-squared	0.000000	S.D. dependent var	0.071647
S.E. of regression	0.071647	Sum squared resid	0.164267
Durbin-Watson stat	1.487234		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/23/17 Time: 05:36
Sample: 1982 2015
Included observations: 34
Total system (balanced) observations 238
Stacked instruments: (FDIV,*) (QOIL,*) (CAPU,*) (EXCHR,*) (QIND,*) (BOP, *)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.205232	0.126112	1.627376	0.1050
C(2)	0.260438	0.114204	2.280458	0.0235
C(3)	0.115464	0.012280	9.402606	0.0000
C(4)	0.101642	0.017045	6.083015	0.0000
C(5)	0.170164	0.196581	0.865620	0.3876
C(6)	0.077262	0.017361	4.450320	0.0007
C(7)	0.180529	0.278627	0.647923	0.5177

Determinant residual covariance	2.26E-07

Equation: DLOG(IMPR) = C(1)
Eqn specific instruments: C
Observations: 34

R-squared	0.512180	Mean dependent var	0.205232
Adjusted R-squared	0.519201	S.D. dependent var	0.746412
S.E. of regression	0.746412	Sum squared resid	18.38531
Durbin-Watson stat	2.789400		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.260438
Adjusted R-squared	0.000000	S.D. dependent var	0.675935
S.E. of regression	0.675935	Sum squared resid	15.07730
Durbin-Watson stat	2.523042		

Equation: DLOG(QOIL) = C(3)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.015464
Adjusted R-squared	0.000000	S.D. dependent var	0.072683
S.E. of regression	0.072683	Sum squared resid	0.174335
Durbin-Watson stat	1.732648		

Equation: DLOG(CAPU) = C(4)

Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	-0.011642
Adjusted R-squared	0.000000	S.D. dependent var	0.100883
S.E. of regression	0.100883	Sum squared resid	0.335851
Durbin-Watson stat	1.146688		

Equation: DLOG(EXCHR) = C(5)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.170164
Adjusted R-squared	0.000000	S.D. dependent var	1.163492
S.E. of regression	1.163492	Sum squared resid	44.67252
Durbin-Watson stat	3.068773		

Equation: DLOG(QIND) = C(6)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.027262
Adjusted R-squared	0.000000	S.D. dependent var	0.102751
S.E. of regression	0.102751	Sum squared resid	0.348406
Durbin-Watson stat	1.918165		

Equation: DLOG(BOP) = C(7)
Eqn specific instruments: C
Observations: 34

R-squared	0.000000	Mean dependent var	0.180529
Adjusted R-squared	0.000000	S.D. dependent var	1.649092
S.E. of regression	1.649092	Sum squared resid	89.74369
Durbin-Watson stat	2.563595		

System: UNTITLED
Estimation Method: Three-Stage Least Squares
Date: 10/23/17 Time: 05:39
Sample: 1982 2015
Included observations: 33
Total system (unbalanced) observations 197
Stacked instruments: (FDIV,*) (GDP,*) (GFCF,*) (EXCHR,*) (BOP,*)
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.208607	0.072747	2.867581	0.0046
C(2)	0.257509	0.117617	2.185993	0.0300
C(3)	0.035584	0.012282	2.897281	0.0042
C(4)	-0.010872	0.080866	-0.134447	0.8932
C(5)	0.175356	0.202469	0.866084	0.3875
C(6)	0.283611	0.287053	1.639641	0.0523
Determinant residual covariance		0.000168		

Equation: DLOG(XOIL) = C(1)
Eqn specific instruments: C
Observations: 33

R-squared	0.585110	Mean dependent var	0.208607

Adjusted R-squared	0.577170	S.D. dependent var	0.424376
S.E. of regression	0.424376	Sum squared resid	5.763050
Durbin-Watson stat	2.191608		

Equation: DLOG(FDIV) = C(2)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.257109
Adjusted R-squared	0.000000	S.D. dependent var	0.686132
S.E. of regression	0.686132	Sum squared resid	15.06487
Durbin-Watson stat	2.590949		

Equation: DLOG(GDP) = C(3)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.035584
Adjusted R-squared	0.000000	S.D. dependent var	0.071647
S.E. of regression	0.071647	Sum squared resid	0.164267
Durbin-Watson stat	1.487234		

Equation: DLOG(GFCF) = C(4)
Eqn specific instruments: C
Observations: 32

R-squared	-0.000000	Mean dependent var	-0.010860
Adjusted R-squared	-0.000000	S.D. dependent var	0.464837
S.E. of regression	0.464837	Sum squared resid	6.698270
Durbin-Watson stat	1.940689		

Equation: DLOG(EXCHR) = C(5)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.175356
Adjusted R-squared	0.000000	S.D. dependent var	1.181131
S.E. of regression	1.181131	Sum squared resid	44.64229
Durbin-Watson stat	3.166800		

Equation: DLOG(BOP) = C(6)
Eqn specific instruments: C
Observations: 33

R-squared	0.000000	Mean dependent var	0.183611
Adjusted R-squared	0.000000	S.D. dependent var	1.674562
S.E. of regression	1.674562	Sum squared resid	89.73303
Durbin-Watson stat	2.641586		

Appendix III: FDI/GDP PERCENTAGE INFLOW TO NIGERIA: 1981 – 2016.

YEAR	PERCENTAGE	YEAR	PERCENTAGE
1981	0.9	2000	2.5
1982	0.8	2001	2.7
1983	1.0	2002	3.2
1984	0.7	2003	3.0
1985	1.7	2004	2.1
1986	0.9	2005	4.4
1987	2.5	2006	3.3
1988	1.6	2007	3.6
1989	7.8	2008	3.9
1990	1.9	2009	3.1
1991	2.6	2010	1.6
1992	3.1	2011	2.1
1993	8.5	2012	1.5
1994	10.8	2013	1.1
1995	3.8	2014	2.5
1996	4.6	2015	1.6
1997	4.3	2016	1.0
1998	3.3		
1999	2.8		