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**THE DYNAMIC RELATIONSHIP BETWEEN OIL WEALTH
AND ECONOMIC GROWTH: THE CASE OF NIGERIA**

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ABSTRACT

The problem of weak economic development in Nigeria despite a substantial inflow of revenues from oil exports especially from the early 1970s and other subsequent periods is an important issue to examine. This outcome presents a number of problems for any government regime in Nigeria seeking to provide solutions to enable the country to escape the adverse effects of natural resource wealth. At present, the Nigerian government is still struggling to find solutions to tackle the deteriorating state of affairs, particularly in terms of unemployment, rising food prices and internal security.

The main aim of this study is to help understand the dynamic relationship between natural resource wealth and economic development. This research study analyses the trajectory of economic and political development in Nigeria over the period 1960 to 2010. This study employs historical political economy and empirical approaches in examining the relationship between oil wealth and economic development. This method distinguishes the study from others carried out in the literature, particularly from those on Nigeria where the common approach in this strand has been to examine the relationship using economic theories alone. The rationale for the approach employed in this study is that Nigeria has its own unique development in terms of politics, which has been influenced by the social structure and colonial history of the country and thus the impact of oil on economic growth should be investigated separately using a historical and empirical approach so as to capture time trend interactions between societal issues, politics and economic outcomes.

First, this study examined the relationship between oil and economic performance using social, political and economic factors such as ethnic and regional differences, political instability, changes in ownership structure of the oil sector and government expenditure, which is largely financed by oil revenues. Next, the research empirically examined the impact of these factors on economic sectors such as agriculture and manufacturing. Afterwards, it analyses the impact of political and economic events in the preceding periods on the current or subsequent period that coincided with a return to democratic rule on major economic sectors.

In general, the results show that the period, which marked a transition to a stable political regime, has no impact on economic performance from 1999 - 2010. Implicitly, this means that democracy in isolation is not a process that accompanies economic development and that a strong policy which could foster national unity and overcome regional and ethnic differences is needed. In order to promote sound economic development this policy should be dynamic, specific and directed to the promotion of a national agenda that will target and benefit important sectors such as agriculture and manufacturing through creating forward and backward linkages in a multiplier effect.

Key Words: Key Words: Agriculture, Crude Oil, Economic Growth, Government Expenditure, Manufacturing, Multiplier Effect, Nigeria, Natural Resource Curse, Political Economy, Political Regime

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DEDICATION

In memory of my late supervisor Peter L. Jones (1956 – 2015)

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LIST OF ABBREVIATIONS

AG	Action Group
CBN	Central Bank of Nigeria
CIA	Central Intelligence Agency
DPR	Department of Petroleum Resources
ECA	Excess Crude Account
ECT	Error Correction Term
EFCC	Economic and Financial Crimes Commission
FDI	Foreign Direct Investment
FNDP	First National Development Plan
GDP	Gross Domestic Product
ICPC	Independent Corrupt Practices Commission
IOCs	International Oil Companies
KRPC	Kaduna Refinery and Petrochemical Company
MASOP	Movement for the Survival of the Ogoni People
MASSOB	Movement for the Actualization of a Sovereign State of Biafra
NCNC	National Council of Nigerian Citizens
NEITI	Nigerian Extractive Industries Transparency Initiative
NNOC	Nigerian National Oil Corporation
NNPC	Nigerian National Petroleum Corporation
NPC	Northern People's Congress
NRC	National Republican Convention
NYSC	National Youth Service Corps
OPC	Odua People's Congress
OPEC	Organisation of Petroleum Exporting Countries
PDP	People's Democratic Party
PPMC	Pipelines and Products Marketing Company Limited
PPPRA	Petroleum Products Pricing Regulatory Agency
SAP	Structural Adjustment Programme
SDP	Social Democratic Party
SMEs	Small and Medium Enterprises
SNDP	Second National Development Plan
VAR	Vector Autoregressive
VEC	Vector Error Correction

CHAPTER 1

INTRODUCTION

1.1 NATURAL RESOURCE WEALTH AND ECONOMIC DEVELOPMENT

Nigeria is often considered the giant of Africa due to its large population and economy.¹ With a population of about 173 million, it is the most populous country in Africa and accounts for 47 percent of West Africa's inhabitants (World Bank 2015). Economically, Nigeria has emerged as Africa's largest economy with an estimated gross domestic product (GDP) of US\$1.1 trillion in 2015 following a statistical rebasing exercise in 2014 (Central Intelligence Agency (CIA) 2016). In addition, Nigeria is currently classified the largest oil producing country in Africa and the world's fourth largest exporter of liquefied natural gas in 2015 (Energy Information Agency 2016).

The oil sector assumes particular importance in the Nigerian economy because it has become a leading source of income and government revenue since the 1970s. It accounts for between 21 and 48 percent of GDP², 95 percent of exports and about 75 percent of consolidated budgetary revenues.³ Over the years, the oil sector has become a major contributor in the share of the GDP and it overwhelmingly accounts for the largest portion of export and government revenues. At first glance, it would be expected that a country with such a strong source of external revenue earnings should be able to achieve strong and sustained economic growth.

In particular, evidence of rising government expenditure due to increases in oil revenues, especially from the 1970s to finance current and capital projects in

¹ This large population comprised of more than 250 tribes; the most populous and politically influential are the Hausa/Fulani, Igbo and Yoruba. In terms of religious composition, the population is about 50 percent Muslim, 40 percent Christian and 10 percent of ingenuous beliefs (CIA 2016).

² Ross (2003b).

³ See World Bank (2015) and CIA (2016).

various sectors of administration, economic services, social and community services and transfers should be expected to improve economic growth in Nigeria. For example, in 1970 the contributions of oil revenue and non-oil revenues were N166 Million and N467.40 Million respectively (Central Bank of Nigeria (CBN) Statistical Bulletin 2010). In this period total government expenditure was N903.90 Million. However, the contribution of these two categories of government revenues changed patterns and the oil sector and non-oil sector contributed N1016 Million and N679.30 Million respectively in 1973, which was just three years later and since then this has been the trend. In 1973, total government expenditure recorded a rising value of N1529.20 Million (CBN Statistical Bulletin 2010). As such, increases in oil revenues and corresponding rises in government expenditure in areas of internal security, national assembly, agriculture, construction, health, education and transport and communication should be expected to increase the general well-being of Nigerian citizens.

Although real GDP is measured to have grown by 6.1% in 2015 due to sustained strong performance primarily in services and industry with the exception of agriculture and oil exploration (World Bank 2015). As a result, Nigeria has been ranked 21st in the world in terms of GDP (PPP)⁴ in 2014.⁵

However, recent economic diversification shown by the performance of sectors such as services and telecommunications and strong growth have not created a significant decrease in poverty levels as over 62 percent of Nigeria's 170 million people still live in extreme poverty (CIA 2016). Also, despite Nigeria's strong economic base, in particular in natural resource wealth, which has witnessed significant improvement since the 1970s except for periods of declining oil prices in the 1980s and recent years⁶ and rising government expenditure, the country has performed weakly in economic development. For example, during the oil boom period of 1973 to 1981 food prices rose and food production declined (Collier 1988). Moreover, Ross (2003b p. 2), states that "between 1970 and 1999, the Nigerian petroleum industry generated about \$231 billion in rents, or \$1900 for every man, woman, and child. Yet from 1970 to 1999 Nigeria's real income per capita fell from \$264 to \$250 a year".

⁴ Purchasing power parity (see World Bank 2016 for more details).

⁵ World Bank Development Indicators (2016)

⁶ For example, oil and gas GDP was estimated to have deteriorated by 13.1% in 2013 and 1.3% in 2014. This outcome is linked to severe declines in oil prices in the third quarter of 2014 and this has posed significant challenges to Nigeria's external balance and public finances (World Bank 2015).

Due to a lack of sustained economic development and the continued domination of the oil sector, the country has been described by some researchers as representing an example of the 'resource curse'. This has resulted in the need to question why Nigeria's significant oil wealth has accomplished so little to increase incomes and ease poverty⁷

In addition, researchers claimed that Nigeria's economic growth has been strongly influenced by the abundance of natural resource in oil (Ross 2003b and Sala-i-Martin and Subramanian 2003). This is not surprising because Nigeria is considered to be one of the most oil dependent countries compared to its peers (Ross 2003b). As further evidence, the World Bank estimated that due to corruption 80 percent of oil revenues benefit only 1 percent of the Nigerian population (Odularu 2008). This largely shows that Nigeria has not been able to translate the significant oil output and income into a sustainable economic development.

The reasons for this low rate of growth are unclear and arguable and any attempt to understand this contrast gives rise to some fundamental issues regarding the theoretical and empirical literature on development and growth. In order to place the later analysis into context a brief overview is provided.

The theoretical and empirical literature suggests that countries with natural resource wealth often experience lower economic growth than countries with scarce natural resources (Auty 1999 and Auty and Gelb 2001).⁸ Auty and Gelb (2001), for example, stated that a developing political state is associated with resource poor countries, although not in general because the governments of such countries pursue a logical economic policy that improves social welfare. These countries also experience early industrialisation and adopt a competitive model that withstands rapid and democratic development. The reasons for this are tied to explanations such as extreme population pressure on scarce resources, which reduces the patience of the majority of the population in tolerating unequal distribution and predatory rent extraction. Also, such economies place importance on investment efficiency. However, they further argued that in resource-rich countries, especially in concentrated form, there are

⁷ See for example, Sala-i-Martin and Subramanian (2003) and Ross (2003b).

⁸ This may be conditional on country characteristics, such as strong institutions that promotes the rule of law, and transparency and accountability which may mitigate the adverse effects of resource wealth (see, for example, Collier and Goderis 2008).

struggles for rental income that produce sectarian and predatory situations, which resulted in the distribution of the rental income through indirect means. This result in deterioration in growth and recovery may take many years (Auty and Gelb 2001).

Following from this there has been substantial debate about the causes of the natural resource curse, either overall or in regard to specific countries or regions (Rosser 2006a). Early studies on the natural resource curse advocated that the causal mechanisms linking natural resource wealth with weak economic outcomes were basically economic in nature (Collier 2010). Unequivocally, it was claimed that natural resource exporting economies suffered from volatile export earnings, declining terms of trade, an enclave economic structure and/or the 'Dutch Disease'.⁹

Despite the fact that the causal mechanisms for the lack of growth are widely thought to be economic in nature there is a significant body of opinion, which argued that a strictly economic approach is too narrow to analyse the relationship.¹⁰ This has led to the conclusion that natural resource curse operates through causal channels, which are both economic and political in nature (Collier 2010).

It is this view that is of particular interest for this thesis. As it stands however there are significant gaps in our understanding of the nature of the political mechanisms that are most vital in this regard (Rosser 2006a). It is also unclear how they work and how they might differ between countries.

1.2 AIM OF THE STUDY

The aim of this thesis is to help understand the dynamic relationship between natural resource wealth and economic development and to analyse further the

⁹ The Dutch Disease is a situation whereby a natural resource boom leads to an appreciation of the real exchange rate and as a result manufacturing and other tradable sectors are damaged (see, for example, Corden and Neary 1982 and Corden 1984).

¹⁰ Some studies highlighted that a number of resource endowed developing economies, specifically Botswana, Chile, Indonesia, and Malaysia, have performed more successfully in development terms, realising high rates of economic growth, poverty reduction, the avoidance of civil war and the attainment of semi-democratic rule (Auty and Gelb 2001 and Stevens 2003).

theoretical literature, by using Nigeria's lack of economic development despite an abundance in oil as a case study. Although there is evidence of improvement in terms of economic growth from 2012 and subsequent years that coincided with a statistical rebasing of Nigeria's GDP, it is clear that this is not accompanied by a reduction in poverty levels as more than half of Nigeria's population still live in extreme poverty.

Nigeria is particularly interesting as a case study in understanding of the broader issues in development. The country had undergone changes economically and politically before and after the discovery of oil in 1956, which was four years away from the political independence achieved in 1960.

These distinct economic and political changes present a valid reason to study Nigeria separately from other oil rich countries.

Nigeria is also interesting to study because the lack of development despite the oil wealth depicts the theoretical literature, which largely suggested that resource-rich countries located in Sub-Saharan Africa struggle to collect rental income on natural resource extraction paid to the government. These struggles are tied to ethnic and regional rivalry, which tries to capture the government (see, Easterly and Levine). This in turn leads to situations that distort the economy and these results in a deterioration in growth. For example, it is argued that Nigeria's dependence on oil exports has led to the appearance of the Dutch Disease effect (Olagunju 2005 and Ogunleye 2008).

Also, the theoretical literature, which focuses on the relationship between natural resources and political institutions argued that countries rich in natural resources often depend on a system that is based on patronage and do not nurture a democratic system based on electoral competition, scrutiny and civil rights (Collier and Hoeffler 2005). This also portrays the Nigerian situation where there are protests at the lack of free and fair election, especially after return to a stable democratic rule in 1999 that was dominated by one political party until 2015.

As such an investigation into the response of Nigeria's economic performance to its economic and political trajectory will offer an insight into the controversies about the lack of economic development despite an abundance of natural resource wealth in oil.

1.3 OBJECTIVES

In order to achieve the aim of this thesis, three main objectives are proposed. They are:

1. To examine the development of the political system in Nigeria;
2. To examine the interplay between the oil sector and the political system in Nigeria;
3. To empirically examine the impact of the interplay between oil and the political system on key economic sectors in Nigeria.

The objectives are necessary to achieve the main aim of the thesis because they will provide an in-depth analysis of the trajectory of economic, political and institutional changes in Nigeria. These objectives will help to identify additional issues that have hindered sustainable and achievable economic development in the presence of significant oil revenues in the country and may help to suggest some possible directions to overcome the problem.

The first objective will help to understand the way in, which the current problems in Nigeria and its inability to translate oil revenues into growth is partly path dependent and linked to a long trajectory of political outcomes. The analysis of the Nigerian political system will help to show the political institutional arrangements and their evolution over time.

Secondly, the investigation of the interplay between the oil sector and the Nigerian political system will also show the interaction of these two institutions over time. In particular, this examination will show a two way interplay between the political and economic institutions, in terms of the effect of the political system on the oil sector and of the oil wealth on the political system. For example, Collier (2010, P. 1105 – 1106) stated that “the interplay is potentially in both directions: politics can affect the exploitation of natural assets and natural assets can affect politics. In principle, either of these could explain the resource curse, but there is a reasonable basis for thinking that both are important.”

The last objective is to empirically examine the impact of the interplay between oil and the political system on economic performance. This is important to achieve because it further shows the effect of the impact of the long trajectory of economic and political outcomes on key economic indicators. For example, it is stated that the significance of the social effects created by oil dependence depends on the type of pre-existing political, social and economic institutions available to manage oil wealth as it comes onstream and the extent to, which oil revenues subsequently transform these institutions in a rentier direction (Karl 2007).

To achieve this third objective, a graphical and descriptive data are employed to illustrate the impact of changes in the political and economic landscapes on major development indicators such as agriculture, manufacturing, GDP per capita, poverty and consumer inflation. Secondly, a more rigorous analysis that encompasses economic, political and other institutional factors is used to examine the complex relationship between oil and economic development in Nigeria.

1.4 ARGUMENT

It is argued in this thesis that a lack of national unity due to ethnic and regional rivalry is one of the main reasons for lack of development in Nigeria. As such, this absence of national unity prior to and after the return to a stable democratic rule had gradually led to institutional inefficiency and waste which affected other key economic sectors such as manufacturing and agriculture which supports majority of the labour force in Nigeria.¹¹ As a result, this has helped in producing adverse development outcomes in the form of increased levels of poverty, rising consumer inflation and imports and a decline in the value of the domestic currency in relation to the US dollar and British sterling which makes import transaction more costly. Basically, this shows that existing societal conflicts has hindered the benefits associated with an abundance of oil wealth.

¹¹ According to CIA (2016), the agricultural sector employs about 70 percent Nigeria's labour force.

1.5 RELEVANCE OF THE STUDY

This thesis examines the dynamic relationship between natural resource wealth and economic growth and it uses Nigeria as a case study due to the abundance of oil in the country and a lack of economic development. Nigeria is a country situated in West Africa and the lack of economic development in Africa has been a subject of intense debate in development economics. For example, studies such as those by Barro (1989), Sachs and Warner (1997), Easterly and Levine (1997), Bloom et al. (1998) and Collier and Gunning (1999) examined themes such as the reasons for slow growth rates in African countries.

Some of the explanations offered by the studies above relate to the peculiar characteristics found in African countries in the form of colonisation, ineffective economic policies, autocratic or dictatorial political regimes, predominant exports in primary commodities, low population density, higher ethno-linguistic diversity and geographic and demographic characteristics which may create conditions for slow growth (see, for example Sachs and Warner 1997, Collier and Gunning 1999 and Easterly and Levine 1997). For example, Easterly and Levine (1997) suggest that a high level of ethnic diversity is the most significant single cause of Africa's slow growth.

Due to some peculiar characteristics found in African countries, this study can also be applied to other African countries rich in either oil or other natural resources. Countries like Algeria, Angola and Gabon that are rich in oil can also benefit from studies that examine the relationship between oil and economic growth. For example, Angola is a country situated in Southern Africa and rich in mineral resources (i.e. oil and diamonds). It has having different ethnic groups and a colonial history similar to Nigeria. Angola's abundance in mineral resources has also been accompanied with a rise of conflicts such as the Cabinda enclave which is also similar to the Biafra secession and the rebellions in the Delta region of Nigeria (see for example, Le Billon 200). In addition, despite Angola's abundance in mineral resources, it has been ranked as impoverished by the United Nations Development Program's list of maximum social development performance (Karl 2007).

This study is also relevant to countries outside the African continent. Other developing countries rich in oil can be found in the Middle East. These include Saudi Arabia, Iran, Iraq, Libya and Kuwait among others. As such, the analysis of the relationship between oil and economic growth conducted in an African country like Nigeria can be relevant to such countries. Although there may be differences in the arrangement of the political and social systems, the key issue here is that all these countries mainly rely on oil just like Nigeria for economic enhancement. In fact, these countries like Nigeria are also members of the Organisation of Petroleum Exporting Countries.

1.6 STRUCTURE OF THE THESIS

The structure of this research study is as follows. To develop a basis for understanding the low levels of economic development in Nigeria, Chapter 2 provides a review of the literature on the relationship between natural resource wealth and economic development.

Chapter 3 examines the history of the development of political and economic institutions and structures in Nigeria in relation to oil production and the impact on economic performance. This gives a foundation for the main argument of this study and helps to understand some of the background to the problems of unity and conflict. The trajectory of economic development in Nigeria is examined in different periods to identify the impact of existing societal issues such as religion, ethnic and regional rivalry in shaping the political landscape especially after the discovery of oil in 1956 and the subsequent independence achieved in 1960. The examination also went further to trail the gradual development of the oil sector and its effect on the economic and political outcomes up to the period of return to democracy in 1999.

Chapter 4 reinforces the main argument by examining the influence of the previous period prior to the achievement of political stability in 1999 on the current economic, political and institutional settings in Nigeria. The chapter further argues that these existing and continuous backgrounds have affected politics, economic performance and the social stability of the country especially in terms of internal security after the return to a stable democratic system.

Chapter 5 presents the methodology which is informed by the literature review and Chapters 3 and 4 which analyse the history of the development of political and economic institutions and structures in Nigeria in relation to oil production and the impact on economic performance. The type of data and sources employed as well as the justification for their use are discussed.

Chapter 6 focuses on the presentation of hypotheses informed by Chapters 3, 4 and 5. The chapter also provides the results from additional empirical analysis conducted to examine the developed hypotheses. This chapter also explains the meaning of the findings and whether or not they support the hypotheses.

The conclusion of the study is provided in Chapter 7. This presents a summary of the main findings, the theoretical contribution, the practical relevance and policy implications, the limitations of the study and directions for further research.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents the relevant and varied theories proposed to explain the relationship between natural resources and economic growth. Specifically, it seeks to achieve two main goals. Firstly, it attempts to offer a review of the existing theoretical literature that seeks to link the negative effects of natural resource wealth on economic growth. The main aim is to describe the theoretical blocks on which the study is built. The second aim is to carry out a review of the theoretical literature that traces the major competing perspectives in order to establish the approach of this study.

Different approaches have been developed within the study of the relationship between natural resource wealth and a lack of economic growth. The initial foundation is built upon a set of theories based on economic perspective such as the Dutch Disease, the structure of the world economy and the nature of world commodity markets.

A subsequent viewpoint is that politics should also be taken into consideration in the study of natural resources and economic performance. As such, the second approach attempts to provide a more comprehensive framework in the analysis which points to a political economy approach in the study of the subject matter.

In general, theories underlying the study of the relationship between natural resource wealth and economic growth have been drawn from two main approaches or disciplines, i.e., economic and political science.¹² Accordingly, previous studies have adopted several viewpoints. Common among them include

¹² See, for example, Ross (1999), Rosser (2006) and Collier (2010).

the Dutch Disease, Commodity Price/Revenue Volatility, Conflicts and Policy Failure.

Consequently the debate over the lack of development in resource-rich countries has generally fallen into two main schools of thought, i.e., economic and political centered approaches to economic development. The perspectives from both economic and political science approaches are presented below.

Much of the prior work in this area has been based on the economic approach as the principal underlying framework. However, the nature of the relationship between natural resource wealth and a lack of economic development is complex. Therefore, in line with previous studies (e.g., Bevan et al. 1999 and Collier 2010) and with the recent recognition of the need to adopt a broader analytical framework (Rosser 2006), the study concentrates on the political economy approach because this is particularly important for reasons such as the distinct social, political and economic structures of an economy which help to determine the trajectory of economic development.

Similarly, due to the return of democratic rule in Nigeria in 1999 after a prolonged period of political instability which was largely authoritarian as it was dominated by military leadership, this study further analyses a strand of literature on economic development in relation to democracy. Also, the relationship between natural resource wealth and a lack of democracy has been explained by the literature under the political economy approach. As such, this chapter will further examine the strand of literature on the relationship between democracy and economic growth so as to give the analysis in Chapter 5 a basis for discussion and inference.

The different approaches and their theoretical underpinning are reviewed below. The rest of the chapter is divided into six sections. Section 2.2 reviews the theoretical literature on natural resource wealth and economic growth from an economic perspective; Section 2.3 surveys the political economy approach; Section 2.4 presents some evidence from the strand of literature focusing on the means by which resource rich countries can escape the resource curse; Section 2.5 examines further literature connecting democracy and economic growth; and Section 2.6 presents a critical observation of the literature review while Section 2.7 summarises the chapter.

2.2 THE ECONOMIC PERSPECTIVE

The section surveys the literature based on the economic approach under theoretical and empirical explanations. The former is fundamentally based on theory/hypothesis development while the latter attempts to survey studies that empirically test the proposed idea.

Many economists recognise the opportunities that natural resource wealth provides for economic growth and development. For example, in the early 1950s, some researchers suggested that natural resource wealth would help developing countries because they were assumed to suffer from imbalances of the supply of factors of production. Many of these countries have labour surpluses but shortages of investment capital. In this regard, developing countries with an abundance of natural resources could overcome such shortages through export surpluses and the attraction of foreign capital investment (Ross 1999). As a result, the governments of these resource-rich countries would find sources of fiscal revenues for investment in public infrastructure to enhance economic development (Lewis 1974).

However, concerns with respect to the negative impact of natural resource wealth on economic growth and development emerged among development economists in the 1950s and 1960s. At first, such worries were associated with (Prebisch 1950, 1964) and Singer (1950). They argued that primary product exporting countries (the periphery) would find themselves at a disadvantage in trading with the developed economies (the centre) because of declining terms of trade which suggests that the price of exports falls relative to imports. For example, if a developing specializes in oil exports and on the other hand imports manufactured goods; a decline in the terms of trade implied that the oil exporting country will experience a fall in oil exports relative to the import of manufactured goods. In essence, this outcome means that more oil exports are required to purchase the same quantity of manufactured imports. Others scholars such as Hirschman (1958), Seers (1964) and Baldwin (1966) reinforced this negative evidence by suggesting that backward linkages from the supply of primary product exports would be limited compared to manufactured exports. In

contrast, some authors argued that primary products could promote economic growth through a linkage effect (Roemer 1970 and Lewis 1989).

Generally this concern was focused on primary products and natural resources. In the 1970s attention began to centre on the experience of oil exporting countries following the first significant change in the oil price. The outcome gave rise to speculation that large oil revenues might be detrimental to the development prospects of the oil exporting economies (Mabro and Monroe 1974). This saw the advent of a strand of literature particularly concerned with the examination of links between oil and economic development.

Similarly, a number of scholars highlighted that world commodity markets were subject to unusually significant price changes. As a result, countries that depend on natural resource commodity exports would find these volatile effects transferred to their domestic economies, thereby making government revenue and foreign exchange supply volatile (Nurske 1958 and Gelb 1988).

Furthermore, some researchers also argued that natural resource industries were not likely to stimulate growth in the rest of the domestic economy, especially if foreign multinational companies dominated the resource extractive industry and were further allowed to repatriate their profits instead of reinvesting in the domestic economy.¹³ As such natural resource exporting economies would be left with booming natural resource enclaves that generate few forward and backward linkages to other sectors of the economy.

Since the 1950s, several economists have made a continual effort to examine these claims. In particular, they examined different ideas such as declining terms of trade in developing countries rich in natural resources, appreciation of the real exchange rate due to the resource boom and volatile export earnings, among others.

In this regard, there were early attempts using economic approaches to explain why natural resource abundance in oil, natural gas, copper, gold and diamonds does not necessarily translate into positive economic outcomes, particularly in developing countries. Some of the economic explanations of the relationship between natural resource abundance and economic growth largely focused on

¹³ See, for example, Baldwin (1966)

the decline in terms of trade (Singer 1950 and Prebisch 1959), the limited supply/demand linkages between the natural resource sector and the rest of the economy (Hirschmann 1958), the Dutch Disease effect (Corden and Neary 1982) and revenue volatility (Mikesell 1997 and Auty 1998). Nevertheless, none of these theoretical propositions mentioned above were clearly confirmed by empirical studies (Stevens 2003).

In the next subsections, the theories and some of their empirical evidence are presented. Specifically, the Dutch Disease explanation will be first presented in subsection 2.2.1 and subsection 2.2.2 examines the Commodity Price/Revenue Volatility.

2.2.1 The Dutch Disease Explanation

Although Meade and Russell (1957) made the first contribution to the natural resource boom paradox, which is now considered to be the basic model of the Dutch Disease, explanations are also found in the influential work of Corden and Neary (1982) and other studies such as Corden (1984), Davies (1995) and Stijns (2003). In their study, Corden and Neary employed a framework of a small open economy producing two goods (energy and manufactures) traded at exogenously determined world prices and a non-traded good¹⁴ sector (services) whose price changes flexibly to balance domestic supply and demand. In addition, they illustrated that the manufacturing sector is crowded out by the booming energy sector due to an appreciation of the real exchange rate value of the domestic currency, which makes manufacturing exports less competitive and thus less attractive to foreign importers (Olusi and Olagunju 2005).

According to Larsen (2006), the Dutch Disease is linked to several effects such as factor movement, aggregate demand expenditure and a spillover-loss. Also Cuddington (1989) stated that the impact of the resource boom for resource allocation can be summarised through focusing on two effects of resource movement and demand expenditure. The former explains the reallocation of production factors such as capital and labour from other sectors of the economy to the resource sector. Moreover, the latter comes from the increased aggregate

¹⁴ These are goods and services not traded internationally (See, for example, Collier, 1988). Henceforth, the word non-tradeable used in this chapter refers to goods and services that are not traded internationally.

demand generated by windfall resource currency receipts, which when converted to domestic currency may create periods of excess demand in the domestic economy.

Several economists seem to agree that the first malignant effect of natural resource abundance is the Dutch Disease and this explanation is purely economic (see for example, Collier 2010). This strand of the literature is often referred to as the economics of the Dutch Disease named after the experience of the Netherlands in the 1960s which describes the deterioration of the manufacturing sector after the discovery of natural gas in 1959. This forced up the exchange rate and increased the value of the Dutch currency (see, Corden 1984). The Dutch Disease model explains that natural resource wealth hinders growth of the industrial sector, which is assumed to be the key driving force of the economy (see, e.g., Corden and Neary 1982 and Benjamin et al. 1989). This is either through an appreciation of the real exchange rate or the absorption of factors of production (Corden 1984).

Also interest in the Dutch Disease effect was propelled by a period of high oil prices. The basic model has been argued by some authors to be inadequate to address the impact of oil price volatility on the sectoral structure of oil exporting developing countries (see, for example, Fardmanesh 1991).

Similarly, some explanations of the negative effect of natural resource wealth on economic growth have been partly considered to be symptoms of the Dutch Disease. For example, these issues include a decrease in savings and physical investment (Payrakis and Gerlagh 2007), impediments to entrepreneurship (Sachs and Warner 2001) and lower investment in education and human capital (Gylfason 2001).

In contrast, it has been argued that the empirical evidence does not provide great support for the Dutch Disease hypothesis as an explanation of the negative effect of natural resource wealth on economic growth (Leite and Weidmann 1999 and Sala-i-Martin and Subramanian 2003).

The subsection below presents some evidence from the empirical literature.

2.2.1.1 Empirical Studies on the Dutch Disease Explanation

The Dutch Disease perspective establishes the basis for a greater part of the subsequent empirical work in the literature (Stevens 2003). There is a plethora of empirical studies on the Dutch Disease concept which can be grouped into those relating to developed countries and those to developing countries.

Developed Countries

On the developed economies, Ellman (1981) documented that, due to the exploitation of large deposits of natural gas in the North Sea in the Netherlands, the textile and clothing industries and others such as manufacturing, mechanical engineering, shipping, vehicles and construction industries deteriorated. However, there was an expansion of the services sector. Although Kremer's (1986) findings corroborated that of Ellman, he reported that it is difficult to reconcile the economic deterioration as a result of the discovery of gas since a number of countries in Western Europe also experienced a similar decline without having an energy boom.

Ross (1986) also observed the symptoms of the Dutch Disease in the case of the United Kingdom (UK). He noted that, subsequent to the commercial exploitation of crude oil which began in the UK in 1975, the real exchange rate appreciated between 51 percent and 55 percent between 1977 and 1980. This outcome led to a fall in manufacturing output, which rose by only 4 percent between 1973 and 1979 but then increased to 14 percent between 1979 and 1982. In addition, the findings of Forysth and Kay (1980) also support the evidence of the Dutch Disease in the UK.

In contrast, Jimenez-Rodriguez and Sanchez's (2003) found mixed evidence in their study. Their findings indicated that, while Norway benefited from increases in oil prices, similar rises in the UK had a substantial negative effect on GDP. Another study by Brown and Yucel (1999) also provided evidence in support of the negative effect of an energy boom. Brown and Yucel's study focused on the US economy, which is not a net oil-exporter, but they did reveal from the

impulse response analysis that the Dutch Disease model responds to a temporary oil price change resulting in a decline in real GDP.

In addition, Stijns (2003) also provided evidence in support of the Dutch Disease effect. Stijns documented that, even though the core model of the Dutch Disease makes explicit estimates concerning the negative influence of a resource boom on a country's manufacturing exports, the ensuing empirical literature has not visibly identified this negative effect. As a result, Stijns attributed this outcome to the failure of the studies to combine enough data to produce an effectively powerful and exogenous test. In this regard, Stijns employed the World Trade Database to analytically test this premise in a gravity model of trade. Oil prices are employed to avoid issues of endogeneity concerning primary exports. The findings showed that a 1% increase in oil price is expected to produce a 0.5% reduction on a net energy exporter's real manufacturing exports.

Developing Countries

Focusing on the developing economies, the evidence of Dutch Disease effect on economic performance due to natural resource boom is also mixed. This outcome is illustrated in Tables 2.1 below. In line with the Dutch Disease hypothesis, many prior studies have found a negative impact of natural resource wealth on economic performance (Fardmanesh 1991, Ogunleye 2008 and Ismail 2010). Using different variables, such as oil price, output of agriculture and manufacturing, nominal and real exchange rates, consumer price index, price of capital goods and index for capital market openness, the results of these studies indicated a negative association between natural resource wealth and economic performance. These research studies argued that natural resource wealth leads to weak economic performance due to Dutch Disease effects. Kutan and Wyzan (2005), for example, examined whether Kazakhstan was susceptible to the Dutch Disease condition. Using an extended version of the Balassa–Samuelson model, which includes GDP, real exchange rate and price of oil, they found evidence that changes in the terms of trade had a significant impact on the real exchange rate during 1996–2003, indicating signs of significant Dutch Disease effects.

In contrast, a second group of studies found little or no evidence of the Dutch Disease effect between resource wealth and economic performance (Gelb 1988, Cuddington 1989, Spatafora and Warner, 1995, Davis 1995 and Sala-i-Martin and Subramanian, 2003). Using different variables, such as oil price, agriculture output, manufacturing output, exchange rates, GNP per capita, life expectancy and infant mortality, these studies reported little or no impact of natural resource wealth on economic performance. In particular, Davis (1995) documented little corroborating evidence between a booming sector and economic performance indicators.

In this respect, panel data studies find limited evidence of the Dutch Disease due to natural resource discovery such as oil. Gelb (1988), for example, presents a panel data study of the Dutch Disease effect, where the impact of a resource windfall was examined for a group of oil exporting countries, most of whom had benefitted in terms of large amounts of the oil revenue gained in the period of the 1973 oil price increase. Gelb (1988) finds that Nigeria, Iran, Ecuador and Trinidad and Tobago experienced the Dutch Disease, largely due to deterioration in agriculture output in the first and second oil booms of 1973 and 1981, while Indonesia, Venezuela, and Algeria strengthened their non-tradeable products sector of services.

Likewise, Roemer (1995) stated that the Indonesian government escaped the effects of the Dutch Disease using careful exchange rate management. In studies focusing on other developing countries including Nigeria, some researchers also rejected the Dutch Disease thesis, for example, Roemer (1985) in his study on Mexico, Nigeria, and Venezuela; Jazayeri (1986) on Nigeria and Iran; Looney (1988) in his study on Saudi Arabia and Looney (1991) focusing on Kuwait. These studies highlighted that exchange rate appreciation followed by an oil boom caused a contraction in industrial output. Yet, in the cases of Nigeria, Mexico, Kuwait, and Indonesia, the growth rate of the manufacturing sector was actually greater than, or equal to, that of the non-tradeable products sectors, i.e., services.

Some researchers attributed the difficulty of finding evidence of the Dutch Disease effect to a broad range of factors, which includes conventional means such as small samples (most oil-exporting economies' key macroeconomic variables are measured annually), difficulty in accounting for the counter-factual

growth of the manufacturing sector with the lack of natural resource wealth and measurement bias in indices of aggregate manufacturing output (Ismail 2010).

While early empirical evidence has been mixed (Sala-i-Martin and Subramanian 2003) for a deteriorating manufacturing sector in response to terms of trade changes and an appreciation of the real exchange rate, in more recent decades, studies confirmed the negative effects. For example, a study by Ismail (2010) employed detailed, disaggregated sectoral data for manufacturing to examine the implications of oil price changes across a wide group of countries including oil-exporters from 1977 to 2004. His findings confirmed the negative relationship shown by earlier studies.

In addition, Brahmbhatt et al. (2010) employed tradeable goods¹⁵ sector (i.e., manufacturing and agriculture), using resource-rich countries in which the natural resource sector accounts for more than 30 percent of GDP. They found that the tradeable goods sector was 15 % lower than the average. Thus, the macroeconomic and sectoral evidence in these recent studies appears to offer support for the Dutch Disease effects (Van der Ploeg 2011).

¹⁵ These are goods that are traded internationally (See, for example, Collier, 1988). Henceforth, the word tradeable used in this chapter refers to goods and services that are traded internationally.

Table 2.1 Empirical Evidence - Developing Countries

Author (Year)	Study Period	Countries	Variables	Summary Results
Empirical Research Showing Negative Relationship				
Sachs and Warner (1997)	1970 - 1990	Resource-rich countries	Real GDP, average annual growth in real GDP, share of primary exports in GDP, share of mineral production in GNP, value of mineral production, population, a dummy variable for outward orientation, fiscal deficit, inflation rate, ratio of real gross domestic investment, rule of law, annual growth of the ratio of export to import prices, institutional quality, terms of trade, income inequality	The results concluded that there is a negative relationship between natural resource wealth and economic growth
Fardmanesh (1991)	1966 - 1986	Algeria, Ecuador, Indonesia, Nigeria and Venezuela	Output of agriculture, manufacturing and oil sectors	The impact of an oil boom is significant and negatively associated with agricultural output in all countries except Venezuela. This supports the Dutch Disease effect.
Usui (1998)	1970 - 1985	Indonesia and Mexico	oil exports, nominal and real exchange rates, and consumer price index	Found evidence of Dutch Disease effect in Mexico and no evidence in Indonesia
Kutan and Wyzan (2005)	1996- 2003	Kazakhstan	Real exchange rates, output, oil price and domestic consumer inflation	Found evidence that changes in terms of trade had a significant effect on the real exchange rate signifying symptoms of considerable Dutch Disease effects
Farzanegan and Markwardt (2009)	1975 - 2006	Iran	Real industrial GDP per capita, inflation rate, consumption expenditure, real imports, real effective exchange rate and real oil prices changes	The results find little evidence of oil price fluctuations but there is evidence of Dutch Disease
Harding and Venables (2010)	1975 - 2007	Countries consisting of resource	Balance of payments, resource exports, resource imports, net resource trade, foreign aid	Exports of natural resources appear to have an adverse effect on non-resource exports

		exporters and importers		
Ismail (2010)	1977–2004	Mineral-based economies	Real output, wages, price of capital goods, index for capital market openness	The results show significant evidence for the existence of the Dutch Disease in response to oil price changes
Empirical Research Showing Little or No Relationship				
Gelb (1988)		Group of oil-exporting countries		The results show no significant evidence of Dutch Disease in manufacturing sectors
Looney (1988)	1970 – 1981	Saudi Arabia	Government expenditure, oil revenues, agriculture, mining, refining, non-oil manufacturing, real exchange rate and change in real exchange rate,	The results indicated that in the long-run, effects linked with the Dutch Disease have been offset, leaving only short-run negative effects arising from appreciation of the real exchange rate
Spatafora and Warner (1995)	1965 - 1989	Oil-exporting countries	Output, consumption, investment, savings, trade balance	The results indicate a positive link between terms of trade shocks in oil-exporting countries and their real exchange rate as well as public spending. In addition, there is no evidence of the Dutch Disease.
Davis (1995)	1970 – 1991	Mineral-based developing countries	GNP per capita, life expectancy, infant mortality, calorie supply per capita, population with access to safe water, population with access to sanitation, primary school enrolment, adult literacy rate and human development index	Found little corroborating evidence between natural resource wealth and economic performance indicators

Source: Author

Studies on Nigeria

Focusing on Nigeria alone, prior studies examining the presence of Dutch Disease effect on economic performance have also found conflicting evidence. This is shown in Table 2.2 below. Olusi and Olagunju (2005), Ogunleye (2008) and Ogbonna et al. (2013) are among the researchers who reported a negative impact of oil exports due to the Dutch Disease effect. Olusi and Olagunju (2005), for example, suggested that Nigeria is suffering from the Dutch Disease effects. In addition, using variables, which include oil price, real effective exchange rate, money supply, short-term interest rate (discount rate), consumer price index and industrial production, Ayadi (2005) suggested that changes in oil price affected real exchange rates, which, again, influenced industrial production. However, Ayadi reported that this indirect effect of oil price changes on industrial output is not statistically significant.

Omolola and Adejumo (2006), also investigated the impact of oil exports in Nigeria employing variables of oil price changes, real exchange rate, GDP, money supply and inflation rate using a Vector Autoregressive (VAR) model with quarterly data from 1970 – 2004. Their findings suggested that oil price changes significantly affected the real exchange rate, which may in turn squeeze the tradable sector, giving rise to the Dutch Disease.

Furthermore, Ogunleye (2008) examined the long-run effect of oil revenues on GDP per capita, household consumption, infrastructural development, agricultural and manufacturing output using a vector error correction model (VECM) with annual data from 1960 to 2004. He reported that a negative relationship exists for GDP per capita, agriculture and manufacturing. However, the results further showed that even for variables with negative relationships in the current period, a positive relationship was established at subsequent time lags.

Other studies focusing on Nigeria also documented evidence of the Dutch Disease effect on economic variables. Akpan (2009a), for example, examined the dynamic relationship between oil price changes and industrial production, real effective exchange rate, real government expenditure and inflation using a VAR model. The findings recognised a marginal impact of oil price variations on

industrial output growth with an observed significant appreciation of the real exchange rate. This reinforces the findings observed by Ayadi (2005) and Olomola and Adejumo (2006), which stated that oil price fluctuations may lead to the Dutch Disease effect.

Subsequently, Muhammad et al (2012) further confirmed the oil price – exchange rate relationship using daily data over the period January 2007 to December 2010. In contrast to previous studies, they employed the generalised autoregressive conditional heteroscedasticity (GARCH) and exponential GARCH models to examine the impact of oil price changes on the nominal exchange rate. Their findings suggested that an increase in oil prices led to a depreciation of the Nigerian Naira vis-à-vis the US dollar over the study period.

In contrast, Sala-i-Martin and Subramanian (2003) found no evidence of the Dutch Disease effect in Nigeria. This latter evidence is consistent with the work of Spatafora and Warner (1995) who also reported no evidence of a Dutch Disease between oil wealth and economic performance variables among developing oil-exporting countries, which included Nigeria. In addition, other findings, i.e., Spatafora and Warner (1995), suggested that permanent terms of trade changes have a substantial positive effect on investment, consumption and non-tradeable sectors like services. This latter finding, although in a panel study, is also similar with that of Aliyu (2009) who suggested that oil price changes and an appreciation in the level of the exchange rate exerted a positive impact on real economic growth in Nigeria.

However, a recent study was carried out by Akinlo (2012), which examined the importance of oil in the development of the Nigerian economy using a VAR model over the period 1960-2009 with variables of output of agriculture, manufacturing, building & construction, oil and services as indicators. Akinlo`s findings suggested that oil had a negative impact on the manufacturing sector.

Table 2.2 Empirical Evidence on Nigeria

Author (Year)	Study Period	Methodology	Variables	Summary Results
Empirical Research Showing Negative Relationship between Dutch Disease and Economic Growth				
Olusi and Olagunju (2005)	1980 – 2003	VAR model	Real GDP, crude oil exports, agricultural output, real exchange rate, inflation rate, short-run interest rate, long-run interest rate	The results revealed that Nigeria is suffering from the Dutch Disease effects
Ayadi (2005)	1980 – 2004	VAR model	Oil price, real effective exchange rate, money supply, short-term interest rate (discount rate), consumer price index and industrial production	The results indicate that oil price changes affect real exchange rates which, in turn, affect industrial production
Ogunleye (2008)	1960 – 2004	VEC model	Oil revenues, GDP per capita, consumption, infrastructural development (electricity as a measure), agricultural and manufacturing output	The results indicate that a negative relationship exists for GDP per capita, agriculture and manufacturing
Ogbonna et al. (2013)	1970 – 2011	VEC model	Agricultural commodity export, oil export and real effective exchange rate	The results suggested that there is evidence of Dutch Disease in the long run
Empirical Research Showing Little or No Relationship between Dutch Disease and Economic Growth				
Sala-i-Martin and Subramanian (2003)	1970 – 2000	Regression model	Rule of law, growth rates of per capita GDP, oil revenues, institutional quality, exchange rate	The results show no evidence of the Dutch Disease due the real exchange rate is insensitive to oil price
Aliyu (2009)	1986 – 2007	VEC model	Real exchange rate and real GDP	This study shows that oil price changes and appreciation in the exchange rate exert a positive impact on real economic growth in Nigeria
Iwayemi and Fawowe (2011)	1985 – 2007	VAR Model	Oil price measure, government expenditure, inflation, real exchange rate and net exports	The results reported that oil price volatility did not have a significant effect on most macroeconomic variables

Source: Author

2.2.2 The Commodity Price/Revenue Volatility Explanation

Another prominent explanation of the resource curse in the literature is the idea of revenue volatility. This explanation has been offered by several researchers such as Mikesell (1997) and Auty (1998) as a channel to affect economic growth adversely. The primary argument is that oil and other mineral revenues are very volatile in nature, particularly driven by fluctuations in prices over short periods of time. In addition, the empirical literature has provided ample evidence in support of this explanation. However, some studies fail to find such evidence established (e.g., Sachs and Warner 1995).

Mikesell (1997) suggested that, from 1972 to 1992, countries that are largely depended on primary exports experienced volatile terms of trade higher than developed countries during the same period under investigation. Theoretically terms of trade volatility could cause a number of problems to primary commodity exporters. Volatile revenue makes it challenging to pursue a prudent fiscal policy (Stevens 2003 and Kilian 2010). In this respect, a variety of problems are created ranging from stimulating investor uncertainty to absurd spending policies by government.

Another major perception of observers in booming resource rich countries is that export revenues would be consumed rather than invested (Sachs and Warner 1999). However, empirical evidence challenged this view (Macbean 1966 and Behrman 1987). In this regard, Steven (2003) argued that revenues would be more likely to be saved and invested than consumed. However, Sachs and Warner (1997) found no such strong relationship to claim that natural resource rich economies have higher rates of savings.

Furthermore, Gylfason et al. (1999) suggested that the level of domestic investment was inversely associated to dependence on primary commodity exports. In addition, Sachs and Warner (1995) did not find any significant relationship between terms of trade and per capita income growth.

2.3 RESOURCE AND ECONOMIC DEVELOPMENT: POLITICAL CENTERED APPROACH

The political science literature generally focuses on the relationship between natural resources and political institutions. Countries rich in natural resources often depend on a system that is based on patronage and do not nurture a democratic system based on electoral competition, scrutiny and civil rights (Collier and Hoeffler 2005). This strand of literature that attempts to offer an explanation with respect to adverse effects of natural resource wealth (i.e., oil) on economic growth has long been established (Stevens 2003). According to Stevens, the nature of this approach tends to be relatively unclear and not open to serious empirical work, although some scholars, such as Isham et al. (2002) offer evidence that resource-rich countries which are more abundant in natural resources, for example, resources located in a particular geographical region or unevenly spread across the country (i.e., oil), affects economic growth through its impact on political and socioeconomic institutions.

Furthermore, the political science approach to the adverse effect of natural resource wealth on economic performance involves a search for generalizable theories of policy failure (Ross 1999). In essence, it involves the inclination of states to employ and sustain transparently suboptimal economic policies with respect to economic growth and development. According to Ross (1999), theories of policy failure can be categorised into three groups of cognitive, societal and statist theories. Ross further stated that cognitive theories blame policy failures on the lack of foresight of state officials, and societal theories attempts to explain the pernicious influence of privileged classes, interest groups and client networks. Statist theories find fault in a state's institutional strength or weakness to extract and deploy resources, to enforce property rights and to resist demand from interest groups, for instance, independent business groups. According to Ross (2003a), these explanations are not free from criticisms put forward by other scholars.

In this regard, the political approach which explains the adverse effect of natural resource wealth on economic growth can be categorised into three perspectives.

According to Ross (1999), these employ resource windfall or rents as independent variable and lack of economic growth as the dependent variable.

2.3.1 The Cognitive Approach

This line of argument has advocated that natural resource endowment leads to different types of emotional or irrational behaviour on the part of the political elite, thus contributing to weak economic policy-making and institutional capacity. It is argued, particularly, that natural resource booms induce sloth, myopia and over-exuberance on the part of political elites. Such arguments featured in the work of great economic and political thinkers such as Nurske (1958), Levin (1960), Walich (1960) and Watkins (1963). More lately, they have featured in the work of economists such as Mitra (1994) and political scientists such as Krause (1995) (Ross 1999). Mitra (1994, p. 295) has argued that natural resource booms produce a 'tendency to optimism' in countries that benefit, in turn leading to excessive government spending. Likewise, Krause (1995) has argued that natural resource booms lead to 'wishful thinking' among policy-makers in natural resource abundant economies (Ross 1999).

According to Ross (1999), despite the widespread use of the cognitive approach, a number of problems have been linked with its effectiveness as an explanatory tool. The most significant problem is that it is commonly employed in an informal way rather than as part of an explicit and testable theory that relates variations in state revenues to changes in the cognitive skills of policymakers. Also, there appears to be little confirmation that policymakers collectively fall into wealth-induced stupors (Ross 1999). In contrast to this claim, some authors, such as Shafer (1994) and Karl (1999), point to state officials who are well informed about the adverse effects of the natural resource booms have behaviour that is extremely constrained by political pressures and institutions.

2.3.2 The Societal Approach

This approach argued that natural resource wealth has adverse economic effects which are not due to its influences on the institutional capacity of the state or on the behaviour of political elites but are due to its influence on the relative power

of diverse social classes or groups. One group of researchers, for example, has claimed that natural resource wealth strengthens well-connected business groups and as a result increases pressure on governments to pursue economic policies that serve the interests of these groups rather than the common economic interest or the interests of the poor (Rosser 2006b). In a similar approach, other researchers have advocated that one of the key reasons why Latin America has performed less well than the East Asia region in terms of economic growth and poverty reduction in recent decades is the influence of the natural resource endowments of both regions on their industrial policies. It is argued that, in Latin America, natural resource wealth led to the social and political control of landed properties and businesses by elites that had a vested interest in import-substitution industrialisation (ISI), therefore inhibiting the progress of an externally competitive industrial sector. In East Asia, natural resource scarcity implied that such elites did not exist or at least did not exercise substantial political and social influence, so making it easier for governments to move away from ISI towards export-oriented industrialisation policies and the development of a very competitive industrial sector (Mahon 1992).

Although scholars such as Mahon (1992) and Auty (1994) all cite Latin America's hesitancy to abandon the ISI policies, each author conveys a slightly different story. They all advocated that Latin American manufacturers and workers who benefitted from subsidies constrained their governments from eliminating the ISI strategies. However, South Korea and Taiwan are resource-poor countries and fewer groups benefited from ISI.

According to Ross (1999), there are reasons to be sceptical about generalising societal explanations because most authors relied on five countries (Brazil, Columbia, Mexico, South Korea, and Taiwan) on which to base their arguments. It is not obvious why they selected these countries since they are different in many respects beyond the commonality of an abundance of natural resources. In addition, it is not clear whether the same reasoning can describe weak economic growth in a larger set of countries.

Furthermore, Ross stated that most societal approaches argued that the curse of low economic growth originates from trade barriers. Also societal explanations work more effectively when nonstate officials such as independent or private business groups have first claim on any resource rents (Ross 1999). This

explanation reflects the structure of ownership adopted by resource rich countries as explained by some authors. (Luong and Weithal 2010), for example, have shown for some developing oil exporting countries that the ultimate macroeconomic consequences of natural resource wealth critically depend on the underlying structure of ownership with which these countries choose to manage their mineral wealth. Some scholars see these cases as exceptional because, in almost all developing countries rich in natural resource, mineral deposits are particularly owned by the state, which is the first claimant on the resource rents. In theory, natural resource wealth should serve to support the state's leverage over societal actors by giving it a nontax revenue gain that can insulate it from pressures coming from interest groups (Ross 1999).

2.3.3 The State-Centered Approach

Several researchers, for example, have pointed to the concerns related to the rentier state theory. These are economies that obtain regular and significant amounts of 'unearned' income in the form of, for example, taxes on natural resource exports or royalties on natural resource production (see, for example, Skopol 1982, Beblawi and Luciani 1987 and Vandewalle 1998). Since these types of states have significant amounts of unearned income to spend, they tend to develop larger capacity in the distributive functions, for instance, social welfare, health and education functions. State owned enterprise sectors are usually quite large in rentier states, with roles related to the regulation and management of the economy and domestic fiscal policy (Garaibeh 1987).

Similarly, according to Luciani (1987 p. 74), rentier states "being independent of the strength of the domestic economy, does not need to formulate anything deserving the appellation of economic policy: all its need is an expenditure policy". In support of this view, Karl (1997), Auty (2001), Auty and Gelb (2001) and Moore (2002, 2004) have offered similar arguments to those of rentier state theorists with slightly different terms and concepts. Karl (1997), for example, has claimed that reliance on oil revenues leads to the rise of petro-states that are driven towards the political distribution of rents rather than promotion of private investments and economic development. The evolution of petro-states, as suggested by Karl (1997), is mostly likely where oil's domination of the

economy corresponds to the process of state formation (see also, Vandewalle 1998). In these circumstances, the dominance of oil gives the state a redistributive character in its origin, which, given the primitiveness of political institutions, becomes locked in to the process. Moore (2004), for example, argued that natural resource wealth leads to 'bad governance' in developing economies because financial autonomy of states suggests that they have little accountability to their citizens.

Furthermore, the rational viewpoint depicts political actors as rational utility-maximising individuals. As a result, they have suggested that the problem with natural resource wealth is not that it leads to irrational behaviour on the part of political actors but that instead it offers a platform to fill their own pockets by engaging in rent-seeking activities. Most researchers have proposed that members of the political elite are the major problem in this regard. Ross (2001), for example, suggested that when governments receive windfalls from a natural resource boom, rational political elites will take the opportunity to either directly seize the rents produced by resource booms or gain control over the right to allocate them by 'rent-seizing'. In a similar argument, Ascher (1999) proposed that natural resource endowed economies have generally wasted their natural resources because political elites have a tendency to use them to pursue various political goals including the funding of contentious development programs, achieving control over resource rent allocation, providing economic benefits to specific groups, avoiding accountability and crafting rent-seeking prospects in order to secure private sector support in relation to other goals.

In the next sub-section other explanations are reviewed, such as a lack of democracy, governance and ownership structure which are very relevant to this study.

2.3.4 Natural Resource Wealth and Regime Type

The natural resource curse literature also contains a strand of studies which suggest that abundance in natural resource is linked to low levels of democracy (see, for example, Wantchekon 2002 and Jensen and Wantchekon 2004). The argument with respect to the causal mechanisms linking natural resource wealth and regime type has focused on the relative evidence of four explanations. The

first reflects a state-centered perspective with specific reference to the idea of a rentier state and suggest that natural resource abundance impedes democracy because governments in these rich countries are able to use government spending and low tax levels to ease pressure for democratisation from the citizens. Lam and Wantchekon (2003), for example, have debated that the economic benefits of natural resource booms are usually concentrated on political elites, so allowing them to retain support and consolidate their power. It has been suggested that in authoritarian political systems there is a more limited possibility for democratic change (Lam and Wantchekon 2003). Similar arguments have been offered by Luciani (1987) and Beblawi (1987) with regard to oil based economies in the Middle East, Ross (2001) in regard to oil economies in general and by Jensen and Wantchekon (2004) with regard to natural resource abundant economies in Africa.

The second explanation, which is also largely consistent with the state-centered perspective, argues that natural resource abundance impedes democracy by enabling governments in these countries to increase spending on internal security. With tougher internal security forces, it is asserted, governments can limit the possibility for opposition groups to organise and challenge them (see, for example, Ross 2001, Jensen and Wantchekon 2004).

The third explanation builds on the premise of the rational actor perspective of the causes of civil war and concentrates on the relationship between civil wars and political regimes as argued by Jensen and Wantchekon (2004). The fundamental idea of this explanation is that natural resource abundance can help to consolidate particular regimes in power, so making it rational for political opponents to pursue power through extra-constitutional means such as war. Additionally, they claim, this 'could result in a dictatorship by the opposition party'; however, this is contingent on the outcome of the war Jensen and Wantchekon (2004 p. 822).

The last explanation offered is largely consistent with the historical-structuralist perspective, which argues that natural resource wealth impedes democracy by inhibiting the social and cultural changes that support democratization such as increasing education levels and occupational specialization. For instance, Ross (2001) has labelled this outcome as the 'failed modernization' effect. Clark (1997) and Herb (2005) have challenged this explanation, arguing that natural

resource wealth may in fact lead to several social and cultural changes consistent with modernization. This, in turn, they argue, may offset any adverse effects of natural resource abundance.

2.3.5 Natural Resource Wealth and Governance

Several explanations have been offered in order to explain the transmission mechanisms of the adverse effects of natural resource wealth, which is normally termed the 'resource curse.' According to Ascher (1999), while many of the disciplines contributing to the study of natural resource wealth management have made considerable steps over a long period of time, the political examination of the failure of policies to embrace these improvements has remained essentially underdeveloped. Asher argued that governments waste natural resource wealth due to ineffective governance since state officials can without difficulty influence its use to meet unproductive, contentious or unlawful goals. Furthermore, many resource-rich countries, including developed examples such as the United States, have wasted natural resource wealth and continue to do so. However, the developing countries in Africa, Asia and Latin America depend largely on the natural resource wealth to stimulate economic growth, to provide livelihoods for the poor and to preserve the environment. Since the stakes are high and the natural resource policy failures in developing economies are usually great, the forces at work that lead governments to waste natural resource wealth seem very easy to identify (Asher 1999).

Scholars, such as Hartwick (1977) and Vincent et al. (1997) suggested that natural resource exporting countries often suffer since the investment needed to counterbalance the effects of imminent resource depletion are counterintuitively large. Vincent et al. (1997), for example, implied that exogenous changes in price affect the value that a small country exporting commodities needs to invest to sustain its consumption level over time. Wood and Berge (1997) argued that East Asia's incredible development success has been closely linked to the export of manufactured goods, which is in contrast to the weak economic development process of countries, particularly in Africa, that largely depend on primary products. Wood and Berge further stated that this wide correlation between export composition and economic performance elevates some of the initial and

most contentious questions in the economic development literature, both about the causes of economic progress and about the policies for realizing it.

In recent decades, Isham et al. (2005) also illustrated that controlling for a wide array of potential determinants of governance indicators in their study suggested that countries rich in natural resource which are concentrated in a particular geographical area, such as mineral, coffee and cocoa, behave relatively poorly across an array of governance indicators. They further argued that these governance indicator effects are not linked basically to operating as a natural resource exporting country. In contrast they argued that countries with diffuse natural resources, such as livestock and agricultural produce from small family farms, did not reveal the same effects shown by point source natural resource exporters and experienced more robust economic growth.

2.3.6 Natural Resource Wealth and Institutional Quality

The quality of institutions both public and private are another subset of the broader literature on the resource curse, which focuses more closely on explaining the relationship between natural resource wealth and economic growth. In this regard, a number of researchers have attributed the adverse effects of natural resources on economic growth to institutional quality such as institutions of private sector efficiency and institutions of public sector accountability, i.e., public sector institutions governing the natural resource sector (see, for example, Melhun et al. 2006 and Robinson et al. 2006) and the institutions that institute or fail to institute the rule of law (see, for example, Gylfason et al. 1999 and Isham et al. 2005).

However Norman (2009) claimed that natural resource extraction rates do not have a significant relationship to the rule of law when stocks are controlled for.¹⁶ Influential studies in the literature, such as that by Sachs and Warner (1999, 2001), examined the relationship between natural resource export intensity and economic growth rates by means of panel data analysis. They controlled for political and trade characteristics and suggested that an increase in the resource intensity is linked with lower growth rates. This finding initiated empirical studies

¹⁶ Norman (2009) differentiates between resource wealth (a stock) and the intensity of resource extraction (a flow)

that suggested political and economic institutions were important causal channels through which the curse operated to affect economic growth (Norman 2009).

There appears to be extensive research in the broader literature on economic development that emphasised the role of institutions on economic growth and development (see, for example, Roserberg and Birdzell 1986, North 1990, Hubbard 1997 and Rodrik et al. 2004). Roserberg and Birdzell (1986), for example, stated that it is appropriate to recognise the role of the political institutions of Western Europe in its rise to prosperity. Using a predominantly historical approach, Roserberg and Birdzell, documented that governments in Western Europe provided courts of law to impose trading agreements and to safeguard credit by making loans recoverable. In addition, they strongly defined and secured property rights, which are important to trade and investment, and also provided legal types of organisation responsible to the demands of enterprises. In addition, Hubbard (1997) provided an explanation within the transactions-cost perspective to understanding the form and part played by institutions as recognised by other researchers, such as North 1990. Subsequently, Rodrik et al. (2004) suggested that the quality of institutions undermines economic growth. They concluded that, once institutions are controlled for, traditional measures of geography have weak direct effects on growth, but they have a strong indirect impact by influencing institutional quality.

However, Acemoglu et al. (2000) suggested that, while changes in income levels can be explained by the efficacy of established institutions, living conditions in colonial times dictated whether Europeans decided to settle in the colonies and set up European style institutions. According to their hypothesis, economic growth rests on current institutions, which hinge on past institutions that in turn rely on living conditions, for example, settler mortality in colonial times (Gylfason 2006). Acemoglu et al. (2000) also argued that, once institutions are accounted for in the relationship, there is no scope left for other justifications of economic performance with respect to economic policy or geography. In contrast, Gylfason (2006) suggested that dependence on natural resource wealth today affects current institutions in addition to macroeconomic outcomes.

2.3.7 Empirical Studies: The Political Economy Approach

This subsection presents some empirical studies on the relationship between natural resource wealth and economic growth. Of particular interest to this study are the explanations by way of political instability and/or autocratic rule and ownership structure, because these mechanisms among others are most prominent features of the Nigerian economy as discussed in Chapter 4. In addition, recent studies, which employed a broader analytical framework that encompasses both economic and political approaches, reflect the recent effort to show why some resource rich countries are still struggling with the resource curse and why others have escaped it. In this regard, the section aims to also review some of these studies. This is important because, the Nigerian government after a return to democratic rule in 1999 adopted wide ranging reforms that will help to provide linkage between the oil sector and the rest of the economy.

2.3.7.1 Studies on Political Regime

According to some researchers, such as Smith (2004) and Bulte et al. (2005), the examination of the relationship between natural resource wealth and governmental characteristics remains as pertinent as ever in the area of contemporary world politics (Oskarsson and Ottossen 2010). Accordingly, a subset of the broad literature on the relationship between natural resource wealth and economic performance has provided empirical evidence of the link between natural resource wealth and political regimes. Some researchers questioned whether natural resource wealth hinders the transition to democracy (see, for example, Jensen and Wantchekon 2004, Smith 2004, Ulfelder 2007). However, a number of researchers, such as Oskarsson and Ottossen (2010), Herb (2005) find weak evidence for the idea that natural resource wealth hinders the development of democracy. Herb (2005), for example, provided alternative evidence that income, geographic region and the religious composition of a country's population tended to be more effective predictors of regime type in resource-rich countries. In addition, Oskarsson and Ottossen (2010) documented that, while these findings appear convincingly, there is a basis to

doubt a number of the inherent theoretical and contextual underpinnings of the conclusion that dependence on natural resources leads to a lack of democracy or authoritarianism.

Many studies in this strand of the literature have provided considerable evidence that natural resource wealth impedes the transition to democratic rule. A number of causal explanations have also been offered in this respect, which includes demand-side and supply-side functions (Ulfelder 2007). In this regard, Ulfelder denotes democracy as a good, citizens as its customers and the regime as its supplier. The explanations pointing to the demand-side lay emphasis on ways in which a country's dependence on rental income decreases pressures for government accountability and that of the supply-side highlight the means by which resource wealth permits autocrats to counterattack demands for democratisation. The key studies with a range of evidence regarding the relationship between natural resource wealth and transition to democracy are shown in Table 2.3 below.

Notwithstanding the important role that the presence of natural resource wealth plays in hindering the democratic process, evidence on the relationship between the natural resource abundance and regime type/democracy is mixed (Ross 2001, Jensen and Wantchekon 2004, Smith 2004, Herb 2005, Collier and Hoeffler 2009 and Oskarsson and Ottosson 2010). Similar to this view Karl (2007) claimed that countries which largely depend on oil will in time become among the most economically troubled and the most authoritarian in the world. Moreover, numerous studies by economists and political scientists have recognised the existence of a negative association between oil export dependence and democracy (Tsui 2011).

Table 2.3 Empirical Evidence on Regime Type

Author (Year)	Study Period	Sample size	Variables	Summary Results
Empirical Research Showing Negative Relationship between Natural Resource Wealth and Democracy				
Ross (2001)	1971- 1997	113 countries	Export value of mineral-based fuels and nonfuel ores and metals as fractions of GDP, natural log of per capita GDP, the Muslim percentage of the country's population in 1970, dummy variable to represent countries that are members of the Organization for Economic Cooperation and Development	The findings indicated that both oil and mineral dependence have significant negative effects on democratic change.
Jensen and Wantchekon (2004)	1970 to 1995	46 natural resource-rich countries in Africa	Measure of political regime, GDP per capita, GDP growth, measure of natural resource dependence, the number of coups, the number of government crises, the number of demonstrations, the number of riots, the number of strikes, measures of governance, number of elections, total number of elections since independence, a measure of the total number of legislative seats held by the largest party in 1989, a measure of the level of political protest	The results suggested a robust and negative association between natural resource wealth and the level of democracy in Africa.
Smith (2004)	1960 -1999	107 developing countries	Regime failure, antistate protest, internal conflicts, oil exports, changes in oil price in the 1970s and 1980s, per capita income, inflation, rates of economic growth, regime type, square of democracy score (regime coherence), past transitions, and dummy variables for each regime year	The results showed that oil wealth is significantly associated with regime durability, even when controlling for repression, civil war and antistate protest.
Ulfelder (2007)		19 resource-rich developing countries	Dummy variable to mark periods when an autocracy had a new chief executive, competitiveness of political participation, period of authoritarian rule, gross national income, other mineral resources, forest resources, country's cumulative experience with democracy, regime duration measure, infant mortality rate, dummy variable for the post-cold war period, civil liberties index, annual rate of change in GDP	The result shows that autocracy is usually more durable in countries with considerable resource wealth.

Empirical Research Showing Weak or No Relationship between Natural Resource Wealth and Democracy				
Herb (2005)	1972 - 2000	144 countries	Democracy score, rentierism, per capita GDP, Muslim share of population, mean democracy score for other countries in region	The results suggested that there is a net negative impact of natural resource wealth on democracy
Oskarsson and Ottosen (2010)	1977 - 2006	132 oil-rich countries	Measure of democracy, export value of mineral-based fuels (petroleum, natural gas and coal) and non-fuel minerals (metals and ores) as a percentage of gross domestic product (GDP), real per capita, GDP, measure of income inequality on democracy using the Gini coefficient, the percentage of the population whose professed religious affiliation is Muslim, dummy indicator coded 1 for Organisation for Economic Cooperation and Development (OECD) countries and 0 for all others	The results showed mixed findings, indicating weak and negative effects which are contingent upon the type of measure and restriction placed on some of the variables and period employed

Source: Author

The hypothesis of whether natural resource wealth, such as oil, hinders democracy has been supported by several cross-national empirical studies. In this regard, Ross (2001) used pooled time-series data from 113 countries between 1971 and 1997 to examine some aspects of the hypothesis that natural resource wealth in oil impedes democracy. Ross (2001) observed that both oil and mineral dependence have significant negative effects on democratic change. This view is supported by Jensen and Wantchekon (2004) who employed time-series panel data from 46 countries for the period 1970 to 1995 and claimed the existence of a robust and negative association between natural resource wealth and the level of democracy in Africa. By implication, their findings suggested that natural resources have led to a decrease in the rate of economic growth in African oil-rich countries.

In contrast to the above studies that established a negative relationship between natural resource wealth and democracy but in line with the rentier state theory, Herb (2005), employed a panel dataset and examined the relationship between rentier states and democracy. Herb's results did not find consistent support for the idea that there is a net negative impact of natural resource wealth on democracy. Subsequently, Oskarsson and Ottosen (2010), employed time-series panel data for 132 countries from 1977 to 2006 and examined the relationship between natural resources and the level of democracy. Oskarsson and Ottosen argued that earlier claims by studies such as Ross (2001) do not stand the test of time. They further argued that a broader conceptual examination of the perception of democracy has left the theory more questionable than in earlier studies. However, they found some evidence in support of the negative effect when using data from the three last decades of the twentieth century and when employing only political rights as the indicator of democracy.

Nonetheless, the literature has also provided evidence with respect to natural resource wealth and regime durability. For example, Smith (2004) showed that

oil wealth is significantly associated with regime durability.¹⁷ On the other hand, there is a strand of literature in political science that examines the relationship between economic growth and one-party rule (see, e.g., Magaloni 2008 and Magaloni and Kricheli 2010). Magaloni and Kricheli (2010) documented that the 21st century have seen a record expansion of one-party autocracies. According to Magaloni and Kricheli, one-party regimes have become the most common type of authoritarian rule and have been shown to be more stable than other forms of authoritarianism. Based on the evidence that the Peoples' Democratic Party (PDP) has been ruling Nigeria since 1999 to 2015 and has initiated economic reforms, particularly with respect to the oil sector, it will be interesting to see the impact on economic performance, for example, of the oil and other sectors of the economy, such as manufacturing and agriculture, which is carried out in Chapters 5 and 6.

2.3.7.2 Empirical Studies on Institutional Quality/Rule of Law

Several studies have examined the adverse effects of resource wealth on economic growth through indirect channels such as institutions and rule of law. Studies by Gylfason et al. (1999), Leite and Weidmann (1999) and Isham et al. (2005) examined the relationship between natural resource wealth and indicators related to institutions, investment and education. They argued that resource wealth extracted from one specific geographical area such as crude oil, which they termed point-source resources, matter for characteristics that affect economic growth, including the rule of law (Norman 2009). For example, Isham et al. (2005) analysed data based on a classification of export structure, while controlling a wide array of other potential determinants of governance. He showed that point-source resource wealth (i.e., oil) and coffee and cocoa exporting countries do relatively poorly across an array of governance indicators.

In the same way, Sala-i-Martin and Subramanian (2003) suggested that, once the impact of natural resource wealth on institutions (with an emphasis on rule of law) is taken into account, natural resource wealth has no or an insignificant positive impact on economic growth rates of GDP per capita. Likewise, Mehlum

¹⁷ There is limited available evidence regarding the impact of the return to a stable democracy in Nigeria which has been dominated by one ruling party. Multiple political parties exist in Nigeria but there are undertones of lack of transparency in elections conducted.

et al. (2006) suggested that countries rich in natural resources consist of both growth winners (Norway, Australia, Botswana, and Canada) and losers (Zambia, Nigeria, Angola, Sierra Leone, Venezuela, Saudi Arabia). Mehlum et al. (2006) further argued that the main reason for these diverse experiences is differences in institutional quality. In addition, Robinson et al. (2006) argued that the political incentives which resource endowments generate are the key to understanding whether or not they are a curse.

Robinson et al. (2006) suggested that the overall impact of resource booms on the economy depends critically on institutions since these determine the extent to which political incentives map policy outcomes. Resource rich countries with institutions that support accountability and state capability are likely to benefit from resource wealth since these institutions discourage the pertinacious political incentives such as providing politicians with additional resources to influence the result of elections and escalate resource misallocation in the economy that such wealth creates. Resource rich countries without such institutions (i.e., political regimes which encourage the accountability of politicians and largely improve state institutions towards the use of logical and meritocratic standards in distributing public sector resources) may suffer from the adverse effects (Robinson et al., 2006). However, researchers such as Sachs and Warner (1995) and Brunnschweiler and Bulte (2008), claimed that institutions do not play a role.

Recently, Alexeev and Conrad (2011) using panel data regressions examined the relationship between "point-source" resource abundance and economic growth, quality of institutions, investment in human and physical capital and social welfare (life expectancy and infant mortality). They suggested that, contrary to most literature, their findings indicated little evidence of a natural resource curse for all countries. Only the 'voice and accountability' measure of institutional quality is negatively and significantly affected by oil wealth.

From the above reviewed studies, there is evidence that the institutional approach to the study of the relationship between natural resource wealth and economic performance has provided conflicting results.

2.3.7.3 Empirical Studies on Ownership Structure Perspective

Empirical evidence suggested that ownership structure does matter in the relationship between natural resource wealth and economic growth. This perspective proposes that private ownership structure is more effective than state ownership structure (Ross 2001 and Luong and Weithal 2010) in building effective governance institutions because domestic and foreign investors largely prefer governance institutions that are sound and transparent and help to support accountability. Ross (2001), for example, recommended that privatisation may prevent the problem of rent-seizing. In particular, Luong and Weithal (2010) claimed that it is the ownership structure of natural resource wealth that determines economic outcomes in resource-rich countries rather than political, social or institutional structures. Most prior studies, such as those by Ross (1999) and McPherson (2003) that employed the ownership structure approach in their studies are not based on empirical analysis with the exception of Luong and Weithal (2010).

The study by Luong and Weithal (2010) employed a discrete choice model where choice of ownership structure is the dependent variable and the major explanatory variables are the anticipated level of distributional conflict, the extent of alternative sources of revenue and foreign exchange earnings. They assumed that government is a sovereign maximizer and will weigh the consequences of each type of ownership structure with respect to the speed of foreign exchange collection.

In order to support their viewpoint, Luong and Weinthal examine the different experiences in Soviet successor states (Russia, Azerbaijan, Kazakhstan and Uzbekistan). Their findings suggested that the magnitude of outcome for a country in terms of natural resource wealth may occur depending upon the ownership structure which they choose to manage their mineral wealth and the endogenously determined fiscal regimes that follow the ownership decision. They further asserted that each approach represents a significant departure from the conventional literature on resource wealth and economic performance which has treated ownership structure as a constant across time and space and assumed that mineral rich economies are not capable of building or sustaining strong

institutions, particularly fiscal regimes. According to Luong and Weinthal (2010), private domestic ownership is considered most likely to triumph when leaders have a high level of alternative sources of export revenues at their disposal.

One of the great strengths of the Luong and Weinthal (2010) analysis is the examination of the political dynamics that led to different ownership structures which they aligned with the assumption that political leaders are rational and self-interested actors whose main concern is to stay in power (Rosser 2006a). Particularly, Luong and Weinthal claimed that political leaders are basically concerned about maximising the difference between the resources which they possess (R) and the cost that they face in acquiring support and assuaging or overpowering opponents (C). Alongside this, they claimed that political leaders are constrained in their decision making by a number of factors. The first is the availability of alternative sources of export revenues and the second is the level of political contestation over the foundation for dispensing political power and economic patronage. The first defines the level of resources that political leaders have at their disposal (R) while the second defines the level of resources that political leaders need to maintain and hold on to power (C). According to Luong and Weinthal, when R decreases relative to C , the ability of political leaders to follow their ideal development plan for the natural resource sector follows a path of nationalisation without foreign involvement. However, this choice will be constrained because they must generate additional resources with which to appease or overthrow their opponents. As a result, these constraints translate into the patterns of ownership structure as mentioned above with foreign involvement (Luong and Weinthal 2010).

The Luong and Weinthal (2010) arguments are noteworthy and appeared to fit the cases which they deliberated. However, the degree of generalisation to other illustrations is unclear (Rosser 2006a). According to Rosser, the argument, for example, that private domestic ownership is most likely to enable resource abundant countries to escape the negative resource impact does not help explain Indonesia's circumstances. Indonesia escaped the negative resource impact under strong state control of the ownership of the country's oil sector (Barnes 1995). In addition, their assumption that political leaders are rational limits the effectiveness of their model in explaining circumstances such as social interests that have strong influence over policy making in other natural resource abundant

countries (Rosser 2006a). For example, rentier state scholars logically portray states in natural resource countries as detached from their social environments (Ross 2003a). However, Okruhlic (1999) claimed that the extent to which social forces consisted of corporate groups before oil has undeniably proven significant in shaping economic policies even in typical rentier states as Saudi Arabia.

In contrast to Luong and Weithal (2010) which emphasise the role of ownership structure in determining economic outcomes rather than political, social or institutional structures, a study by McPherson (2003) argued that political factors such as nationalism and corruption have weakened the efficiency and effectiveness of national oil companies (NOCs) in many oil producing countries and disrupted programmes of national oil company reform. Although McPherson claimed that his study lacks rigorous analysis and suggested that it should be regarded more as testable hypotheses than research findings. In addition, McPherson claimed that there is a scarcity in the existing strand of literature on oil sector performance for countries that largely depends on oil exports for economic enhancement and on the role of NOCs. NOCs were established in great numbers across developing oil exporting countries in the 1970s in order to increase state intervention and ownership as mentioned above. The idea of this new approach is motivated by the relevance of NOCs to the economic performance of many client countries and by the paucity in the literature (McPherson 2003).

The next section examines the literature on how resource rich countries can escape the resource curse. This is important because, after the return to democratic rule, the Nigerian government established economic reforms to improve the oil sector in order to provide linkages to other sectors of the economy. This can be seen as a way of trying to escape the resource curse. Also prior to democratic transition in 1999, the Nigerian government in 1971 changed the ownership structure of the Nigerian oil industry from foreign control to that of largely state control.

2.4 CONDITIONS TO ESCAPE THE RESOURCE CURSE

After looking at the economic and political economy perspectives, the literature has been extended into a new approach of 'escaping the resource curse'. This has been triggered by evidence from countries that managed to escape the resource adverse effect among developing countries. For example, Chile, Indonesia and Malaysia have performed well in development by attaining high rates of economic growth and poverty reduction among other negative outcomes associated with natural resource endowment (Stevens 2003). These studies suggested that other countries have managed to escape the negative impact of natural resource wealth. However, they failed to focus on why some developing countries rich in natural resources succeeded in development terms compared to their counterparts (Rosser 2006a).

According to Rosser (2006a), understanding the conditions under which resource abundant economies managed to escape the negative consequences of resource endowment is critical for two reasons. First, it can offer a superior understanding of the development prospects of the countries that succeeded in escaping the negative resource impact. Second, understanding the conditions under which these countries escape the negative impact of resource wealth can help to develop refined approaches for addressing the adverse effect of natural resource wealth.

Several studies on the causes of resource impact advocated that resource abundant countries need to implement various policies and institutional changes if they are going to escape the negative impact of the resource wealth (see, for example, Sala-i-Martin and Subramanian 2003). On the other hand they fail to provide substantial reasons as to when and how governments in these countries might be persuaded to make these changes (Rosser, 2006a). Rosser further asserted that understanding the conditions under which resource abundant countries escape the negative impact of resource endowment will provide a superior logic to the nature of the principal levers of change and hence the effective policies needed for promoting change.

Despite the lack of attention from scholars in understanding the conditions under which resource abundant countries are able to escape the resource negative

effect, a few scholars have addressed this recent question. Similar to prior studies in the resource impact literature in general, this new research emphasises causal mechanisms that are also political in nature. Bevan et al. (1999), for example, examined the process that yielded differing levels of economic prosperity in Nigeria and Indonesia for the time period from 1950 to 1980 based on the methods of analytical economic history and political economy approach. They considered the issue of why Indonesia was so much more successful than Nigeria in economic development terms when both economies had substantial endowments of oil. They suggested that the differing economic successes of the two countries reflected variation in the nature of their economic policies. They further argued that their differing economic prosperity reflected divergences in their 'initial conditions' and 'the happenstance of events' (see, Bevan et al. 1999 for further explanation of their arguments).

The great strength of the analysis by Bevan et al. (1999) is that it recognises the role of political and social factors and history in determining economic performance which neoclassical studies often do not address (Rosser 2006a). In addition, Rosser criticised their analysis on the basis that Bevan et al. have entered into the field of comparative politics but their analysis failed to include any fundamental way on the theoretical frameworks associated with the field of comparative politics, i.e., theory of the state.

Another study by Davis et al. (2003) focused on technical economic issues related to public financial management in oil producing countries and some of the political dimensions of the resource impact, which includes the issue of the political conditions that will enable resource abundant countries to escape the negative outcome. In this regard, Davis et al. (2003) noted that, to understand the economic performance in oil abundant economies, where some countries have performed more effectively than others, there needs to be a broader analytical examination that encompasses political and institutional factors. In conformity with this framework, several studies in this strand of the literature have employed the public choice method. This is based on the neoclassical assumption that individuals are rational, seek to maximise their own welfare and are willing to organise and engage in collective action aimed at influencing policy elites to introduce non-market economic policies that benefit them at the expense of the overall society.

At the same time it has been argued that policy elites will succumb to this pressure if they are rewarded with bribes or if it increases their chances of being re-elected to office. Therefore, several studies in this strand of the literature pointed to the role of political factors in hindering governments from embracing market-based reforms that would enable the country to escape the adverse effect of the resource endowment. Daniel (2001), for example, argued that governments in resource abundant countries have failed to considerably utilise financial risk contract markets to manage the instability caused by oil price volatility because finance ministers in these countries have had few incentives to make use of them. He further asserted that the economic proceeds to their countries from using this financial market may be high whereas the political payoffs to them personally are low or undesirable.

Likewise, Hausmann and Rigobon (2003) suggested an alternative mechanism to examine the resource impact hypothesis and to study its policy implications. The mechanism is grounded on the interaction between two building blocks of specialization in non-tradeables and financial market imperfections. They argued that if a country has a sufficiently large non-resource tradable sector, i.e., manufacturing, relative prices can be stable, even when the resource sector generates significant volatility in the demand for non-tradables. Hausmann and Rigobon suggested that political economy forces may inhibit government from pursuing economic policies that serve to ameliorate or help escape the negative effects of natural resource abundance.

Nonetheless, the public choice theory which underlies the studies by Hausmann and Rigobon (2003) as discussed above have also been criticised based on the grounds that they could not offer a substantial explanation as to why policy elites sometimes embrace market oriented economic policies that, it is presumed, served the collective interest rather than those of particular interest groups. Certainly, researchers operating from a public choice theory highlight the role of 'wise statesmen' or 'outstanding leaders' in promoting market-oriented policy reforms (see, Harberger 1993). McPherson (2003), for example, recognised this when he suggested that national oil company reform programmes can succeed if they have support from 'the top' as well as from a 'wide range of public opinion'. However, in arguing this, studies by Harberger (1993) failed to recognise the rational actor assumption. In other words, it is

unclear why statesmen should embrace such reforms when they are not in conformity with their personal interests (Grindle 1989).

In line with the literature on escaping the resource negative effect, Luong and Weinthal (2010) suggested that the resource impact literature should be revisited and they offered a new research agenda for studying the problems of resource rich countries that shift the focus away from the 'paradox of plenty' to a more suitable approach. This posits the proposition that concentration of wealth weakens the economy whereas the dispersion of wealth enriches the economy. Rather than political or institutional structures, they argued, it is the structure of ownership in natural resource wealth management that determines the economic outcomes in these resource abundant economies. They suggested that, in particular, countries which sell their natural resource sectors to domestic investors are more likely to escape the negative impact of resource wealth than countries that sell to foreign investors or maintain state control of the management of these sectors. According to them, different patterns of ownership nurture different incentives for institution building. They further argued that state ownership is likely to lead to relatively weak institutions and governance because both state elites and state enterprise bureaucrats desire greater discretionary power and therefore prefer weak institutions that are unlikely to restrain their behaviour in any meaningful way. Similarly, several studies have offered additional explanations of escaping from the resource curse (for example, Bell and Faria 2007, Heal 2007, Ross 2007 and Humphreys et al. 2007 and Stiglitz 2007)

For example, Stiglitz (2007) provides explanations under which natural resource abundant countries can escape the adverse effect under their own ownership structure, be it either state management or privatisation of oil rights. Stiglitz proposed that whatever is the approach in resource wealth management the target of government decisions should ensure transparency, ownership and fairness.

Similarly, Rodan (2007) offered another dimension to help escape part of the adverse effects associated with natural resource abundance in oil and gas. Rodan identified key areas on which government should focus when negotiating and presented guidance in relation to who should be setting the issues for negotiation, the informational environment required and the referred time limit.

In addition, Rodan examined features such as contracts and other complex issues including accounting standards, the role of social projects, contract termination provisions and health and environment concerns.

Likewise, Heal (2007) argued that most conventional statements of national income miscalculate the income of resource abundant countries by failing to account for resource depletion. Heal proposed a way that can help resource rich countries calculate their national income appropriately to ascertain whether oil exporting countries, for example, are consuming too much too quickly. Heal argued that the theoretical models developed in his study suggest very clearly that accounting for the changes in capital stock is a precondition for understanding the evolution of welfare in an economy.

In addition, Sachs (2007) stated that 'the notion that oil is a "curse" is only partly true'. Sachs claimed that one major explanation of the low levels of economic performance of oil countries is that large earnings from oil exports can have negative effects on other sectors of the economy, specifically those that can be drivers of sustained economic growth. He further claimed that the difficulty arises when oil export earnings are used for consumption by political office holders, for example, through payment of salaries and wages due to unnecessary increase in government size to gain votes and defeat opponents rather than for public investment in the provision of infrastructure such as electricity and roads. Hence with the correct investment approach, non-resource export sectors can benefit from increased oil earnings and it is possible to reverse the Dutch Disease.

Furthermore, Humphreys et al. (2007) showed theoretically that the significance of natural resource funds lies in their effects on the incentives facing political players. They supported their theoretical investigation by empirical analyses of institutions and expenditure decisions. For natural resource funds to be effective, they based their arguments on regulated withdrawals which should be guided by clear rules and not general guidelines. Second, key decisions should be made by parties representing diverse political constituencies. Finally, there should be high levels of transparency concerning their status and operation. For example, there should be a unified budgetary process and public reporting of payments.

Karl (2007) also indicated that the resource curse is basically a political and not economic phenomenon. Karl further identified the main features of reliance on natural resource rents that create political problems. First, Karl pointed to the unique value of their leading commodity which has meant extraordinarily high levels of external interference in shaping their affairs and capturing their resources by dominant states and foreign private interests. Second, petro-states, for example, are subject to less internal countervailing pressures that facilitated the move to bureaucratically efficacious, authoritative, liberal and ultimately democratic states, specifically because they are relieved of the liability of having to tax their citizens. Karl claimed that several solutions commonly proposed fail to recognise these basic dynamics. He argued that ensuring fairness and transparency in the case of fiscal contract are vital. In other words, a fiscal contract must produce incentives to change the rent-seeking behaviour of all actors, both domestic and international, involved in the oil game.

Focusing on Nigeria, some studies have examined the conditions needed to escape the resource adverse effect. Sala-I-Martin and Subramanian (2003) investigated the effects of oil wealth on the Nigerian economy using three channels from natural resource wealth to growth which have been identified in the literature. These are the impact through terms of trade volatility, the overvaluation of the real exchange rate and institutional quality. Their empirical model has been specified to capture these three effects. In addition, Sala-i-Martin and Subramanian argued that institutional quality will in general be endogenous and also subject to measurement error. Therefore, simple OLS estimation will be incorrect to employ for the analysis. As a result, and in line with (Hall and Jones 1998 and Acemoglu et al. 2001), they employed an instrumental variable (IV) estimation strategy, using the instruments identified in the literature. These included mortality rates of colonial settlers as per Acemoglu et al., 2001 and a fraction of the population speaking English and European languages as per Hall and Jones 1998. Their findings showed that waste and corruption from oil rather than the Dutch Disease has been responsible for Nigeria's weak long run economic performance. Therefore, they proposed a solution for addressing this resource curse which involves directly distributing the oil revenues to the public. However, they recognised the difficulties of corruption and inefficiency which will no doubt plague the actual implementation of their proposal.

Of particular importance to this thesis, and given the initiation of oil sector reforms after the return to democracy in 1999 and subsequent years, Okpanachi (2011) examined the policies during the Obasanjo administration¹⁸ from 1999 to 2007 in order to evaluate the effectiveness or ineffectiveness of the policies employed in reversing the problem of natural resource wealth. In addition, Okpanachi offered an understanding of the economic, political and social issues that drive the outcomes of the resource adverse effect. The study finds that, while considerable efforts were made to escape the boom and bust cycle of oil wealth and lower volatility by de-linking government expenditure from oil revenues using the 'oil price based fiscal rule', improvement in this area was not matched by progress in the other areas examined by the study. Okpanachi noted that there was no progress in developing the peace and safety of lives and oil/gas installations, environmental security and sustainability, the growth of the oil producing region and the need for transparency and accountability in the use of oil and gas revenues.

2.5 DEMOCRACY AND ECONOMIC GROWTH

The return to democratic rule in Nigeria in 1999 after several years of authoritarian rule was a critical political development and this also presents an opportunity for the transformation of the economy due to the perceived positive benefits attached to the impact of democracy on economic growth. In this subsection of the literature review chapter, an analysis of the different perspectives on the relationship between economic growth and democracy is presented.

The debate on the effect of democracy on economic growth has grown extensively in the economic development literature. Following the prominent work of Lipset (1960), there is a considerable body of theoretical and empirical literature to the effect that democracy is a product of economic growth (Przeworski and Limongi 1995).

One possible characteristic that attracted considerable attention from academics is the effect of political regimes on economic growth, with emphasis on democratic institutions. Despite the widely established importance of democratic

¹⁸ The Obasanjo administration is the period that marked the return of democracy to date from the unstable political regimes experienced since independence.

or effective institutions for economic performance (see, for example, Hall and Jones 1999, Acemoglu et al. 2000, Gerring et al 2005, Libman 2012, Piątek et al. 2013), the effect of democracy on economic development is not direct and has been a subject of much argument among researchers (Salahodjaev 2015).

Democracy is seen as the process of demilitarization in developing countries in the late 1970s and early 1980s and the concept now is commonly recognised by aspects like equality, freedom, modernity and progress (Rachdi and Saidi 2015). Many developing economies introduced several reforms to improve democracy. However, Przeworski and Limongi (1995) asked the question of whether in the political realm democracy enhances or hinders economic growth.

2.5.1 Theoretical Evidence: Democracy and Economic Growth

Evidence from the theoretical literature is complex. A widespread view is that democracy requires as a precondition some level of economic development. However, there is no consensus on the features of development that matter and the reasons. Some academics are of the view that a certain level of development is a prerequisite for a stable democracy because prosperity weakens the amount of distributional conflicts; another opinion is that development creates the education or the communication networks that are essential in supporting democratic institutions, while others are of the view that it boosts the ranks of the middle class and supports the formation of a competent bureaucracy, among others (see, for example, Przeworski and Limongi 1995, Glaeser et al. 2004, and Przeworski 2004) .

Furthermore, Przeworski and Limongi (1995), state that views which link regimes to economic growth emphasise the importance of the autonomy of dictators, property rights and pressures for immediate consumption. According to Przeworski and Limongi, while everybody appears to agree that protected property rights enhance economic growth, it is contentious whether democracies or autocracies more effectively secure these rights. They further stated that the key mechanism by which democracy is thought to impede economic growth is pressure for immediate consumption, which reduces investment. It is argued that only states which are institutionally protected from such pressures can

counterattack them and democratic states are not so safeguarded (Przeworski and Limongi 1995).

Likewise, Knutsen state that there is widespread uncertainty in academia and policy communities concerning the relevance of democracy in developing countries with weak state capacity. Many researchers question the economic benefits of democracy in, for example, weak-capacity African economies (Knutsen 2013). He further documents that there is still much scepticism and argument on the economic impact of particular institutional arrangements and whether such effects are context-dependent. For example, De Mesquita et al. (2002) argue that institutional structures influence the type of policies that political leaders pursue.

Even though democracy may motivate politicians to select a variety of sound policies, such as increasing the access to education (see, for example, Lake and Baum 2001, De Mesquita et al. 2002 and Lindert 2004), there is still the question of effectively implementing these policies when state capacity is weak (Knutsen 2013). Also, Knutsen argued further that the regime type may not matter for economic development in weak-capacity states. As such, some researchers suggest that democracy may hinder economic growth in such situations as it may reduce political stability and aggravate distributional conflicts (see, for example, Huntington 1968).

2.5.2 Empirical Evidence: Democracy and Economic Growth

This section reviews empirical evidence on the relationship between democracy and economic growth. In this respect, there seems to be an important empirical question on whether democracy enhances economic growth due to the inconclusive evidence on this relationship. In addition, the empirical studies offered different arguments that enhances or impedes democracy. This indicates there is no consensus on whether democracy enhances economic growth without looking at other factors tied to social or institutional structure that must be present to reap from the benefits of democracy. Impliedly, this means that the empirical findings and suggestions offered by these studies advocates that the relationship between democracy and economic growth is dynamic in nature. For example, Barro (1996) suggest the evidence of a nonlinear relationship in which

more democracy enhances economic development at low levels of political freedom and weakens growth when a moderate level has already been established.

Also the need for certain institutional structures as a prerequisite reflects the theoretical arguments discussed in the previous section. For example, one of the theoretical arguments state that there is widespread uncertainty concerning the relevance of democracy in developing countries with weak state capacity. Many researchers question the economic benefits of democracy in, for example, weak-capacity African economies (Knutsen 2013). This also suggest that the relationship between democracy and economic growth is nonlinear as suggested by Barro (1996).

In regards to the suggestion of prerequisite factors made by different theoretical studies, the empirical evidence on the examination of the relationship between democracy and economic growth gives mixed findings. For example, a study by Brunetti (1997) show that the relationship is inconclusive when he analysed 17 studies and reported that 9 studies suggest no relationship, 1 study claimed a positive relationship and another study reported a negative finding, while 3 studies found a weak negative relationship and another 3 reported a fragile positive link between democracy and economic development. This outcome indicates that there is no consensus on the relationship between democracy and economic growth among researchers. The mixed evidence provided by this analysis reflects the theoretical argument on the economic impact of particular institutional arrangements and whether such effects are context-dependent (Knutsen 2013).

Further evidence of literature, which advocates prerequisite factors, such as that democracy requires as a precondition some level of economic development, Helliwell (1994) employs cross-sectional and pooled data for 125 countries over the period 1960-85 and examines the two-way relationship between democracy and economic growth. The effects of income on democracy are found to be robust and positive, while the impact of some measures of democracy and personal freedom on economic growth are evaluated in a comparative growth framework in which growth of GDP per adult depends negatively on initial income levels and positively on the rate of investment in physical and human capital. These findings also confirm the nonlinear relationship between

democracy and economic growth and in support of the importance of human capital. Hellmanzik (2013) argue that democracy has a significant positive impact on the collective artistic human capital in a country. Rodrik et al., (2004), Mauro (1995), Hall and Jones (1999), and Acemoglu, et al., (2001) advocate that countries with strong political institutions, more secure property rights and a well-functioning system of checks against government's power will invest more in both physical and human capital and will use these factor efficiently to create a greater level of income.

In support of the positive effect of democracy on economic growth, Muller (1995) employs cross-national data from a sample of 58 countries and examined the relationship between economic growth and the level of democracy with emphasis on the effect of income inequality. His results suggest that, as democracy increases, economic growth also rises, thus lowering income inequality in the countries employed for the analysis. Leblang (1996), employed time series panel data over the period 1960 to 1990 and find that political right as a proxy for democracy has a positive and statistically significant effect on economic growth. Leblang further argued that countries with political rights are more inclined to experience economic growth than those without these and that democratic states are likely to protect political rights in a more effective way than other types of government.

Also, Barro (1996) studied the relationship between economic growth and democracy (using indices of political freedom) for a panel of about 100 countries from 1960 to 1999. The positive impact on growth comprise of the maintenance of the rule of law, free markets, low government consumer expenditure and high human capital investment. According to Barro (1996), once these types of variables and the initial level of GDP per capita are held constant, the general impact of democracy on economic growth is weakly negative. In conformity with the positive findings, Feng (1997) examined the relationship between political stability, democracy and economic growth, employing a three stage least-squares method using 96 countries over the period 1960 to 1980. Findings from this study clearly show that democracy has a positive indirect impact on economic growth through its effect on the likelihood of regime and constitutional government changes from one ruling party to another.

To further support the dynamic nature of the positive benefits of democracy on economic growth, Tavares and Wacziarg (2001), argue that democracy promotes economic growth by increasing the accumulation of human capital and by reducing income inequality. Their study employed a simultaneous equation framework in a panel of 65 developed and developing economies for the period 1970 to 1989. In support of Tavares and Wacziarg (2001), Knutsen (2013) analyses the interaction of regime type and state capacity in affecting economic growth. The analysis finds a positive and robust impact of democracy on economic growth in Sub-Saharan Africa, a continent historically characterised by weak-capacity states. Furthermore, Knutsen's analysis identifies a significant interaction effect between democracy and state capacity on economic growth, both in Africa and globally; the impact of democracy on economic growth increases when state capacity is reduced. Democracy is likely to have a positive impact on economic growth in weak-capacity states but not in strong-capacity states. Moreover, the findings suggest that state capacity improves economic growth only in autocracies (Knutsen 2013).

Recently, Rachdi and Saidi (2015), argue that democracy is important for investment and has a positive indirect effect on economic development. Growth in investment happens in an environment of liberty, free-flowing information and property rights secure from the arbitrary power of the state (Rachdi and Saidi 2015). The findings and suggestions made by Rachdi and Saidi reflect the arguments offered by the theoretical studies, which advocates the importance of institutional arrangements. For example, De Mesquita et al. (2002) argue that institutional structures influence the type of policies that political leaders pursue.

In contrast to those studies with positive findings, Yang (2008) examined a sample of 138 countries from 1968 to 2002 and finds that, in countries with high degrees of ethnic diversity; democracy appears to substantially lower growth volatility whereas in countries with low ethnic diversity such a relationship is not significant. Also, Collier and Hoeffler (2009) suggest that in developing economies the combination of natural resource rental income and democracy has been considerably retarded growth. Narayan et al. (2011) and Aisen and Veiga (2013) also confirm this negative impact of democracy on economic growth. Aisen and Veiga (2013), for example, employed a sample of 169 countries for the period 1960 to 2004 and their findings indicate that higher degrees of political instability are accompanied with lower rates of growth

because uncertainty adversely affects physical and human capital accumulation. However, they argue that only ethnic homogeneity and economic freedom positively affect economic growth. This suggests that political instability, for instance in the form of cabinet changes within a stable democracy also affects economic growth Aisen and Veiga (2013). According to them, Political instability is likely to shorten policymakers' horizons leading to suboptimal short term macroeconomic policies. It may also lead to a more frequent change of policies, creating volatility and as a result, negatively affecting economic performance.

There is also a strand of literature that analysed the impact of democracy on economic growth using different political regimes. The impact of political regimes on economic development is open for reflection and research (Przeworski and Limongi 1993). The relationship between political factors and economic development was substantially studied by Lipset (1959) who examined how economic developments affect the political regime (Pinho and Madaleno 2015). Since then, research on the issue has increased making clear that the political environment plays a significant role in economic development (Grier and Tullock 1989, Glaeser et al., 2004 and Acemoglu et al., 2008). In this regard, Przeworski and Limongi (1997) studied 135 countries over the period 1950 to 1990 and in their analysis they observed 224 regimes of which 101 are democratic and 124 are authoritarian. Their findings suggest that democracy is not a by-product of economic development. Democracy is or is not initiated by political actors pursuing their goals and it can be established at any level of development. As such, only when democracy is initiated do economic constraints play a role.

On the other hand, Papaioannou and Siourounis (2008a) examine the within impact of democratisation in countries that abandoned authoritarianism and consolidated representative institutions. The results imply that on average democratisations are accompanied by an increase in annual GDP per capita growth. The evidence supports development theories of democracy and growth that highlight the positive impact of representative institutions on economic activity (Pinho and Madaleno 2015). According to Pinho and Madaleno, democratic societies are usually associated with higher levels of economic development than non-democratic societies. However, Robinson (2006) findings suggest that there is no sign of a causal relationship between economic development and democracy, despite the fact they are highly correlated.

Papaioannou and Siourounis, 2008b) in a cross-sectional study for 174 countries in the period 1960-2005 find that democratisation is more likely to emerge in affluent and especially educated societies, and that economic development and education are also crucial factors determining the power of democratic reforms and how fast democratic changes will occur. Given this outcome, should the belief be that a positive relationship between economic growth and democratization (Pinho and Madaleno 2015)? But on the other hand, Rodrik (1997) find no effect of democracy on economic development. Likewise, Przeworski et al. (2000) find no long-run differences in economic growth between the effect of democratic and autocratic political regimes. Similarly, Levine and Renelt (1992), find that democracy is not a robust determinant of economic development using cross-sectional regressions. Przeworski et al. (2000) examine annual data across a panel of countries and argue that there is no genuine difference in economic growth between autocrats and democrats.

To validate this empirical consensus that democracy has either no measurable effect on, or actually hinders, economic growth rates, Grier and Munger 2006) examine a sample of 134 countries using an unbalanced annual panel data over the period 1950-2003 and defining dictatorship simply as a dummy variable. They suggest that on average non-democratic countries grow approximately 1% per year more slowly, holding regime duration constant, and that regime length has a considerable effect on economic growth that is both nonlinear and regime type specific.

2.6 CRITICAL OBSERVATIONS OF LITERATURE ON THE NATURAL RESOURCE WEALTH - ECONOMIC GROWTH PARADOX

This sub-section presents critical observations from the literature reviewed and the potential contribution of the study. It identifies the limitations and the relevant gaps in the existing literature, particularly relating to Nigeria and explains the attempt of this study to partly fill these gaps. In this regard, three main limitations can be identified from the literature reviewed as follows.

First, prior empirical evidence may be limited by the type of approach used in each study. For example, it appeared that most early studies adopted a one way approach and are largely based on the economic perspective, i.e., the Dutch Disease. The findings of such studies may not show the influence of political

factors discussed above and the attempts by resource-rich countries to escape the resource curse because their approach is purely economic in nature.

Secondly, some researchers relied heavily on cross-country analysis, which could have a substantial effect on the conclusions drawn from the research findings. This is very significant because not all natural resource-rich countries operate in the same economic and political setting. Therefore analysis based on a panel data study and not specific to a particular country's economic and political framework can affect the research findings because uniqueness in their economic and political trajectory are not taken into consideration. This outcome may not direct policy on the most effective way to escape the adverse effect of natural resource wealth.

Finally, studies examining the relationship between oil and economic growth in Nigeria are largely based on an economic perspective which may not show why the country is still struggling with the resource curse. In addition, a one way approach will not incorporate the trajectory of economic and political development which will help guide policy.

2.7 SUMMARY

This chapter reviews the literature on the study of the negative relationship between natural resource wealth and economic growth with specific reference to oil. However, it also reviews studies on the relationship between democracy and economic growth due to the fact that Nigeria returned to a stable democratic rule in 1999 after a long period of unstable political regimes, especially in authoritarian rule.

The chapter has been divided into sections so as to provide clarity in the synthesis of the literature. The first section presents the theoretical literature on the relationship between resource wealth and economic performance. The empirical evidence from studies in this section is also classified into developed and developing countries to show the development of the literature and for clarity purpose. This section also presented some literature focusing on the Nigerian economy. The empirical studies in this first section presented mixed

findings. Some indicated a negative relationship and others documented a positive or no relationship.

The second section surveys the political economy perspective. This approach appeared more appropriate to concentrate on and to apply because of the subsequent development in the theoretical literature which emphasises the need for a broader framework due to the important role of politics in the delivery of the administrative tasks of an economy. In addition, the literature on Nigeria is relevant and has examined some theories but from the literature survey it appears that they are mainly contingent on the economic perspective.

Thirdly, this chapter also reviews some studies on the recent theme in the literature that tries to examine the attempts by countries to escape the resource curse. Also, this strand of literature is contingent on a broader theoretical approach that incorporates social, political and economic factors which helps to explain the policy approach to tackle the resource curse phenomena.

Finally, looking at the historical social and political situation and the gradual development of the oil sector in Nigeria, there is a significant need to adopt a broader analytical framework that will give room for a comprehensive analysis which encompasses the roles of social, political and economic factors at the same time. As such, a political economy methodology is employed as partly informed by the literature review from this and from the subsequent chapters that presents an analysis of the historical structure of Nigeria in relation to its social, political and economic transformation.

CHAPTER 3

THE HISTORICAL POLITICAL ECONOMY OF NIGERIA

3.1 INTRODUCTION

The main argument is developed in this chapter by analysing the history of economic and political development in Nigeria. It was already established in the literature review that the problem of development cannot be understood in economic terms in abstract from the political context.

In the case of Nigeria the variation from a democratic standard is extreme due to the rivalry and divisions that have determined the context in which political struggles currently take place. The struggles have been largely shaped by, and have their foundations in its societal issues such as ethnic, religion and regional rivalry that become central to Nigerian politics. These societal problems are linked to the country's colonial administration which amalgamated the separate regions to form Nigeria.

The path of politics since independence is characterised by ethnic and regional rivalry and this has influenced the administration of the Nigerian economy. Economically, the separate regions that formed Nigeria relied on agriculture for income generation which also provided the Nigerian government with source of revenue. But the discovery of oil and its gradual importance due to rising external demand for oil affected the pattern of economic structure and politics in Nigeria. The impact of economic structure is the gradual shift of oil in becoming the dominant source of government revenue and this also affected the political structure in addition to the existing societal issues.

The main argument is that a lack of national unity or identity due to ethnic and regional differences has hindered the benefits associated with the abundance of

oil production and that this is a key factor in understanding the weak economic performance and low levels of development in Nigeria.

3.2 NIGERIA BEFORE INDEPENDENCE: 1914 - 1960

Nigeria came into being in 1914 from the amalgamation of the Northern and Southern regions under British colonial rule.¹⁹ These separate regions have been shaped and influenced by different social, political and economic backgrounds. In orientation, for example, people from the North have been influenced by trans-sahara trade which brought about the advent of Islam and created a political system before the advent of colonial rule. On the other hand, the Southern region also had external contact through trade with European people like the Portuguese who were sometimes accompanied by Christian missionaries to the West African Coast. This led to the different regions being influenced by different religion in addition to their existing communal backgrounds. The northern people are mainly Muslims while the Southerners are largely Christians (Lewis 2009).

Before 1914, Nigeria did not exist. In 1914, the British colonial administration amalgamated the different regions which were initially administered separately to form the entity of Nigeria. The subsequent years were characterised by a rise in a nationalist movement especially among the educated elites in the Southern part of the country where colonial development started and was given great priority due to the existence of a seaport.²⁰ Schools that taught western style education were first established in the south and subsequently outweighed in number those in the North (Falola and Heaton 2008).

Prior to Nigeria's political independence in 1960, anti-colonial activities emerged and called for increased involvement of Nigerians in the governance of the country. The resistance to colonial rule turned into a nationalist movement steered by a class of European-educated Nigerians that demanded the increased participation of Nigerians in government. The feelings of exploitation and estrangement by Nigerians paved the way for the growth of nationalist movements among different groups and organisations, prominent within which was a Nigerian Youth Movement (NYM) to argue for greater domestic

¹⁹ see Nicolson (1970) and Metz (1991) for more details

²⁰ Nigeria is located in West Africa and its coast which is situated in the South lies on the Gulf of Guinea in the Atlantic Ocean.

involvement and control in the affairs of Nigeria both politically and economically.

However, the nationalist movements that ensued during the colonial administration were not organised or built on national unity or a consciousness that could arouse and foster a national identity. Instead such nationalist movements that promoted the indigenisation of the British colonial government were transmitted into regionally based political parties which were primarily formed on an ethnic basis. As a result, the political independence achieved by Nigeria in October, 1960 was fragile (Falola and Heaton 2008).

On 1st October 1960 Nigeria became an independent nation but was considered fragile. Factors such as the timing from the amalgamation of different socially and politically oriented regions in 1914 and the discovery of oil in 1956 in just one part of the Southern region were not sufficient conditions to create an independent nation in 1960. The timing may not have allowed a sufficient period for the different regions to integrate, develop and achieve sustainable development. For example, countries like the United Kingdom also came into being from the coming together of separate states such as England, Wales, Scotland and Northern Ireland. However, these separate units have had a long enough time to subsume their economic, political and social differences that could hinder the progress of development under one country.

The coming together of the North and South in 1914 and the achievement of independence in 1960 some five decades after amalgamation, together with the discovery of oil in 1956 just four years before independence, have resulted in an aggravation of the diversities present in the country with consequences for economic performance in Nigeria. For example, studies by Karl (1997) and Vandewalle (1998) stated that the probability of the development of oil rich countries is low where oil dominates economic activity and also corresponds in time with state formation. Also, the reliance on oil provides the state with a distribution focus from its beginning and becomes integral during the process (Karl 1997).

3.3 NIGERIA AFTER INDEPENDENCE: 1960 – 1969

As Nigeria emerged from British colonial rule by achieving independence in October, 1960, the subsequent events that followed highlighted three important changes in the period 1960 to 1969. These comprised of political struggles by the three regions, rise of the oil sector and deterioration of key economic sectors, especially the agricultural sector.

The political parties that were formed before independence so as to develop the onset of national politics in the post independent Nigeria appeared to be built on regional platforms. Political parties such as the Northern People's Congress (NPC) and the Action Group (AG), which controlled the Northern and the Western regions respectively, were clearly built on a regional basis (Metz 1991). Also, the National Council of Nigerian Citizens (NCNC) formed in 1963 originated from the Eastern region and began as a nationalist party but was later forced to become largely an eastern region party due to pressures of regionalism (Metz 1991).

In the course of events, many Nigerians attempted to address these problems in several ways. For example, scholars, artists and some political leaders tried to portray a single Nigerian culture through writings, art, speeches and legislation. For instance, in terms of legislation, the Nigerian government adopted a federal system in 1963 to promote national unity. In addition, the government introduced a deployment policy in 1973 called the National Youth Service Corps (NYSC) as a means for furthering national unity. The aim of the programme was to deploy Nigerian graduates of higher institutions (universities and polytechnics) for a one year period in other states away from their home within the country with which they may have not been familiar (Marenin 1990). All these efforts were geared towards promoting a strong central government and an economy that was dedicated to creating and implementing development initiatives throughout Nigeria. These efforts were meant to bring all Nigerians together economically, culturally and politically in order to promote a common identity and discourage differences.

However, in the long-run all the efforts to achieve national unity in Nigeria failed, primarily because of the overpowering inclination of the political rulers to sustain power at the regional level that was based largely along ethnic and regional lines (see, Figure 3.1 below). Figure 3.1 illustrate the different regions in Nigeria from 1960 to 1963. For instance, the regional parties as mentioned above were built upon, and derived their support primarily from, the major groups in their regions. The NPC party derived its support largely from the Hausa/Fulani tribe which is from the North while the AG party was mainly supported by the Yoruba as a major tribe from the South-west. The NCNC party was an Igbo tribe supported party from the South-east. As a consequence, rigged elections, tribalism, official corruption and other public misconduct dominated the practice of politics in Nigeria’s First Republic from 1960 to 1966 (Falola and Heaton 2008).

Figure 3.1 Regions of Nigeria (1960 – 1963)



Source: Author

Note: The Western and Eastern regions originally made up the Southern region. Subsequent to the amalgamation of Nigeria in 1914, the Southern Nigeria was further divided into the Western and Eastern regions in April 1939 as shown in the figure above.

The structure that characterised elections in Nigeria’s First Republic led to fears by Nigerians of domination of their region by other local areas. Northerners

feared domination by the South, which comprised of both the Eastern and Western regions (see, Figure 3.1 above). At the same time Southerners also feared Northern domination. For instance, the fears from the Northerners reflected the well-founded suspicion that the South considered the Northern region as backward because of the advantage the South has in terms of Western style education, due to the early arrival of mission schools (Bevan et al. 1999). This shows differences in the two regions level of education which will also give the Southerners more opportunities in terms of employment, especially in the public sector. As a result, these fears provided a platform for the conduct of flawed elections in 1964 and 1965 in which political malpractice was employed in all regions in order to achieve power and escape domination (Falola and Heaton 2008).

Fears of regional domination created doubt in the minds of many Nigerians. For example, some Nigerians believed that legislation by government such as the adoption of a federal system in 1963 to promote national unity was dysfunctional and that the Nigerian entity would cease to exist as one country. These events and tactics culminated directly in the overthrow of the First Republic's government by military officers in 1966. This set the stage for the onset of political instability in Nigeria because the coup illustrated and highlighted the underlying regional and ethnic problems in Nigeria.²¹

In just one year, there were two military coups. The first occurred in January 1966 and the second took place in July 1966. The first overthrew a civilian government while the second overthrew its counterpart. The first coup witnessed the assassinations of prominent Nigerian leaders such as Prime Minister Abubakar Tafawa Balewa, Sir Ahmadu Bello as the Premier of the Northern region and Samuel Akintola as the Premier of the Western region among other victims. This coup brought in a South-Easterner by the name of Major General Johnson Thomas Ummunakwe Aguiyi-Ironsi as the Head of State of Nigeria from 16th January, 1966 until he was overthrown and killed in a second coup on 29th July, 1966. He was succeeded by Major-General Gowon who is from the Northern part of Nigeria.

²¹ Nigeria comprised of over 250 ethnic groups and of these, the Hausa-Fulani are found in the North, Yoruba in the South-West and the Igbo tribe in the South-East (Lewis 2009).

An event that amplified regional and ethnic rivalry in Nigeria is the occurrence of a civil war from 6 July 1967 – 15 January 1970. The war was instigated by the people of the Eastern region who tried to break away from Nigeria in order to establish a sovereign state of Biafara due to a feeling of marginalisation. However, the latter was able to reincorporate the seceded Eastern oil producing region back into the central state of Nigeria. The civil war only served to highlight the problems associated with the creation of national unity because the civil war symbolised the nationalist ambitions of the major Igbo tribe from the South-east of Nigeria, who felt that they could not live with the First Republic federal government which was largely dominated by Northerners. However the nature of the underlying causes of the civil war is complex (Kirk-Greene 1971).

Prior to the first two periods of political instability and the civil war, the Nigerian Government under the First Republic initiated the First National Development Plan (FNDP) for the period 1962 to 1968. The FNDP was initiated along the lines of previous development plans designed by the British colonial administration. However, it differed from the export oriented approach of the colonial administration which sought to promote the agricultural sector to boost an export economy. Instead the FNDP focused largely on promoting manufacturing and other industrial activities that could fuel economic independence.

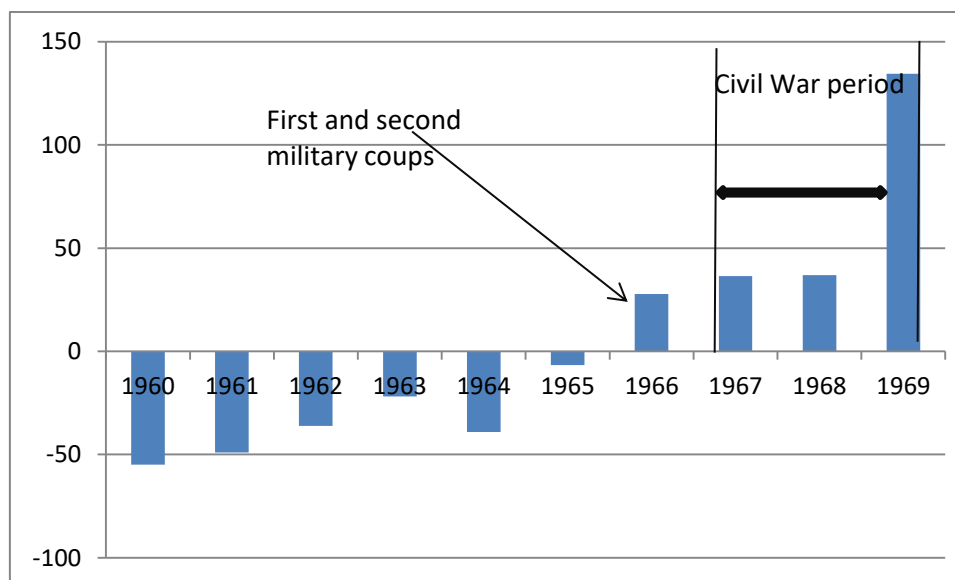
According to some studies such as that by Falola and Heaton (2008) the FNDP was characterised by both success and failure. In terms of success, the Nigerian economy was becoming more diversified due to the boost in manufacturing and other industrial sector (Falola and Heaton 2008).

To depict the claimed success of the FNDP, this study employs the total trade balance. The total trade balance is an important economic variable to use as the literature on natural resource wealth argued that resource rich countries are prone to declining terms of trade among other negative outcomes. For example, Prebisch (1950) and Singer (1950) suggested that countries relying on the exports of primary commodities would experience weak economic growth and their argument relied largely on the assumed long-run deterioration in the terms of trade associated with primary products (Fosu and Gyangang 2011).

As such, the success of the FNDP can be seen in the positive changes of the balance of trade as shown in Figure 3.2 below, which shows the total balance of

trade from 1960-69. 1960 marked the year of independence and the total trade balance was -N54.96 million; in 1965 it improved to -N6.65 million. The total trade balance became positive from 1966 with a value of N27.73 million, but the year 1966 also witnessed two military coups. At the end of the FNDP in 1968 the value of the total trade balance rose to N36.94 million. However, this could be due to the rise in oil exports which started in the mid-1960s (see Figure 3.7 below) and this also instigated and set the stage for political instability as two military coups occurred (see Figure 3.2 below). That notwithstanding, it can be confirmed that the positive changes in the trade balance are due to increases in oil exports as the subsequent years (1967-70) were characterised by a civil war (see Figure 3.2) which originated from the oil producing region.

Figure 3.2 Total Trade Balance (1960 -1969)



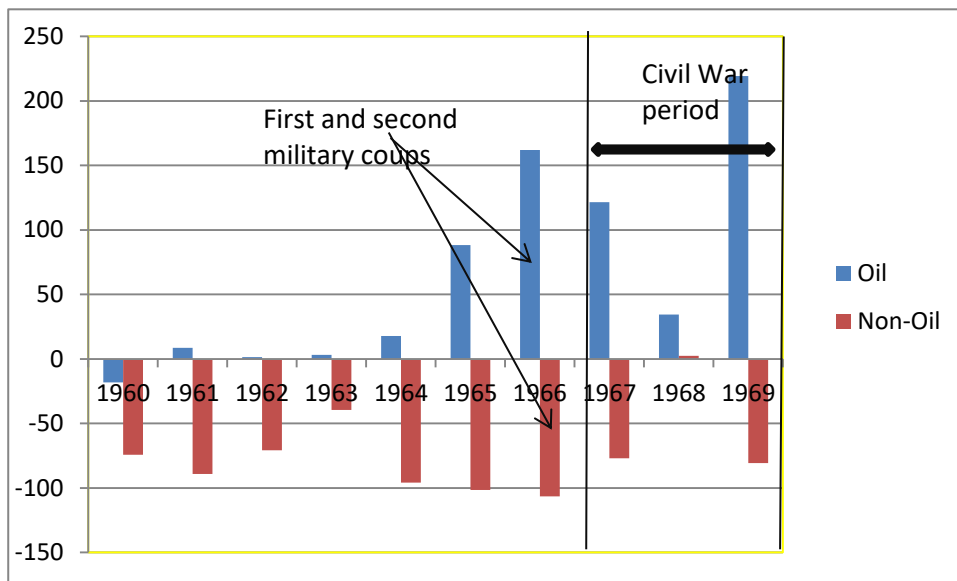
Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the total trade balance in Naira million, while the horizontal axis shows the period in years from 1960 to 1969.

Similarly, Figure 3.3 shows that the oil trade balance experienced upward and significant movements especially from 1965 and in the years that followed. This can explain the positive changes in the total trade balance from 1966-69 and the corresponding political and social problems such as the 1966 coups and civil war. This can also indicate that the period 1960-69 which witnessed the FNDP initiated by the first civilian rule after independence was not that successful in

terms of promotion of non-oil sectors. However, the oil sector saw an increase in its trade balance during the period under discussion and this can be treated as exogenous because as at then the Nigerian oil sector was not nationalised. Impliedly, this means that the role of government was minimal as it only grants concessions to foreign oil companies.

Figure 3.3 Trade Balance for Oil and Non-Oil Sectors (1960 -1969)



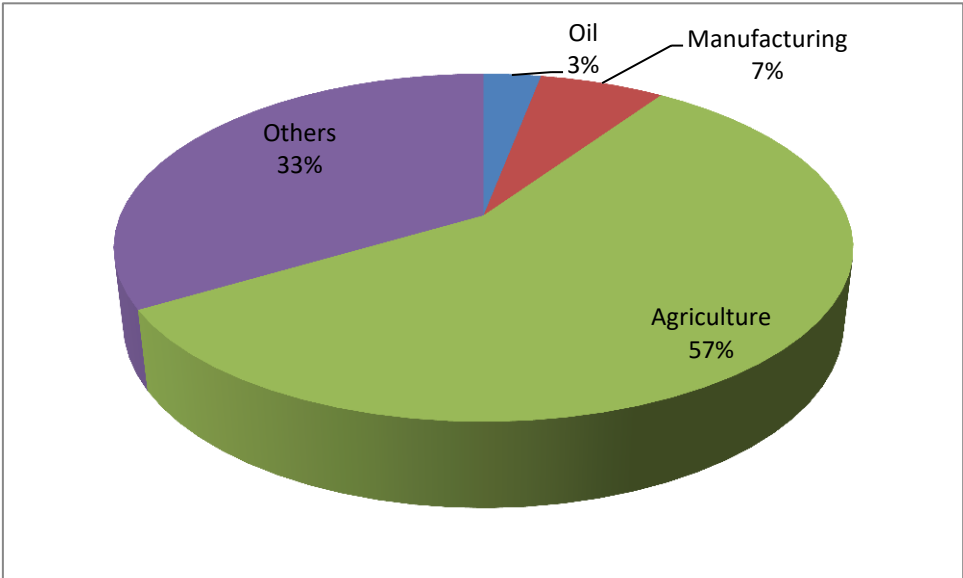
Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the trade balance for oil and non-oil sectors in Naira million, while the horizontal axis shows the period in years from 1960 to 1969.

The negative values recorded by non-oil trade balance showed that the exports from non-oil sectors are lower than imports and this indicates the declining performance of these sectors in the midst of the onset of political instability and civil war in Nigeria. In 1966, the first and second military coups took place and this led to disruptions in the FNDP as the military administration may have a different development agenda or even if their development plans are the same, the interruption may have affected public administration and exerted adverse effects on economic activity. From Figure 3.3 the non-oil trade balance recorded the highest negative value in that period. Also the subsequent years that followed were characterised by a civil war and with considerable negative values shown by non-oil trade balances except in 1968.

The negative non-oil trade balance was an indication of weak economic performance. The deterioration in economic activity which can be further linked to political instability is demonstrated here using the output of the agricultural sector. The agricultural sector is employed because of its significant contribution to GDP as shown below in Figure 3.4 which illustrates the percentage share of agriculture, manufacturing, oil and other components of Nigeria's GDP from 1960-69.

Figure 3.4 Output of Oil, Manufacturing and Agriculture: 1960 -1969



Source of Data: Central Bank of Nigeria (2010)

Note: 'Others' signify other components of Nigeria's GDP which includes building and construction, wholesale and retail trade, services and other industrial activities.

The deterioration in the agricultural sector can be seen from Figure 3.5 below which shows that agricultural output was higher than oil and manufacturing output but it displayed a decline under the period of the FNDP from N1, 742.20 million in 1965 to N1, 581.80 million, N1, 358 million and N1, 338 million in 1966, 1967 and 1968 respectively. The year 1966 witnessed two military coups which meant another sudden disruption in the administration of Nigeria due to continued existence of political struggles tied to societal issues such as regional and ethnic differences.

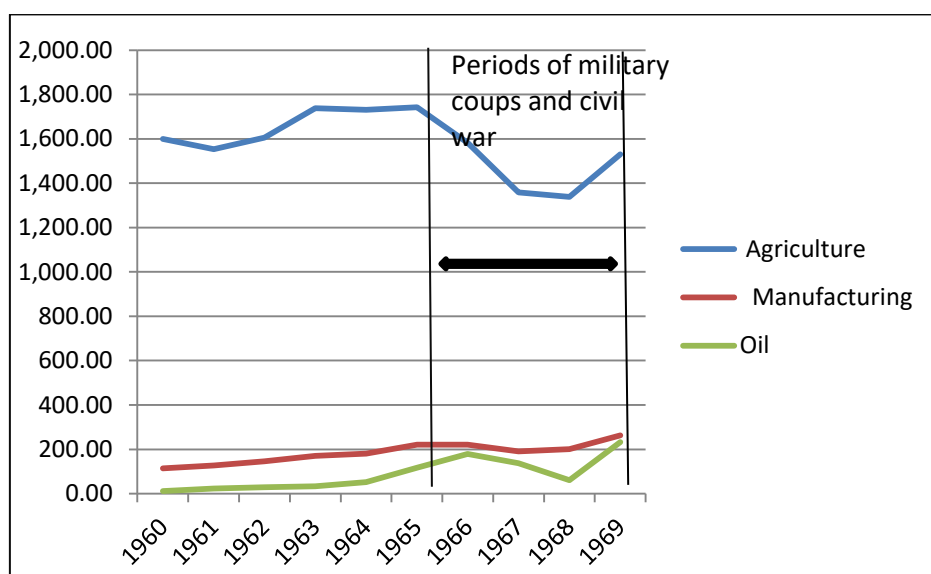
The decline in agriculture during the period of political upheavals and the onset of a new independent Nigeria was not helpful as agriculture provided most Nigerians with income to sustain survival. Also from Figure 3.4 above and 3.5 below it is clear that agricultural output is significantly higher than manufacturing and oil and this showed that agriculture was the mainstay of economic activity in Nigeria.

Furthermore, the extensive promotion of manufacturing and other industrial activities by the FNDP which could lead to economic independence appeared to result in a deterioration of the agricultural sector between 1965 and 1968. This type of approach came too early for a country in its early stage of political independence where agriculture used to be the main source of economic enhancement during the colonial administration and with a population that largely depended on it as a source of income.

It can be seen from Figure 3.5 that deterioration in agriculture occurred during periods of political instability and civil war. The literature on political economy also suggests that natural resource dependence, especially on oil and other minerals, have significant negative effects on democracy (Ross 2001 and Jensen and Wantchekon 2004). Jensen and Wantchekon (2004), for example, suggested that an abundant supply of natural resources led to a decrease in the rate of economic growth in African oil-rich countries.

Also, studies by Collier and Hoeffler (2002) and Ross (2004) suggest that oil wealth is causally associated with civil conflict through various mechanisms. For instance, Ross (2004) identified these mechanisms as comprising of grievances from the population of the resource-rich area, oil wealth weakens the state's bureaucratic capacity and resource wealth if located in a country's area inhabited by an ethnic minority, will give local people a financial motivation to establish a separate state. This also depicts the Nigerian situation where the oil producing region populated by a large ethnic minority attempted to secede from Nigeria.

Figure 3.5 Outputs of Oil, Manufacturing and Agriculture (1960 -1969)



Source of Data: Central Bank of Nigeria (2010)

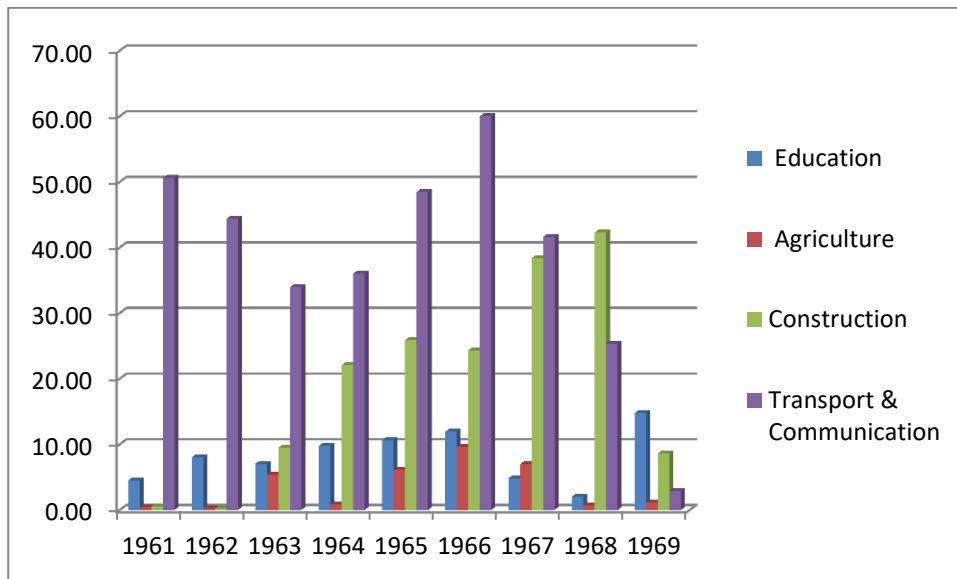
Note: The vertical axis shows the output of the three sectors (agriculture, manufacturing and oil) in Naira million, while the horizontal axis shows the period in years from 1960 to 1969.

Likewise, the deterioration of agriculture as the main economic activity also portrays the findings and arguments made by some studies in the literature, especially the studies that adopt the political economy framework in their analysis. Karl (1997), for example, argued that reliance on oil revenues leads to the rise of petro-states which are driven towards the political distribution of rental income rather than the promotion of economic development. The development of petro-states, as advocated by Karl (1997), is most likely where oil domination of the economy corresponds to the process of state formation.

It also appeared that the government failed to incorporate the historical nature of Nigeria especially in its economic dependence on agriculture in its FNDP and instead applied its development plans to make Nigeria more independent of foreign domination. For example, emphasis was given to the promotion of industrialisation through increased government spending on sectors such as transport and communication to support it as shown in Figure 3.6 below rather than the agricultural sector despite the regional dependency on farming even during the colonial period. In essence, it can be argued that the beginning of oil

sector contribution in financing a part of government expenditure was tilted towards the promotion of sectors other than agriculture so as to support the main source of income of the majority of the populace that resides in rural areas. Agricultural exports used to be the mainstay of the Nigerian economy before the 1970s (Oyejide 1986).

Figure 3.6 Government Recurrent Expenditure (1961-1969)

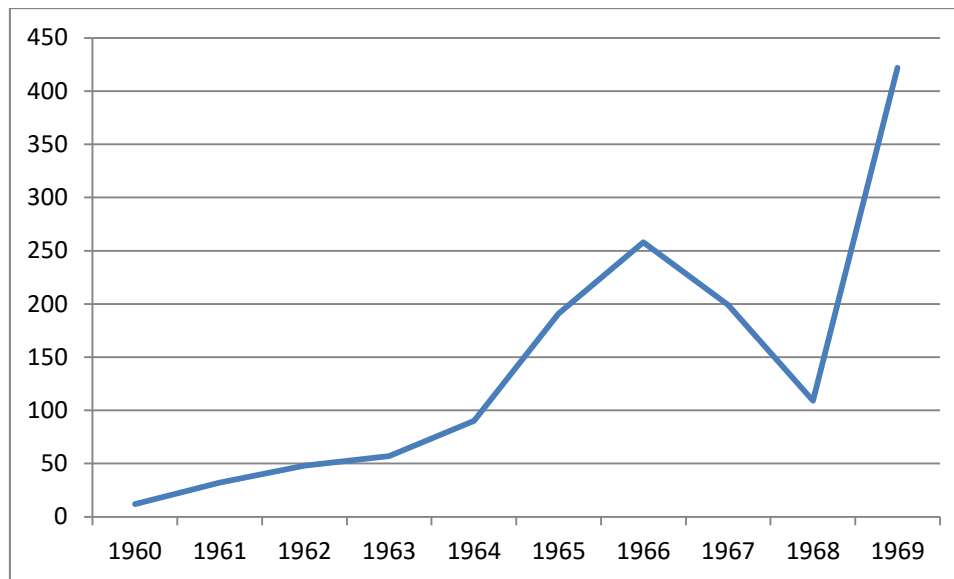


Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of government expenditure on four sectors (education, agriculture, construction and transport and communication) in Nigerian local currency (Naira), while the horizontal axis shows the period in years from 1961 to 1969.

Societal issues seem to have influenced government spending behaviour coupled with rising oil exports (Figure 3.7 below) which translated to rising oil revenue for the government. For example, it is reported that the NPC leaders situated capital projects in the Northern part of Nigeria and this resulted in a charge of regional bias in resource allocation and public investment by opposition parties (Lewis 2009). This in turn can exacerbate the effects of oil exports on the agricultural sector through the Dutch Disease or the enclave structure of the oil industry as established in the extant literature (see, Hirschmann, 1958; Corden and Neary, 1982).

Figure 3.7 Oil Exports (Million US Dollars)



Source of Data: OPEC Statistical Bulletin (2010)

Note: The vertical axis shows the values of petroleum exports in million US dollars, while the horizontal axis shows the period in years from 1960 to 1969.

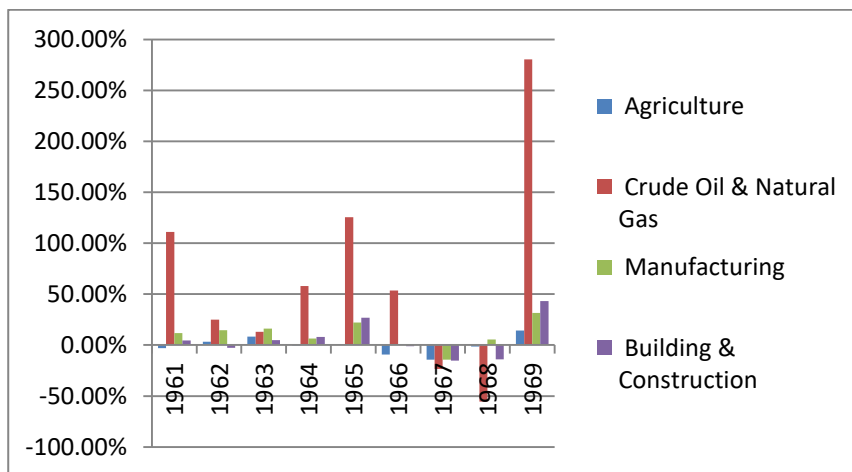
Each region prior to independence relied on agriculture and yet after independence the Nigerian government did not focus attention through increased government spending on the agricultural sector. Instead there appears to be cuts, for example, in 1964 and 1968 which could indicate that regional bias in resource allocation was prioritised on non-agricultural projects that may not have a wider impact on the population. Instead this could have opened an avenue for rent seeking through project/contract allocations.

In support of the above outcome, Ross (2001), for example, argued that, when governments receive windfalls from natural resources, rational political elites will take the chance to either directly seize the rental income or gain control over the right to allocate the revenues by 'rent-seizing'. In a related argument, Ascher (1999) suggested countries rich in natural resources have wasted their natural resources because political elites have an inclination to use them to pursue political goals such as the funding of contentious development programs, achieving control over resource rent allocation and providing economic benefits to specific groups.

The increases in government expenditure on sectors like construction to the detriment of agriculture can be tied to regional rivalry which also pressurised regional governments for projects to be cited within its domain. A prominent example is the decision made in 1964 to divide the iron and steel industry into two sections, one to be located in the East, another in the North. The industry could have been divided into three parts to include the Western region, but at that time its political power was weak (Bevan et al., 1999).

The behaviour of government expenditure showed that other sectors were given more importance than agriculture and this led to an expansion of the Nigerian economy during 1960-65. Sectors like crude oil and natural gas, manufacturing, building and construction, public utilities, wholesale and retail trade, health and education observed a higher growth than the agricultural sector which was beginning to show a decline. The growth rates in these sectors in comparison with agriculture are depicted in Figures 3.8, 3.9 and 3.10 below.

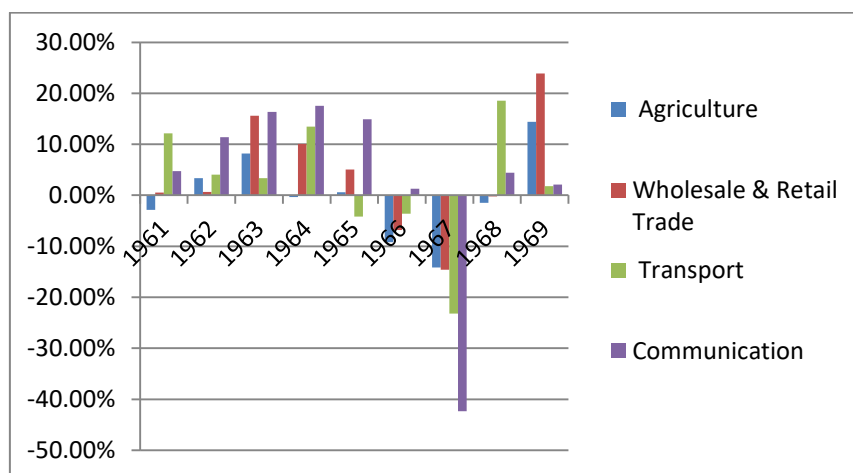
Figure 3.8 Annual Growth Rate of Agriculture in Comparison with other Economic Sectors (1961 – 1969)



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the annual growth rate of the four sectors (agriculture, crude oil and natural gas, manufacturing and building & construction), while the horizontal axis shows the period in years from 1961 to 1969.

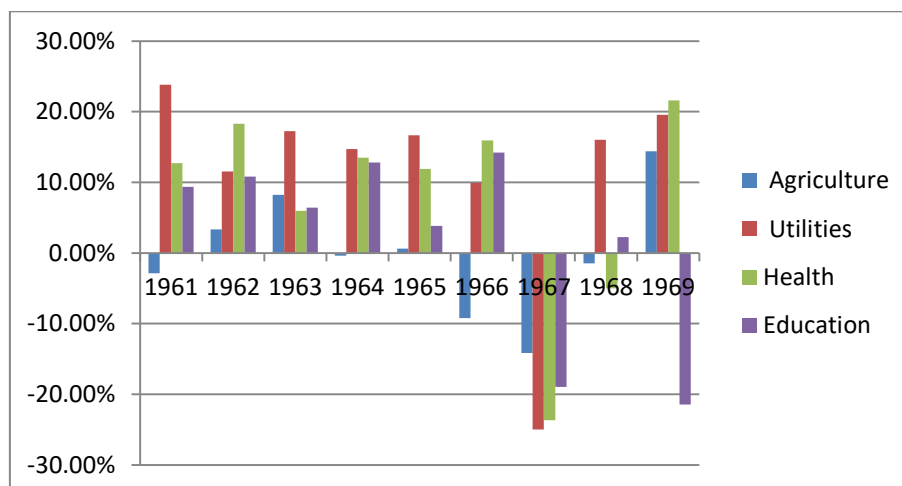
Figure 3.9 Annual Growth Rate of Agriculture in Comparison with other Economic Sectors (1961 – 1969)



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the annual growth rate of the four sectors (agriculture, wholesale and retail trade, transport and communication), while the horizontal axis shows the period in years from 1961 to 1969.

Figure 3.10 Annual Growth Rate of Agriculture in Comparison with other Economic Sectors (1961 – 1969)



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the annual growth rate of the four sectors (agriculture, utilities, health and education), while the horizontal axis shows the period in years from 1961 to 1969.

It is clear from Figures 3.8 to 3.10, that the annual growth rate of agriculture experienced a decline especially from 1964-66. The regional rivalry created a government spending behaviour tilted towards provision of infrastructure largely in the urban centres or where not needed because politicians used the FNDP as means for making promises in order to win elections (Bevan et al. 1999). For example, in terms of promotion of economic independence, the location of projects had also led to the deterioration of the agricultural sector in Nigeria. Agricultural activities which are largely subsistence and located in rural areas did not benefited from infrastructural facilities that can deliver or store farm produce which could in turn add to manufacturing activities that are largely based in the urban centers.

Prior to independence, emphasis was given to agriculture which led to research and development and the introduction of new farming techniques through extension of services and the provision of infrastructural facilities such as railways by the colonial administration. This development accompanied the expansion of agricultural exports, especially in crops in the late 1950s and early 1960s but in the late 1960s, major agricultural programmes on domestic food crops were considered unnecessary (Oyejide 1986).

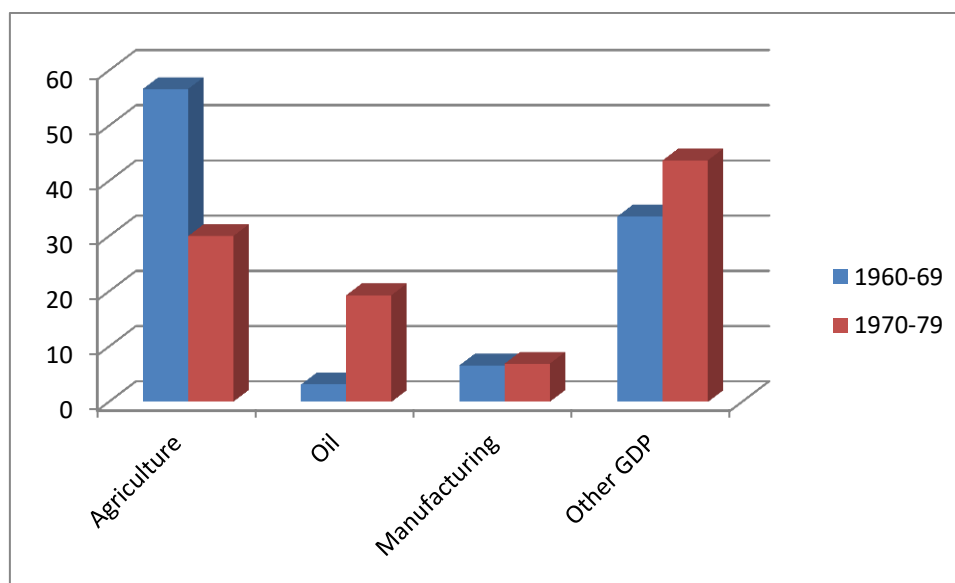
3.4 NIGERIA AFTER INDEPENDENCE: 1970 – 1999

As Nigeria emerged from the early periods of political instability, civil war and witnessed the establishment of the FNDP's, issues of political rivalry, ethnic and regional divisions continued to dominate the scene. These outcomes began to define a new phase after a decade of achieving political independence. The continued lack of national unity exhibited itself in politics. Political instability continued and the military dominated the scene.

Nigeria has developed extensively but, due to the rapid growth of the oil sector in the 1970s, oil production which is located in the one region of the Niger Delta gradually became Nigeria's main export and transformed the country into the wealthiest nation in the African continent in the 1970s. However, rather than the oil sector contributing to the general development of the key sector of agriculture that provided employment opportunities to the majority of the Nigerian population, the output of the agricultural sector declined from 56.66%

of total output over 1960 – 1969 to 30.01% for the period 1970 – 1979 as illustrated in Figure 3.11 below. In contrast the output of the oil sector which is claimed to employ only a few of the educated population recorded an increase from 3.14 % of total output from 1960 to 1969 to 19.32% for the period 1970 to 1979. Manufacturing output showed a minimal increase from 6.59% achieved over 1960 to 1969 to 6.90% for the period 1970 -1979. This could be due to the policies of the FNDP that targeted industrialisation (see Bevan et al. 1999).

Figure 3.11 Outputs of Oil, Manufacturing and Agriculture



Source of Data: Central Bank Nigeria (2010)

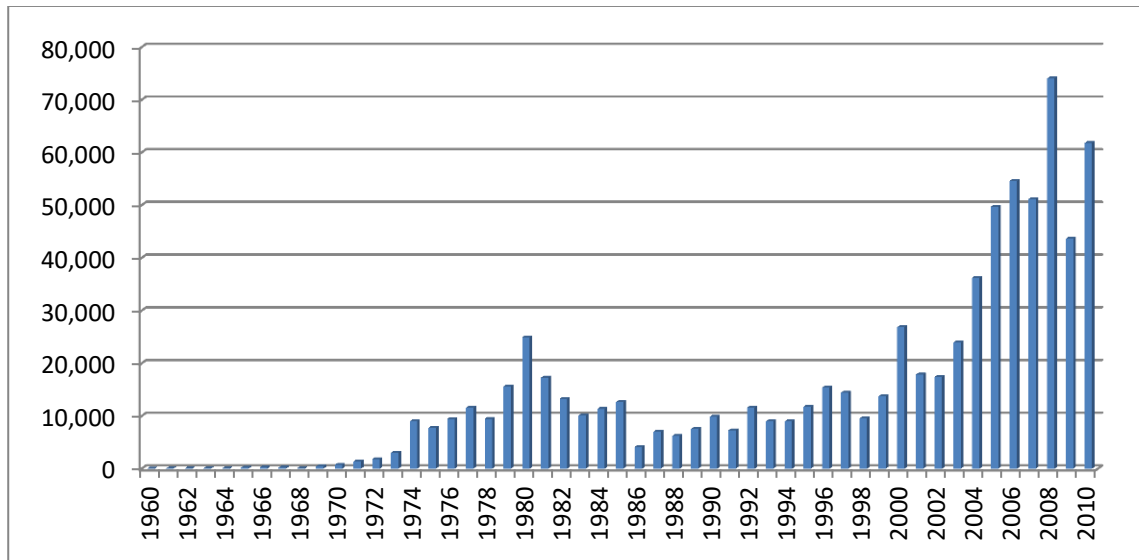
Note:

(1). Others mean other components of Nigeria’s GDP and these include building and construction, wholesale and retail trade, services and other industrial activities.

(2). The output of oil, manufacturing and agriculture are comparisons between the periods 1960-69 and 1970-79. The vertical axis shows percentages of annual averages covering 10 years for each period.

Similarly, oil production and exports increased in the 1970s and 1980s, as shown in Figure 3.12 below. For example, oil exports in 1960, 1965 and 1970 were \$12 million, \$191 million and \$178 million respectively. In the 1970s, a period that coincided with rising world oil prices, the value of oil exports grew to \$3,049 million, \$8,997 million, \$7,744, \$9,444 and \$11,561 million in 1973, 1974, 1975, 1976 and 1977 respectively, giving more revenue for the government as shown in Figure 3.13 below.

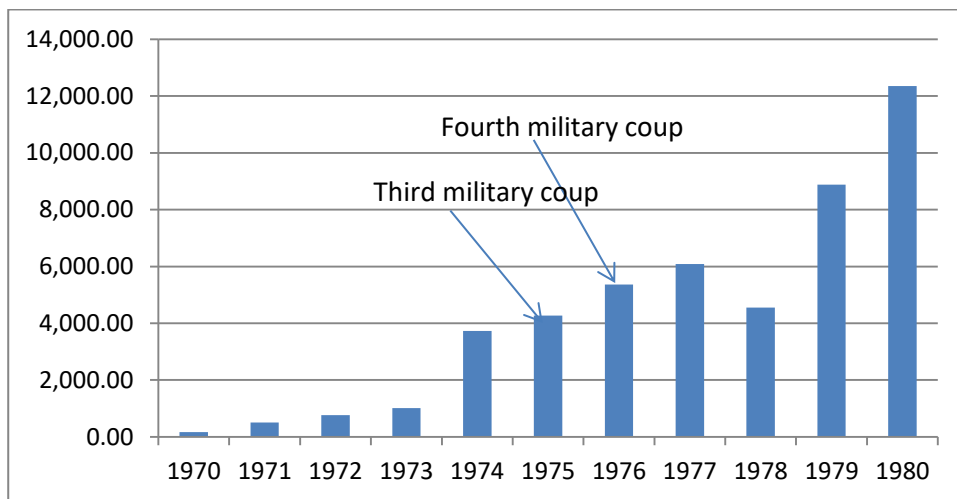
Figure 3.12 Oil Exports (Million US Dollars)



Source of Data: OPEC Statistical Bulletin (2010)

Note: The vertical axis shows the values of oil exports in Nigeria in million US dollars, while the horizontal axis shows the period in years from 1960 to 2010.

Figure 3.13 Oil Revenue (1970 -1980)



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of oil revenue in Nigerian local currency (Naira), while the horizontal axis shows the period in years from 1970 to 1980.

Increases in oil revenues in the 1970s also marked the beginning of a falling output share of manufacturing and agriculture. Tables 3.1 and 3.2 below

illustrate the percentage share of oil, manufacturing and agricultural output from 1960 - 1969 and from 1970 - 1980 respectively. The figures depicting the development of the Nigerian oil industry and other economic sectors revealed that manufacturing and agriculture outweighed oil in Table 3.1 below.

Table 3.1 Output of Oil, Manufacturing and Agriculture in Nigeria (1960-69)

Year	Oil	Manufacturing	Agriculture	Others
1960	0.44%	4.58%	64.27%	30.71%
1961	0.93%	5.10%	62.12%	31.85%
1962	1.12%	5.64%	61.82%	31.42%
1963	1.16%	6.02%	61.50%	31.31%
1964	1.76%	6.14%	58.74%	33.36%
1965	3.71%	7.02%	55.36%	33.91%
1966	5.89%	7.28%	51.95%	37.32%
1967	5.42%	7.52%	53.73%	33.33%
1968	2.40%	7.88%	52.60%	37.12%
1969	7.19%	8.17%	47.45%	37.19%

CBN Statistical Bulletin (2010)

Note: The values in percentages of oil, manufacturing and agriculture represents share in total GDP and others mean other components of Nigeria's GDP and these include building and construction, wholesale and retail trade, services and other industrial activities.

However, over time the output of agriculture began to decline and the oil sector appreciated in comparison to the others. For example, the oil boom years of the 1970s affected Nigeria's manufacturing sector and its output declined as a percentage of GDP from 7.53 percent in 1970 to 4.37 percent in 1975 (see Table 3.2 below and Figure 3.14 below). Figure 3.14 depicts the output of the oil, manufacturing and agricultural sector from 1970 to 1980.

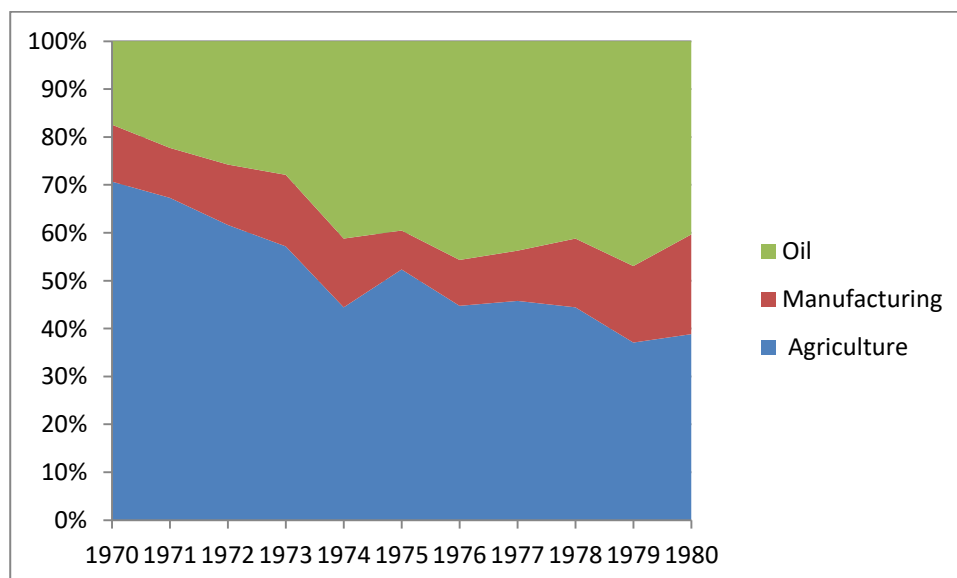
Table 3.2 Output of Oil, Manufacturing and Agriculture in Nigeria (1970-80)

Year	Oil	Manufacturing	Agriculture	Others
1970	11.04%	7.53%	44.74%	36.69%
1971	13.94%	6.53%	42.10%	37.44%
1972	15.89%	7.79%	38.04%	38.28%
1973	16.63%	8.90%	34.06%	40.41%
1974	21.31%	7.42%	22.98%	48.28%
1975	21.24%	4.37%	28.11%	46.28%
1976	23.94%	5.02%	23.46%	47.57%
1977	22.44%	5.38%	23.48%	48.70%
1978	21.31%	7.42%	22.98%	48.28%
1979	25.50%	8.68%	20.15%	45.67%
1980	21.41%	11.05%	20.61%	46.93%

Source of Data: CBN Statistical Bulletin (2010)

Note: The values in percentages of oil, manufacturing and agriculture represents share in total GDP and others mean other components of Nigeria's GDP and these include building and construction, wholesale and retail trade, services and other industrial activities.

FIGURE 3.14 Output of Oil, Manufacturing And Agriculture



CBN Statistical Bulletin (2010)

The vertical axis shows the output of the three sectors (oil, manufacturing and agriculture) in percentage terms, while the horizontal axis shows the period in years from 1970 to 2010.

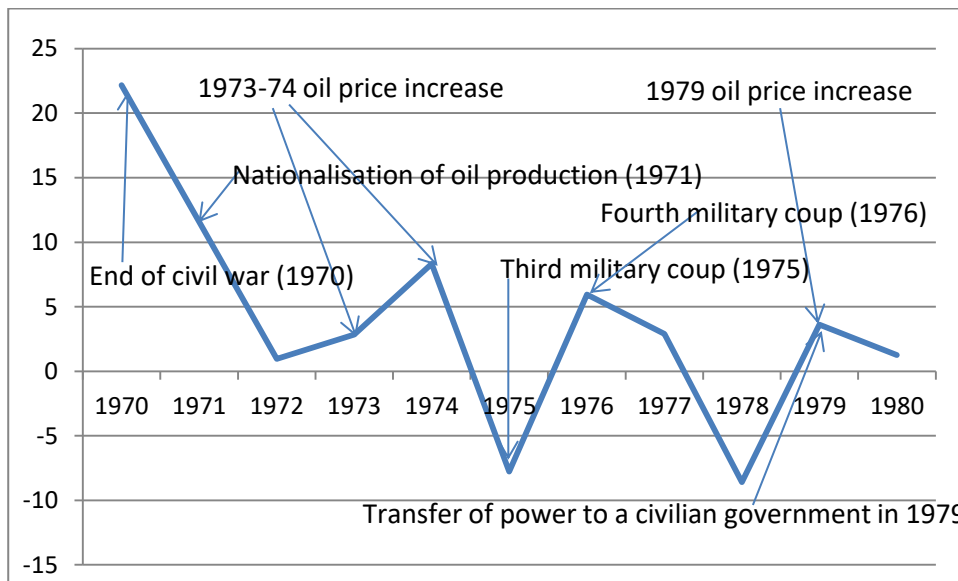
Deterioration of output in the manufacturing and agricultural sectors, especially in the 1970s, indicated the evidence of the Dutch Disease which led to an appreciation of the domestic currency and as a result this leads to a deterioration of the domestic manufacturing sector as lower-cost goods are imported in and export becomes more expensive (Corden and Neary 1982). The observed deterioration of agriculture, in particular in the 1970s also indicated deterioration of economic performance due to the significant contribution of the agricultural sector in total GDP as shown Tables 3.1 and 3.2 above.

To further examine the effect of oil on economic performance due to the significant contribution of agriculture, the GDP per capita growth rate is employed. Studies in the literature which adopt the political economy approach such as those by Ross (2001), Jensen and Wantchekon (2004) and Oskarsson and Ottosen (2010) employ this economic indicator in their analysis of the relationship between natural resource wealth and economic growth. The weak performances of manufacturing and agriculture observed in the 1970s may help to explain the low and negative annual growth of GDP per capita in the 1970s as shown in Figure 3.15 below.

In addition, from Figure 3.15 it can be seen that the period from 1970-80 was characterised by both key economic and political events. Increases in the oil price and nationalisation of oil production was externally motivated and tied to political motives. For example, the oil price increase in the early 1970s was the result of an oil embargo by OPEC as a response to American involvement in the Yom Kippur war between Egypt and Israel. Moreover, the 1970s also witnessed two military coups. This indicated continued political instability in Nigeria in the face of rising oil revenues and the growing importance of the oil sector from its contribution to GDP.

From the analysis of the period 1960-69 which was six years after independence and ten years after oil discovery, political instability occurred in 1966. The subsequent year was accompanied by a civil war which also corresponded with a rising oil trade balance and a negative non-oil trade balance. As such, the events in the period 1960-69 also repeated themselves or continued to exist in the following years from 1970-80 as military coups continued.

Figure 3.15 Annual GDP Per Capita Growth Rate in Nigeria



Source of Data: World Bank Development Indicators (2014)

The vertical axis shows the annual growth rate of GDP per capita, while the horizontal axis shows the period in years from 1970 to 1980.

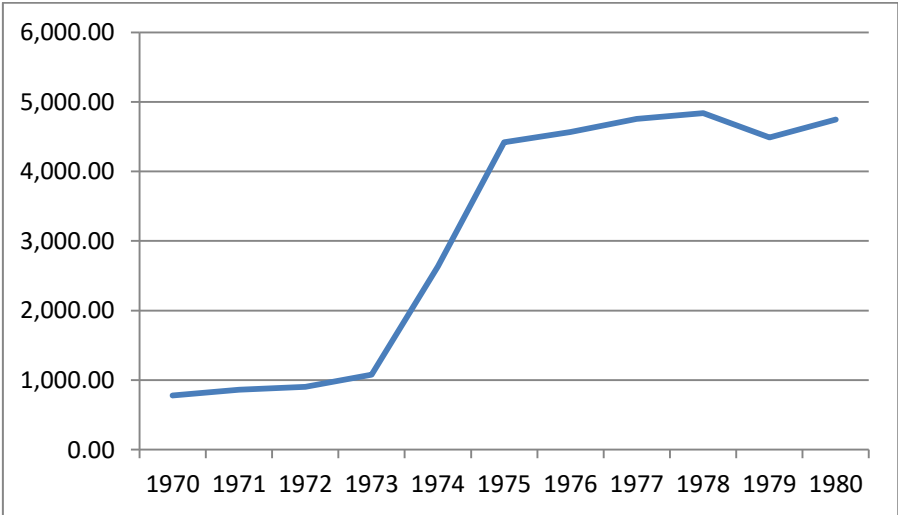
The continuity of the previous period scenarios serves to highlight the arguments made in the political economy literature. One major argument is that natural resource wealth in oil hinders democracy (Wantchekon 2002, Jensen and Wantchekon 2004 and Tsui 2011). For example, Collier (2010, p. 1-2) states that “although the initial explanation for the resource curse, Dutch disease, was purely economic, it has gradually become evident that the key issues are political. The political economy of natural resources is about the interplay between politics and valuable natural assets. The interplay is potentially in both directions: politics can affect the exploitation of natural assets, and natural assets can affect politics. In principle, either of these could explain the resource curse, but there is a reasonable basis for thinking that both are important”.

In recognition of the literature, the deterioration in economic performance as revealed by the agricultural and manufacturing sectors and the annual growth rate of the GDP per capita can also be the result of continued political instability after the first two coups in 1966 and also again in 1975 and 1976. Political instability also meant sudden changes in the administration of Nigeria and existing economic policies may be terminated by the government in power.

The coups between 1966 and 1976 were all military led and as such the period was characterised by extended military leadership. For example, in July 1975 the leaders of the coup installed a Northerner, General Murtala Mohammed, as the head of the Nigerian federation. However, this regime was short lived as the General was assassinated in February 1976 after only six months in office. The leaders of the military coup then installed Lieutenant General Olusegun Obasanjo, a South-Westerner, as the head of state.

As such, the decline in economic performance revealed by economic indicators such as agricultural output and GDP per capita can be linked to unstable government policies brought about by political instability. For example those policies targeted for boosting industrial development in transport, communication and utilities were mostly located in urban centers. This has led to the expansion of other economic sectors such as the service sector due to increases in oil revenues in the early 1970s (see Figure 3.16 below) as government can afford to pay wages and salaries. Most of the services subsectors such as education, health, rail and air transport, telecommunications and post, electricity and water are state owned.

Figure 3.16 Output of Services



Source of Data: CBN (2010)

The vertical axis shows the output of the service sector (i.e., transport, communication, utilities, finance and insurance, among others) in Nigerian local currency (Naira) and in millions, while the horizontal axis shows the period in years from 1970 to 1980.

The expansion of the services sector which is illustrated using its output marked the beginning of fast increases in off-farm income earning opportunities and the neglect of agriculture by many of the rural dwellers to migrate to urban cities in search of jobs in the expanding service sector.²² In 1970, the annual growth rate in agriculture was 23.34% and that of services was 31.67%. This means a difference of 8.33% between the two sectors. However, looking at previous years like 1962, the services sector recorded a growth rate of 5% while agriculture recorded 3.35%. This shows a difference of 1.65% which is smaller compared to 1970. This information also revealed that introduction of some policies like expansion of public services and the introduction of universal basic education in the 1970s has also helped in bringing sectoral changes. According to (Oyejide 1986) this development heightened the rate of rural-urban migration at the detriment of agricultural sector (Oyejide 1986). As such policies introduced by the government have also brought about sectoral imbalances which resulted in labour shortages that can have adverse effects.

Beside the continued rise of the oil and services sectors and continued decline of the agricultural sector, the 1970s also witnessed the establishment of the Second National Development Plan (SNDP) (1970-74) launched by General Yakubu Gowon who was the Nigerian military president at that time. The SNDP was similar to the FNDP but it also embraced transformation of the whole society as one of its main objectives. It saw the use of planning as a means for social change by rectifying weaknesses in existing social relations in different areas of production, distribution and exchange (Ekundare 1971). However, despite the establishment of the SNDP, there appeared to be deterioration in agricultural and manufacturing production as discussed above.

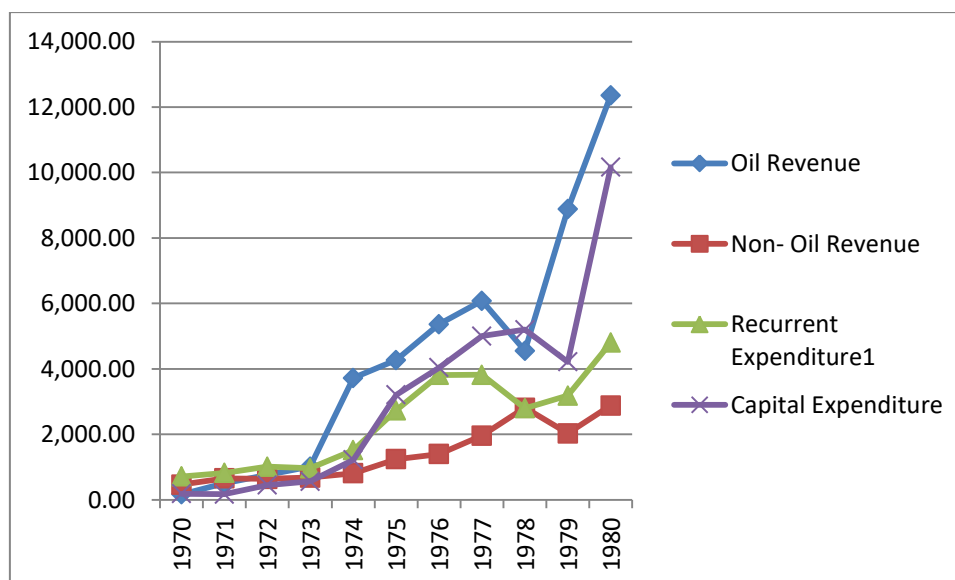
The SNDP was also seen as a post-war development plan which was centred on the reconstruction and the promotion of economic and social development. This may have triggered the pattern of the different categories of government expenditure where capital expenditure is higher than recurrent expenditure²³ as shown in Figure 3.17 below. Despite rising capital expenditure, economic

²² The unavailability of data from off-farm income earnings resulted in the employment of the output of the services sector to depict its expansion. The services sector also comprises of wide and varied sub-sectors like transport, communication, utilities, hotel and restaurant, finance and insurance, public administration, education and health (see CBN Statistical Bulletin 2010 for more details of what the services sector entails in Nigeria's GDP).

²³ Capital expenditure in Nigeria is payments for the non-financial assets used in production for more than one year while recurrent expenditure is payments for transactions within one year (CBN Statistical Bulletin 2010).

performance in terms of GDP per capita and agriculture deteriorated which depict continued misallocation of capital investment that could be tied to rent seeking that is aggravated by continuing social divisions and oil rental income (Karl 1997, Auty 2001, Auty and Gelb 2001 and Moore 2002, 2004). Karl (1997), for example, argued that reliance on oil leads to the political distribution of rental income rather than promotion of private investment and economic development. Also Karl (2007) claimed that countries which largely depend on oil will in time become among the most economically troubled and the most politically authoritarian in the world. Since 1966, Nigeria has witnessed several military coups and civilian rule was not actualised until 1979.

Figure 3.17 Oil Revenue, Non-Oil Revenue, Recurrent and Capital Expenditure (Naira million)



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of oil revenue, non-oil revenue, recurrent and capital expenditure in Nigerian local currency (Million Naira), while the horizontal axis shows the period in years from 1970 to 1980.

It can be debated that continuing social divisions have resulted in short lived administration periods even during military regimes and this has hindered the positive outcomes of development plans intended or initiated by a regime. The change in power was not carried out willingly due to reasons that were tied to a lack of national unity and the gradual dependence on one source of government income that solely came from one region. This could have precipitated anger

from another region, especially the oil producing area if they felt marginalised. Ross 2002 and Collier and Hoeffler (2002) for example describe some hypotheses about the mechanisms that link natural resources and civil war. For example, resource wealth increases the probability of civil war by causing grievances and by giving residents in resource-rich areas an incentive to form a separate state. This outcome has been demonstrated by the outbreak of civil unrest in the oil producing region. Also factors such as economic, political and ethnic contributed in the outbreak of the Biafran civil war (Khan 1994).

Additionally, the outbreak of the civil war (1967-70) which originated from the oil producing region was an additional factor which led to the nationalisation of oil production after Nigeria OPEC in 1971. The oil sector was an exclusive domain of the international oil companies (IOCs). This outcome reflects another development plan or policy that is also tied to political motives, in addition to the economic effects attached to such a programme.²⁴

The nationalisation of the oil sector located in the South-East of Nigeria brought about more intervention and control by the Nigerian government in the administration of the sector through its oil company, Nigerian National Oil Corporation (NNOC).²⁵ The increase in intervention and control also led to the establishment of the Department of Petroleum Resources (DPR) as a regulatory body and the empowerment of the initial oil company in to the Nigerian National Petroleum Corporation (NNPC) in 1977 so as to take part in both upstream and downstream activities that was originally the domain of the IOCs. The IOCs were left to operate but with lesser power. The nationalisation of the oil industry subsequently brought about the establishment of several institutions to regulate the oil industry (see Table 3.3 below). However, the Nigerian state and its regulatory powers have gradually viewed the oil industry related institutions, especially the NNPC and the DPR, as bodies for extracting political and economic benefits (Gboyega 2011). This can be explained by reasons such as the need to appease the region that is in control of central government through increasing

²⁴ For example, in Mexico, one of the first countries to nationalise its oil industry, the choice to nationalise was justified by decreasing oil revenues, which the state blamed on the international oil companies (IOCs). Likewise, the Organization of Petroleum Exporting Countries (OPEC) was formed just a month after Standard Oil of New Jersey (now Exxon-Mobil) announced a reduction of fourteen cents a barrel (about 7 percent) in the posted price for Middle Eastern crude oil (See, Griffin and Teece 1982).

²⁵ A decree was approved that required state ownership of at least 60 percent share in all foreign businesses and the state oil company would manage the ownership stake (Gboyega 2011).

employment of its people and a change of management to suit the government in power.

Table 3.3 Some Nigerian Oil Industry Regulators

Organisation	Year of Establishment	Function on Behalf of Nigerian Government
Department of Petroleum Resources	1970	Supervision of oil industry operations
Nigerian National Oil Corporation	1971	Managing of commercial operations
Nigerian National Petroleum Corporation	1977	oil refining, transportation and marketing
Pipelines and Product Marketing Company	1988	sourcing and distribution of refined oil products

Source: Nigerian National Petroleum Corporation (2016)

The increased intervention of the Nigerian government in the oil industry from 1971 appeared to have changed the importance of the oil industry and this can be due to both exogenous and endogenous factors. Exogenously, the early 1970s witnessed the increases in world oil prices and this development translated to higher revenues for oil exporting countries. Endogenously, the government established bodies like the NNPC to participate in both upstream and downstream production activities of the oil industry. The increase importance of the oil sector which is largely in terms of revenue generation started to provide the different government regimes with more revenue at their disposal without waiting for tax from the public for source of income. This development is illustrated in Figure 3.16 above where oil revenue is higher than non-oil revenue.

The size of the oil windfall in the 1970s was significantly large and this provided a platform for the country's consumer identity to take over due to lack of absorptive capacity of infrastructure, for instance, the lack of investment institutions (Khan 1994). This evidence helps to show that increases in oil revenue has also reduced the political and economic importance of the taxpayers, thereby eliminating a form of political pressure which might have helped to control the rising government expenditure (Forrest 1995). The rise in government expenditure may have been exacerbated by existing ethnic and

regional rivalries that were shown in political instability as societal struggles for the oil rental income. For example, the annual rate of change in total expenditure from 1961 to 1962 was 2.18% and this increased to 62.51% in 1970 and by 1975 the figure rose to 116.84%.

Similarly, the establishment of additional organisations for oil industry regulation highlighted the gradual complexity in the administration of key economic sectors in Nigeria which is intensified by societal rivalry. This also indicated another source of expansion of the public sector due to increases in oil rental income. The creation of oil industry regulators was also accompanied by the provision of additional refineries in the country. Between 1978 and 1989, NNPC constructed oil refineries in Warri, Kaduna and Port Harcourt and acquired the 35,000-barrel Shell refinery established in Port Harcourt in 1965. The Shell refinery was Nigeria's first oil refinery, constructed in Alesa Eleme near Port Harcourt by Shell Oil Company which commenced operations in late 1965 with a capacity of 38,000 barrels per day, enough to meet domestic demand at that time. Production was later expanded to 60,000 barrels per day after the civil war; however the increase in production failed to satisfy the demands of a rapidly growing economy (Metz 1991).

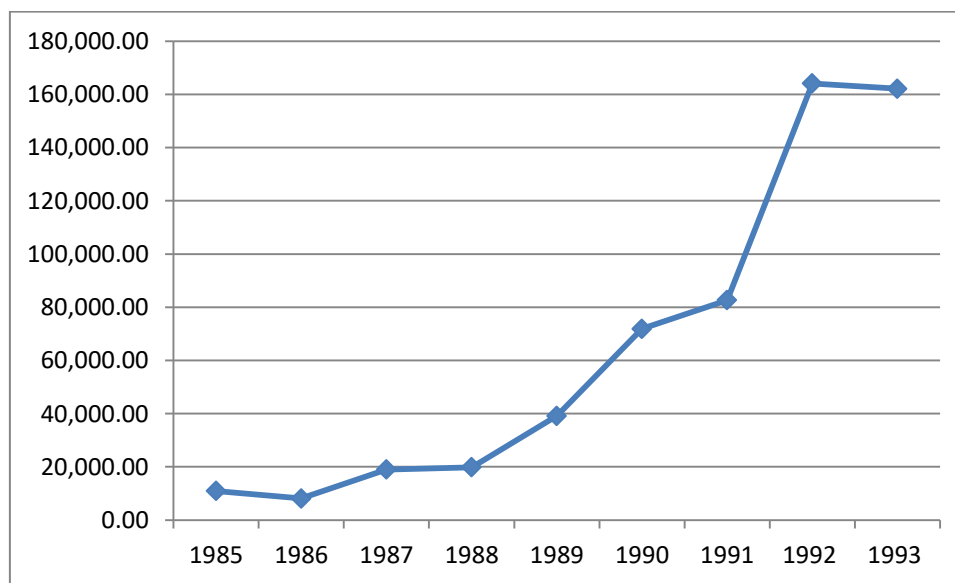
The provision of refined oil products such as diesel, petrol and kerosene which are among the main source of energy in Nigeria started to experience a significant decline especially in the 1990s despite the existence of the four refineries in Nigeria. The scarcity of refined oil products are hindrances to economic activities such as the transportation of agricultural products from the farm to the market place. Also the scarcity affected manufacturing activities due to continuous shortages of electricity supply and businesses and households had to rely on diesel to power their imported generators.

All the above factors can add up to distort the production and distribution of agricultural and manufacturing products in Nigeria and with adverse consequences on the main source of income for many Nigerians. This development also started to highlight the negative impacts of nationalisation of the oil sector on the Nigerian economy.

As time progresses with the nationalisation of oil production and continued importance of the oil sector which was initially below the agricultural sector, the political situation in Nigeria continued. The upheavals between the military

dominated the political landscape as they exchanged the leadership of Nigeria without being able to diversify the economy away from oil dependence. In the period from 1966 to 1999, the military only handed power to a civilian government from 1979 to 1983. In 1983, the president of the second republic was overthrown by a military regime and was succeeded by Major General Muhammadu Buhari from 31st December 1983 to 27th August 1985. This military administration lasted for two years and was overthrown in 1985 by General Ibrahim Badamasi Babangida. Babangida promised to install a democratic rule but that did not happen as he ruled the country for ten years amidst rising oil revenues and dwindling performance in the annual growth rate of the manufacturing and agriculture sectors as depicted in Figure 3.18 and 3.19 respectively as shown below.

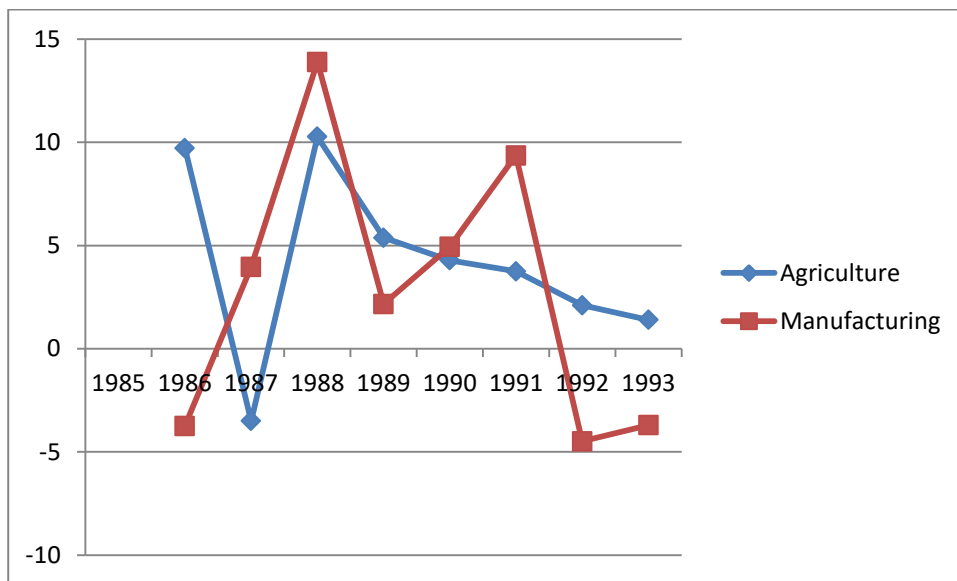
Figure 3.18 Oil Revenue (1985 – 1993)



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of oil revenue in Nigerian local currency (Million Naira), while the horizontal axis shows the period in years from 1985 to 1993.

Figure 3.19 Annual Growth Rates of Manufacturing and Agriculture



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the annual growth rate in the output of the manufacturing and agriculture sectors in Nigerian local currency (Million Naira), while the horizontal axis shows the period in years from 1985 to 1993.

During Babangida’s tenure he lifted the ban on political activity in 1989 and the government established a two political party platform in preparation for a democratic handover. The National Republican Convention (NRC) and Social Democratic Party (SDP) were established. The subsequent years also witnessed political unrest as the presidential election was postponed until 12th June 1993. It was claimed that Mashood Kashimawo Olawale Abiola a South-Westerner won the presidential election under the SDP and defeated his Northern counterparts despite ethnic, regional and religious divisions but this election was annulled by Ibrahim Babangida who is from the North (see, Ajani 2012).

In 1993 Ibrahim Babangida handed power to Ernest Shonekan in a move towards democracy but two months later Shonekan was overthrown by a military officer General Sani Abacha who was from the North. Abacha ruled Nigeria until 1998 when he died during his campaign for a continuation of leadership under a civilian rule. The death of Abacha brought the end of military rule in Nigeria and brought civilian administration in 1999. After Abacha’s death General Abdulsalam Abubakar took over and prepared Nigeria to a democratic

rule from June 1998 to May 1999. It was during Abdulsalam's rule Nigeria implemented a new constitution which provided for a multiparty political platform, in contrast with Babangida's regime which allowed only two.

After a long period of military government, the political scene that characterised the years after independence changed in 1999. The restoration of democracy marked the beginning of political stability which has been absent since 1966.

The return to democratic rule brought in Olusegun Obasanjo a former Nigerian army general to power under the People's Democratic Party on 29th May 1999 as the Nigerian president. Obasanjo was a president during the military regime of 1976-79 and from the South-West of Nigeria.²⁶ The return to democratic rule also highlighted a change from the Northern region's dominance in terms of power prior to 1999. All the presidents (1979 to 1998) were from the North.

The Obasanjo's regime established a number of economic reforms to move the Nigerian economy forward. For example, there were reforms targeted at the oil sector due to evidence of inefficiency, in particular the scarcity of refined oil products and issues of lack of transparency and accountability (Gboyega 2011). Although, Obasanjo's economic policies are said to be a continuation of the Structural Adjustment Programme (SAP)²⁷ measures in so many ways (Falola and Heaton 2008). Also, Obasanjo's regime policies included reducing Nigeria's external debt, privatisation of the public utilities, and attraction of foreign direct investment (FDI).

3.5 SUMMARY

Prior to independence, Nigeria came into existence in 1914 from an amalgamation of the Northern and Southern regions by the British colonial administration. Subsequently, nationalist movements originated largely in the more developed southern region and led to political independence in October 1960. After this, Nigeria witnessed changes in both its political and economic structures.

²⁶ Obasanjo was convicted in 1995 of coup plotting and was sentenced to prison for 15 years but was released after Abacha's death on 8 June 1998 (Berkeley Center for Religion, Peace and World Affairs 2013).

²⁷ SAP was introduced primarily for two years (July 1986-June 1988) and was the key response to the declining oil resources, macroeconomic policy distortions and the growing need to diversify the productive base of the Nigerian economy. The implementation of SAP was conducted under General Ibrahim Babangida's administration.

Politically, the nationalist movements that resulted in independence turned into political parties which set the stage for national politics that were basically formed around regional and ethnic pillars. The formation of political parties based on regional and ethnic identities culminated in a growing fear among Nigerians of domination of their local areas. This outcome led to the struggle for regional and central power and resulted in the onset of official corruption in Nigerian elections.

Economically, Nigeria relied on agriculture which was widely spread across the regions for economic enhancement. Agriculture provided Nigeria with a source of foreign earnings from exports of agricultural commodities. The heavy reliance on agriculture was evident before independence and this also continued some years after. In the late 1960s and subsequent years, economically Nigeria came to depend on oil production and exports located in the southern part of the country. The oil sector also provides employment opportunities but only for small part of the educated labour force which is in sharp contrast with the agricultural sector that employs most Nigerians both educated and illiterate. This outcome appeared to be the result of the onset of weakening economic activity especially in agriculture which was the mainstay of the Nigerian economy.

The resultant changes in economic and political structures appeared to affect the performance of the Nigerian economy despite national development plans initiated because the manufacturing and agricultural sectors witnessed deterioration some years after independence. This continued in the subsequent periods except for the oil sector which has come to dominate economic activity and benefit a privileged few.

The formation of political parties based on regional and ethnic platforms also coincided with oil discovery and subsequent reliance on it by various Nigerian governments for financing a larger part of government expenditure. Also, political instability which occurred with the domination of military regimes was also attributed to a fear of regional and ethnic domination in the governance of Nigeria. This intensified as oil revenues become the dominant source of government income. This could also illustrate the use of the oil industry and its institutions for political motives.

Before and after independence, the Nigerian oil industry was an exclusive domain of the IOCs until 1971 when Nigeria joined OPEC and nationalised the oil

sector according to OPEC policy requirements. However, before nationalisation of the oil sector the political upheavals due to regional identities appeared to have had a significant impact. A civil war that emerged in the oil producing region due to a feeling of marginalisation and other factors also affected the economy socially and economically as lives and properties were lost. This period also coincided with rising oil revenues and the occurrence of political instability in the 1960s, 1970s and subsequent years until 1999 when democracy was restored.

CHAPTER 4

NIGERIA AND OIL POST RETURN TO DEMOCRATIC RULE: 1999 – 2010

4.1 INTRODUCTION

The previous chapter examined and showed how regional and ethnic differences were built into Nigeria since its formation and also how the subsequent rise of the oil sector changed the economy. The continuing development of this sector was influenced by political and economic changes and which subsequently influenced their trajectory up to 1999 when a stable democratic landscape was achieved. The prevalence of ethnic and regional differences which resulted in a lack of national unity and the use of oil industry institutions for economic and political payoffs dominated the scene and this also appeared to continue even after the return of democratic rule in 1999.

This chapter now shows how this trajectory helps in understanding why Nigeria has failed to develop despite a change in the political landscape and continual expansion in oil revenues. Also it shows how this failure can be understood in terms of the interaction between social and political factors such as tribal, regional and religious rivalry in addition to political instability which may have promoted rent seeking, change in ownership structure and institutional weakness. Although basic economic concepts such as Dutch Disease, oil price volatility and declining terms of trade matter, they alone cannot fully explain the lack of economic growth in Nigeria.

4.2 RETURN TO DEMOCRATIC RULE AND THE IMPACT ON POLITICS

The ethnic and religious backgrounds that precipitated the civil war and political instability due to constant military take-over continued to be a major factor after the return to democracy. Prior to the transfer of power to civilian control the interim government in power introduced a multi-party system in 1998 in preparation for a democratic handover to mark the end of political instability dominated by military administration. After the elections in 1999, the People's Democratic Party (PDP) won the presidential office with a president from the South-West region and a North-Easterner as the vice president. However, the outcome of the 1999 elections was only possible with the coming together of political leaders from different regions under the PDP as one political party. The republic in 1999 appeared to have changed the established norm which was largely regional and tied to ethnic and religious backgrounds.

Subsequently, the PDP has continued to win the various elections held in 2003, 2007 and 2011 and also won the majority of the political seats in both the house of senate and house of representatives as shown in Table 4.1 below. Yet many Nigerians and the outside world see their success as falsified. For example, the election that took place in 2011 was also seen as corrupt as violence erupted in some parts of the country (The Economist 2014). As such, many thought that the PDP achieved its dominance and breakthrough via the manipulation of the Nigerian political system which was fragile due to continued ethnic, religion and regional issues.

This dominance amidst many political parties may have been exacerbated because of existing and underlying ethnic and regional disparities coupled with a dominating and rising source of external rental income from oil export that does not require the government to rely on tax income from the population. Basically this outcome may have failed to promote the gains of democracy associated with enhanced and sustained economic development. For example, Easterly and Levine (1997) suggested that ethnic division²⁸ stimulates rent-seeking behaviour

²⁸ Nigeria is highly ethnic divided with three major ethnic groups dominating. These are the Hausa/Fulani, Yoruba and Igbo.

that promotes the implementation of growth-retarding policies and inhibits unanimity on investment in growth-promoting infrastructure.

Table 4.1 Political Parties and Share of Seats in the National Assembly

Parties	House of Representatives		Senate	
	seats	%	seats	%
2007 Election				
Peoples Democratic Party (PDP)	260	72.63	85	77.98
All Nigeria Peoples Party (ANPP)	62	17.32	16	14.68
Action Congress (AC)	32	8.94	6	5.5
Progressive Peoples Alliance	3	0.84	1	0.92
Labour Party (LP)	1	0.28		
Accord			1	0.92
2011 Election				
Peoples Democratic Party (PDP)	180	50	62	56.88
All Progressive Congress (APC)	165	45.83	43	39.45
Labour Party (LP)	8	2.22	3	2.75
Accord	4	1.11		
Democratic People's Party	1	0.28		
CAN	1	0.28		
PPN	1	0.28		
All Nigeria Peoples Party (ANPP)			1	0.92

Source of Data: National Assembly of Nigeria (2014) and Inter-Parliamentary Union (2014)

Furthermore, continued societal issues can be shown and justified using Table 4.2 below. Table 4.2 below depicts some examples of societal violence and conflicts in Nigeria prior and after democratic return. It is important to show the period before return to a stable democratic rule in order to demonstrate the existence of social and political issues in Nigeria. Due to unavailability of data from past periods, only data from 1997 - 1999 is provided. Also, four years data are taken to represent return to a stable democratic period.

Table 4.2 Examples of Some Societal Violence in Nigeria

Prior to Stable Democratic Return			
Year	Event Type	Actor	Incidence
1997	Battle with no change of territory and Violence against civilians	Ethnic militia ²⁹	47
		Muslim militia	1
		Communal militia	4
		Political group militia	1
1998	Battle with no change of territory and Violence against civilians	Ethnic militia ³⁰	38
		Muslim militia	3
		Communal militia	4
		Political group militia	3
1999	Battle with no change of territory and Violence against civilians	Ethnic militia ³¹	61
		Muslim militia	2
		Communal militia	7
		Political group militia	1
		Shiite Islamic Militia	1
		Oodua People's Congress (OPC)	9
Return to Democracy			
2000	Battle with no change of territory and Violence against civilians	Ethnic militia	52
		Muslim militia	20 ³²
		Communal militia	4
		Political group militia	2 ³³
		Shiite Islamic Militia	
		Oodua People's Congress (OPC)	10 ³⁴
		Movement for the Survival of the Ogoni People (MASOP)	1
		Movement for the Actualization of a Sovereign State of Biafra (MASSOB)	2
2003	Battle with no change of territory and Violence against civilians	Ethnic militia	36
		Muslim militia	6
		Communal militia	3
		Political group militia	25 ³⁵
		Oodua People's Congress (OPC)	1
		Movement for the Actualization of a Sovereign State of Biafra (MASSOB)	2
2007	Battle-No change of territory and Violence against civilians	Ethnic militia	1
		Muslim militia	3
		Political group militia	6 ³⁶

²⁹ With high number of incidence from Ijaw ethnic group which is found in Delta State in the oil producing region

³⁰ High incidence from Ijaw ethnic group

³¹ High incidence from Ijaw ethnic group

³² Mostly conducted in Kaduna State in the Northern part of Nigeria

³³ By People's Democratic Party

³⁴ Occurred in places like Lagos and Kwara States which are located in the South-West of Nigeria

³⁵ By Alliance for Democracy (AD), All Nigerian People's Party (ANPP) and People's Democratic Party (PDP) but largely carried out by PDP with 18 out of 5 incidence

		Movement for the Emancipation of the Niger Delta (MEND)	27 ³⁷
2010	Battle-No change of territory and Violence against civilians	Ethnic militia	64
		Muslim militia	18
		Christian militia	10
		Political group militia	10 ³⁸
		Boko Haram	35 ³⁹
		Kala Kato militia	2
		Movement for the Actualization of a Sovereign State of Biafra (MASSOB)	3
		Movement for the Emancipation of the Niger Delta (MEND)	13

Source: Armed Conflict Location and Event Data Project 2015

Note:

(1) Ethnic and communal militias largely consist youths who fight for the perceived social injustices and political marginalisation of their people

(2) According to ACLED cord book (2016) an ethnic militia is linked to a direct ethnic community.

Communal militia are violent acts between and across non-state groups.

Boko Haram is categorised by ACLED as a local and ethnically bounded group that operate as armed and violent wing of a religious organisation. It is also associated with a defined region.

It can be see that ethnic, communal, religion and political group militia appear throughout this period. It is observed that political group militia increased in 2003 and religious sect militias appeared significantly in 2010. There is evidence of both Muslim and Christian conflicts in 2010. Also the appearance of violence from other claimed Muslim groups such as Boko Haram and Kala Kato are apparent in 2010. Moreover, other communal groups such as Odua People's Congress (OPC), Movement for the Survival of the Ogoni People (MASOP) and Movement for the Actualization of a Sovereign State of Biafra (MASSOB) are conflicts that highlight the feelings of marginalisation by people from the oil producing region in Nigeria.

The incidences of societal conflicts as shown in Table 4.2 vary across the period studied. Ethnic militia has shown a higher rate of incidence, especially in 1999 which marked the year to democratic transition and in 2010 which was one year

³⁶ By PDP

³⁷ Conducted in Akwa Ibom, Bayelsa, Delta and Rivers States which are located in the South-East of Nigeria and the oil producing region

³⁸ Largely carried out by PDP with 8 out of 10 incidences

³⁹ Carried out in Borno, Bauchi, Katsina, Plateau and Yobe States located in Northern Nigeria. Most of Boko Haram's violence are carried out in Borno State

away from another political election. Also the incidence of Christian conflict appeared in 2010 which also corresponded with the high occurrence of Boko Haram's violence that also claims allegiance to Islam. Also, since the late 1980s, the issue of ethnicity has assumed troubling and different dimensions (Anugwom 2000). According to Anugwom, the critical concerns are that of marginalisation and agitations by ethnic minorities in Nigeria. This also shows the rise of ethnic militia from minority tribes like the Ijaw, Ekori, Urhobo, Gindiri, Berom and Isekiri.

Likewise, the return of a stable democracy in 1999 and the subsequent years that followed under Obasanjo's administration witnessed the continuance of ethnic and religious tensions that often erupted into violence (Berkeley Center for Religion, Peace and World Affairs 2013). These continued tensions did not allow Obasanjo's ambition in changing the constitution to allow him serve for a third tenure as president and he stepped down in 2007.

4.3 RETURN TO DEMOCRATIC RULE AND THE IMPACT ON INSTITUTIONS

A number of studies in the literature such as Gylfason et al. (1999), Isham et al. (2002) and Collier and Hoeffler (2005) use the role of political and socioeconomic institutions in explaining why some resource rich countries failed to develop. For example, Collier and Hoeffler (2005) argued that countries rich in natural resources often depend on a system that is based on patronage and do not nurture a democratic system based on electoral competition, scrutiny and civil rights.

In the case of Nigeria, the previous chapter shows how societal conflicts such as ethnic and regional rivalries and the rise of the oil sector affected political and economic institutions. It appeared that economic and political institutions in Nigeria have not been stable and strong and with return to a stable democratic environment, institutional stability may be expected. However, it is important to remember from the previous chapter that political and economic institutions appeared to be deteriorating in their post-independence developmental stages which were tied to societal rivalry and reliance on the oil sector. It can be argued that the presence of these outcomes cannot guarantee a mature democratic

landscape that can ensure the efficient functioning of political and socioeconomic institutions without which economic development is not sustainable. Moore (2002, 2004), for example, claimed that natural resource wealth leads to weak governance in developing economies because financial autonomy of states suggests that they have little accountability to their citizens. Also, Rosser (2006b) argued that the nature of state institutions in resource-rich economies is often influenced by existing social arrangements and forces at work, especially in situations where resource wealth reliance of the economy ensued after the state formation. Moreover, Okruhlic (1999) suggested that the degree to which social forces comprised of corporate groups before oil has been recognised to influence economic policies even in typical 'rentier' states⁴⁰ as Saudi Arabia. This can be argued in the Nigerian context where ethnic and regional rivalries formed a greater part of social forces before oil discovery and this has assisted shaping the institutional setting in Nigeria.

To achieve the gains of democracy, the ruling PDP party initiated reforms that could help establish and strengthen institutions such as those concerned with law enforcement, corrupt practices and transparency and accountability. The aim was to achieve a clean break from the existing and weak institutional environment that has been characterised with corrupt practices like money laundering by government officials, weak governance and lack of transparency and accountability, especially in public offices. Some of the institutions established are the Economic and Financial Crimes Commission (EFCC), the Independent Corrupt Practices Commission (ICPC) and the Nigerian Extractive Industries Transparency Initiative (NEITI). For example, EFCC is an organisation established in 2003 to investigate financial crimes such as money laundering, advance fee fraud and bank malpractices.

Evidence to substantiate the argument that the presence of weak and inherited political and socioeconomic institutions coupled with continued reliance on the oil sector cannot provide a strong platform for new institutional reforms to take over is shown below. An example is that the existence of new government institutions has not prevented the issues of money laundering by many government officials as there were evidences of lack of transparency and

⁴⁰ Rentier States are countries that largely depend on external rents and these rents are usually generated from the exploitation of natural resources. Also these rents are seen as largely unearned (see, for example, Moore 2004 for more explanation).

accountability especially in the oil sector and malpractices in the banks.⁴¹ For instance, before the return to democratic rule in 1999 there were claims that the oil sector has been plagued with numerous problems. These included a lack of accountability and transparency. This applied to the national oil company (NNPC) and of other oil companies operating within the oil sector. This was also accompanied by lack of local employment, heavy environmental pollution and inefficiency in the downstream sector especially in the sale of refined oil products among other problems⁴². In addition, the ruling party also tried to target the NNPC due to the entrenched and corrupt practices known within the company (Gboyega 2011).

One example to illustrate that the institutions established to provide transparency and accountability have not performed in a democratic setting is the issue of unaccounted funds amounting to nearly \$50 billion by the NNPC which has been reported by Sanusi Lamido Sanusi who is the former suspended central bank governor of Nigeria to the government in 2013. After Sanusi alleged that the NNPC failed to remit \$49.8 billion as constitutionally required, the value was subsequently reduced to \$20 billion by the former central bank governor after reconciliation of the amounts (Premium Times 2014). The former governor was suspended from office in early 2014 by the Nigerian President Goodluck Jonathan for purported financial recklessness; Sanusi and several Nigerians believe he is being punished for revealing the practice of fraud in the NNPC (Premium Times 2014).

The adverse effects of natural resources on economic growth has been examined by the literature and some studies relate the issue to institutional quality such as institutions of private sector efficiency and institutions of public sector accountability, specifically, public sector institutions governing the natural resource sector (see, for example, Melhun 2006 and Robinson et al. 2006). This strand of the literature provides an insight of the Nigeria situation because the public institutions managing the oil sector have failed in their duties for not remitting and disclosing public revenue from the oil sector.

⁴¹ This development called for a reform of these institutions by the new government in 2015 which is headed by a president from the All Progressive Congress party (see Ayansina 2015).

⁴² See, Gboyega (2011) and Sayne et al. (2012) for more explanation.

In addition, allegations of a disconnection between the financial institutions and the 'real' economy have been reported as a major problem. This is also another form of institutional weakness depicted by the financial sector. For example, the former governor of the Nigerian Central Bank, Sanusi Lamido Sanusi, in a BBC interview stated that malpractices in the banking sector such as fraud, bad loans and lack of disclosure have helped to exacerbate the weak state of economic development in Nigeria.⁴³ Total lending issued by commercial banks to small and medium enterprises (SMEs) declined at an exponential rate between 2003 and 2012 and recorded a value of only 0.14 percent of total commercial banks loans in 2012 (Business Day 2013). This evidence can be partly substantiated in Figure 5.1 below which illustrates the value of loans issued by commercial banks to small scale enterprises. From Figure 4.1 it is clearly evident that a significant decline started from 2003 until 2006 and a decrease was also recorded in 2008 and 2010.

Likewise, from Figure 4.2 below, the decline in loans as a percentage of total credit extended to small scale enterprises is confirmed but other loans appeared to be on the increase. This outcome depicts the weak capacity of the commercial banks to issue loans to small scale businesses which started in 1992 (Central Bank of Nigeria Statistical Bulletin 2010) and a further disconnection between the real sector and the financial sector.

The disconnection between the real sector and the financial sector in a democratic setting also gives rise to debate in the literature. For instance, an explanation of the negative effect of natural resource wealth on economic growth from the economic perspective includes impediments to entrepreneurship (Sachs and Warner 2001). This reflects the Nigerian situation as there appeared to be less promotion of small scale entrepreneurial activities from the above discussion.

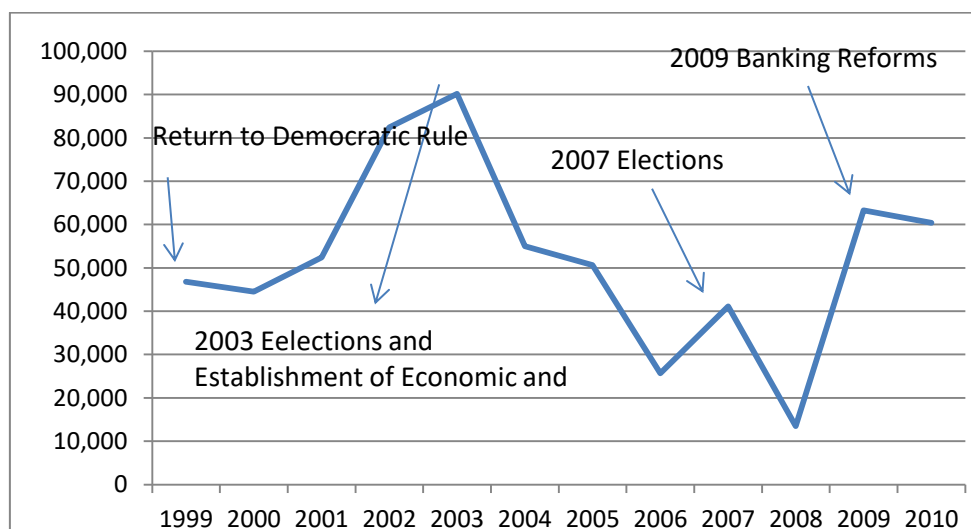
On the other hand, when one looks at the impact of the return to democracy on the financial institutions, this outcome also reflects the suggestions of some studies in the political economy literature on democracy and economic growth. Some researchers are of the view that a certain level of development is required for a stable democracy because affluence weakens the amount of distributional conflict (Przeworski et al. 1995). In the Nigerian situation, declining loans to

⁴³ Sanusi (2011)

small scale businesses which may be owned by less affluent people could deter the establishment of a stable democracy. This has been evidenced in the few years after independence and even in the democratic period there are examples of many types of conflict as shown in Table 4.2 above.

From Figures 4.1 and 4.2 below, it can be seen that, despite a return to democratic rule in 1999 and other subsequent political elections in 2003 and 2007 together with the institutional reforms observed, loans to small businesses continued to decline. Many developing economies introduced several reforms to improve democracy (Rachdi and Saidi 2015). This is also the case in Nigeria as several reforms were initiated. However, Przeworski and Limongi (1995) considered the issue of whether the political realm of democracy enhances or hinders economic growth.

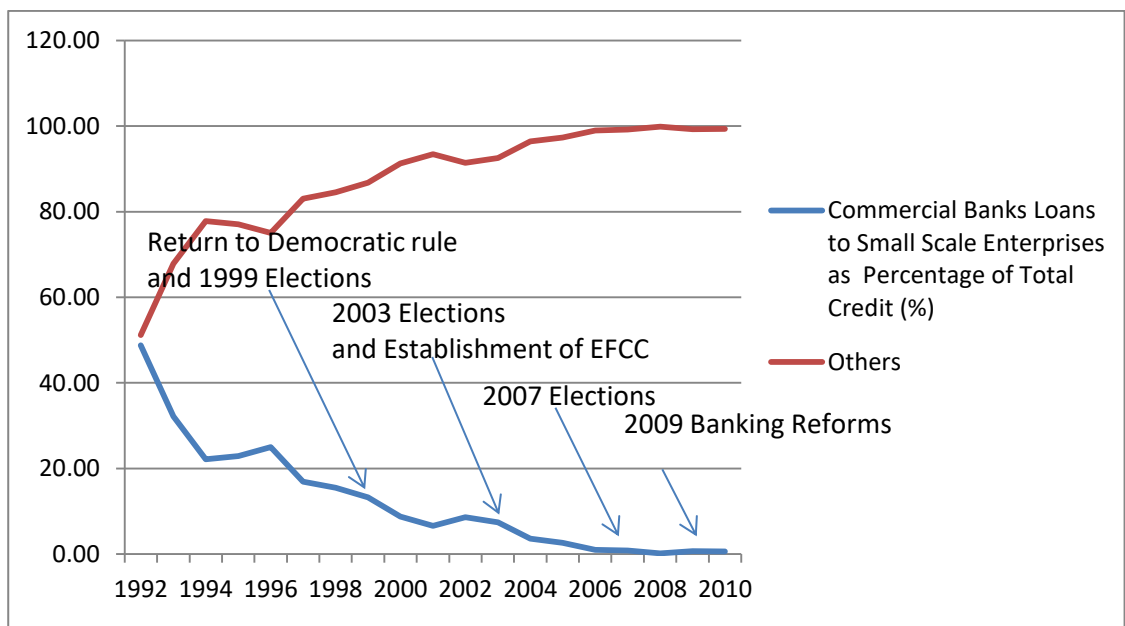
Figure 4.1 Commercial Bank Loans to Small Scale Enterprises



Source: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of commercial bank loans issued to small scale enterprises in Naira million, while the horizontal axis shows the period in years from 1999 to 2010.

Figure 4.2 Commercial Banks Loans to Small Scale Enterprises and Other Businesses



Source: Central Bank of Nigeria Statistical Bulletin (2010)

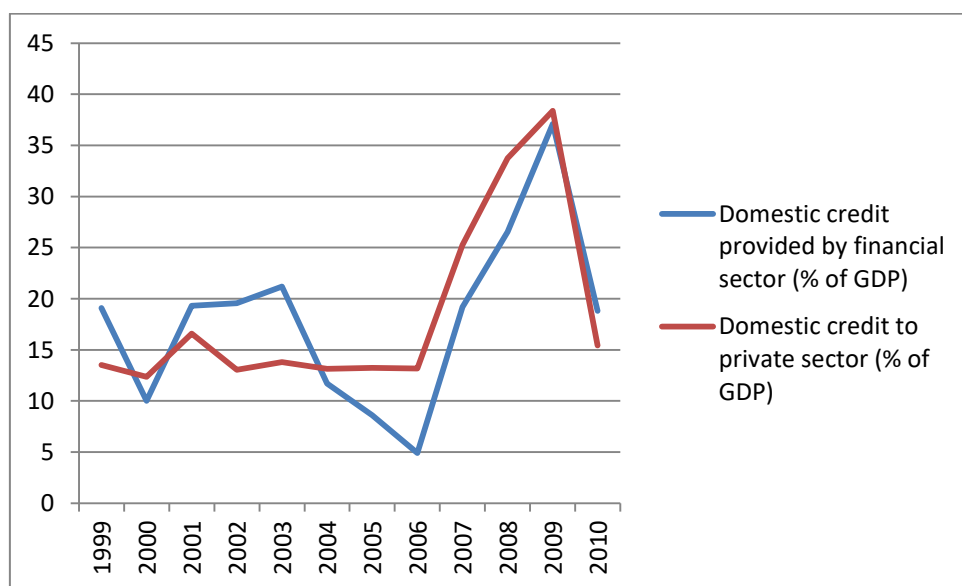
Note:

- (1) The vertical axis shows the percentage of commercial banks loans issued to small scale enterprises and others, while the horizontal axis shows the period in years from 1999 to 2010.
- (2) Others means other forms of loans issued by commercial banks in Nigeria
- (3) The abolition of mandatory banks' credit allocations of 20% of its total credit to small scale enterprises wholly owned by Nigerians took effect from October 1, 1996 (Central Bank of Nigeria Statistical Bulletin 2010)
- (4) Small Scale Enterprises started in 1992 (Central Bank of Nigeria Statistical Bulletin 2010)

Problems in the Nigerian banking sector despite existence of institutions put in place like EFCC and ICPC also called for reform when the former central bank governor Sanusi Lamido Sanusi came into office in June, 2009. Some senior bank executives were dismissed due to issues of fraud, giving loans to companies based on personal interest, lending to fake businesses and collaborating with stockbrokers to boost share prices in the Nigerian stock market (This Day Live 2013). It could be further argued that issues of fraudulent activities in the banking sector may help explain part of the significant and sustained increase in domestic credit provided by the banks from 2006 to 2009 as shown in Figure 4.3 below. After 2009 there was a decline in domestic credit

which may possibly explain the effect of the banking reforms. For example, in 2010, the governor stated that banks will only give credit to local SMEs in as much as the Nigerian government gives appropriate attention to the provision of infrastructure (Business Day 2013).

Figure 4.3 Domestic Credit as % of GDP



Source of Data: World Bank Development Indicators (2015)

Note: The vertical axis shows the value of domestic credit as a percentage of GDP, while the horizontal axis shows the period in years from 1999 to 2010.

Apart from the analysis of the effect of the return to democracy on the financial sector, this chapter also further examines other sectors such as the oil and manufacturing sectors in Nigeria to which the political economy literature reflects. In addition, the establishment of these economic institutions also marked a critical change in Nigeria's economic and political development.

To support the analysis of other institutions established in Nigeria, another section of the literature focuses on issues related to the rentier state theory. This explanation point to economies that obtain regular and significant amounts of unearned income in the form of, for example, taxes on natural resource exports or royalties on natural resource production (see, for example, Karl 1997 and Vandewalle 1998). State owned enterprise sectors are usually quite large in rentier states, with roles related to the regulation and management of the

economy (Garaibeh 1987). In the case of Nigeria, the state owned oil company (NNPC) is also large with several subsidiaries attached. It has been observed that any regime that comes to power makes a number of changes, including top management in the name of managing the oil sector. This has been evidenced by the PDP administration, especially during Obasanjo's administration where additional oil industry regulations were established such as NEITI in 2007, Petroleum Products Pricing Regulatory Agency (PPPRA) and deregulation of the downstream sector in 2003.

The expansion of NNPC and establishment of more public offices in the form of reforms can be argued to be tied to the rentier and patronage system that allow political leaders to create more public institutions and distribute income to suit their political ambitions without being subject to much public scrutiny as institutions concerned with that are weak. Since the oil money seems to be distributed largely among the few educated elites that know somebody in government like through job appointment or award of contract, this allow political leaders in office to go away with such acts.

Thereby, institutional reforms initiated by the previous governments and the PDP ruling party may have failed because the rentier system coupled with ethnic and regional rivalry still exists as Nigeria continues to rely on oil revenues and this may have provided a vehicle for power to be either seized or secured and maintained by those who have access to rental income like the PDP. In addition, the issues of ethnic and regional conflict may have created a myopia among Nigerians who could not understand that a coming together in order to elect the right leaders was necessary to promote widespread economic development in Nigeria.

To support the above outcome, Easterly and Levine (1997) state that an understanding of cross-country differences in growth rates entails not only a knowledge of the relationship between growth and public policies but also an understanding of the reasons why countries choose different public policies. Their analysis shows that ethnic diversity helps explain cross-country differences in public policies and other economic indicators. In particular, they argued that in Sub-Saharan Africa, economic development is linked to political instability, low schooling, high government deficits, an underdeveloped financial system and

insufficient infrastructure. They further argued that Africa's high ethnic fragmentation explains a significant part of these outcomes.

To further depict the arguments of the studies of Easterly and Levine (1997), this chapter also shows the impact of government policy such as increasing expenditure on internal security which has become a problem in Nigeria due to the many occurrences of conflict as documented in Table 4.2 above. Also, the choice of government expenditure is important in this analysis to show the contribution of oil to the improvement of the standard of living of Nigerians. Oil has been a dominant source of income and government revenue (CIA 2016) and oil accounts for about 75 percent of Nigeria's consolidated budgetary revenues (World Bank 2016).

In support of the choice of government expenditure as a variable for analysis in this chapter, it is well documented that economists have long been concerned with the examination of the relationship between public expenditure and national income (see, for example, Peacock and Wiseman, 1961 and Landau, 1983). Government expenditure is seen as an exogenous factor, which can be used as a policy instrument to influence economic development and is also seen as an endogenous factor and not a cause of growth in national income. The former hypothesis is allied to that of Keynes and the latter to that of Wagner (Ansari et al. 1997).

Turning back to our analysis, the changing political landscape in 1999 and the subsequent periods that have been possible due to the existing regional and ethnic diversities coupled with institutional weakness and rising oil income as depicted by rising government expenditure particularly on internal security as shown in Figure 4.4 below did not appear to improve the security of life and property in Nigeria. The issue of insecurity has become a dominant feature as militants from the oil producing region felt marginalised and neglected. They sought to solve their problems using illegal means such as vandalisation of oil pipelines in order to have access to oil that they could sell illegally to generate income and the kidnapping of oil workers, especially foreigners, to collect ransom for their release (see, for example, Akpan 2010).

The anti-social behaviour of people from the oil producing region has also been depicted in the political economy literature. For example, Collier and Hoeffler

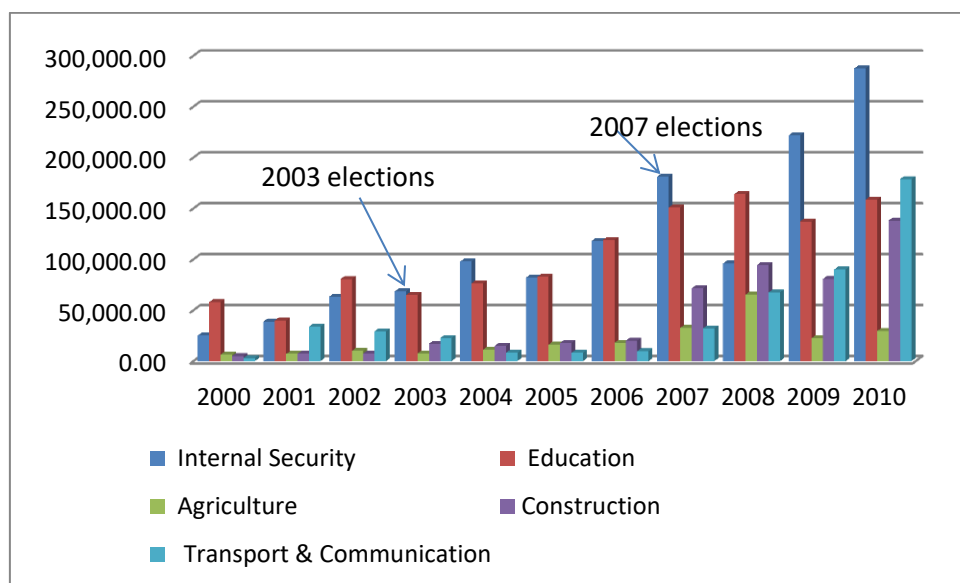
(2004) suggest that primary commodities of all types including oil, minerals, and agricultural goods are associated with the onset of conflict. They further advocate that explanations for civil wars fall into two types, namely, those that focus on the grievances of insurgents groups and those that focus on their funding. The major funding sources for rebels tend to come from exportable natural resources: if insurgents can extract and sell resources, or extort income from traders, then they are more likely to engage in conflicts (Collier and Hoeffler 2004).

Likewise, issues of insecurity also emerged in the north-east of Nigeria as religious sects undermine the peace and tranquillity that used to exist in the region. This has hindered business activities, especially farming which is carried out on the outskirts of villages and towns. Explosions and kidnapping had become rampant in the North-East of Nigeria and this could have a psychological, economic and political impact on the country for a very long time.

From Figure 4.4 below, spending on internal security has risen in contrast with that on agriculture which has shown cuts over the period under examination (2000 – 2010). In addition, spending on internal security appeared to rise from 2000 to 2010 which should have provided the means to avoid further kidnapping. For example, in 2014, 230 school girls were abducted by Boko Haram⁴⁴ from a secondary school in Chibok, North-East Nigeria (Mark 2014).

⁴⁴ Boko Haram is an Islamic extremist group based in the north-eastern Nigeria (see, Country Reports on Terrorism U.S. Department of State 2013).

Figure 4.4 Government Expenditure



Source of Data: CBN Statistical Bulletin (2010)

Note: The vertical axis shows the values in Naira million of different categories of recurrent government expenditure, while the horizontal axis shows the period in years from 2000 to 2010.

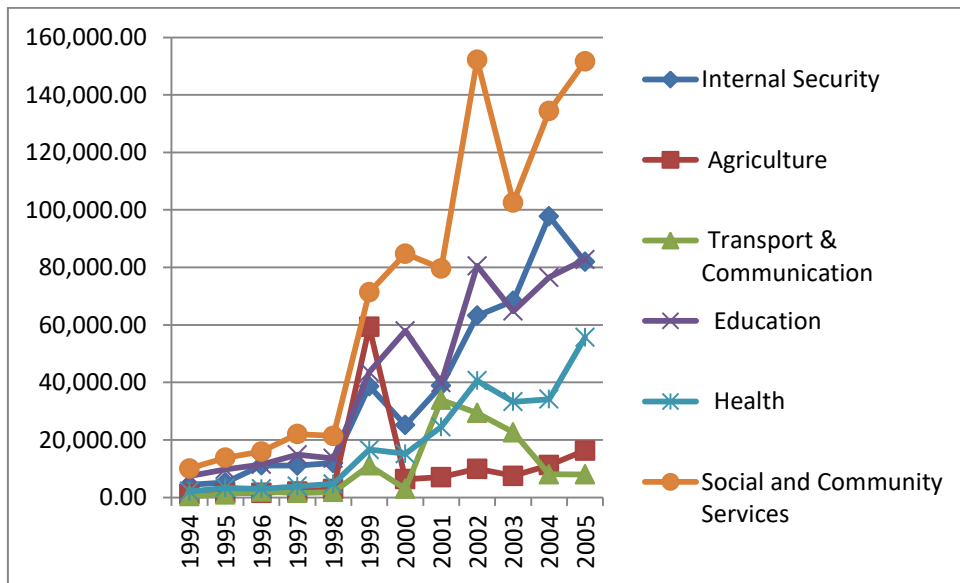
Increases in government spending on internal security and education also coincided with a democratic period as elections took place in 2003 and 2007 as shown in Figure 4.4 above. This outcome was expected to result in improved economic and social outcomes. However, the reverse was the case and it showed that democracy and increases in government expenditure were not a guarantee of improved development. For example, arguments that relate political regimes to economic growth focus on the importance of the autonomy of dictators, property rights and pressures for immediate consumption (see, for example, Przeworski and Limongi 1995). Przeworski and Limongi stated that the key mechanism by which democracy is thought to impede economic growth are pressures for immediate consumption, which reduce investment. It is argued that only states which are institutionally protected from such pressures can counterattack them and democratic states do not have such safeguards (Przeworski and limongi 1995). Nigeria may not be institutionally protected due to the ethnic and regional rivalry that has characterised Nigerian politics from inception and reflects the colonial past that amalgamated the separate regions.

In support of the above, Acemoglu et al. (2000) argued that Europeans implemented very different colonisation strategies in different countries, with different associated institutions. The choice of colonisation policy was, at least in part, determined by whether Europeans could settle in the colony. They stated that, in places where Europeans were confronted with a high mortality rates, settlement was not possible and the probability was that they set up inferior (extractive) institutions which have persisted to the present.

Also, the literature on the state-centred approach highlights the behaviour of oil dependent states in the sense that they tend to develop larger capacity in the distributive functions, for instance, social welfare, health and education (Garaibeh 1987). This behaviour can be supported with Figure 4.4 above as expenditure kept growing over the years but without having the anticipated changes on the economy as evidenced by worsening internal security. In addition, when years prior to democratic return and after are compared as illustrated in Figure 4.5 below it was observed that spending increased significantly from 1999 especially on social and community services, internal security and education. In contrast spending on agriculture saw a sharp decline in 2000.

Beblawi and Luciani (1987) also argued that the independency of rentier states of their domestic economy gives them the power to formulate policies that does not justify the promotion of economic development. This was also the case in Nigeria even though the democratic government initiated socioeconomic reforms but this only resulted in higher government spending that did not translate into positive socioeconomic outcomes. For example, lack of security surfaced and this showed negative effects, especially in the educational sector as children were kidnapped from their school.

Figure 4.5 Government Expenditure



Source of Data: CBN Statistical Bulletin (2010)

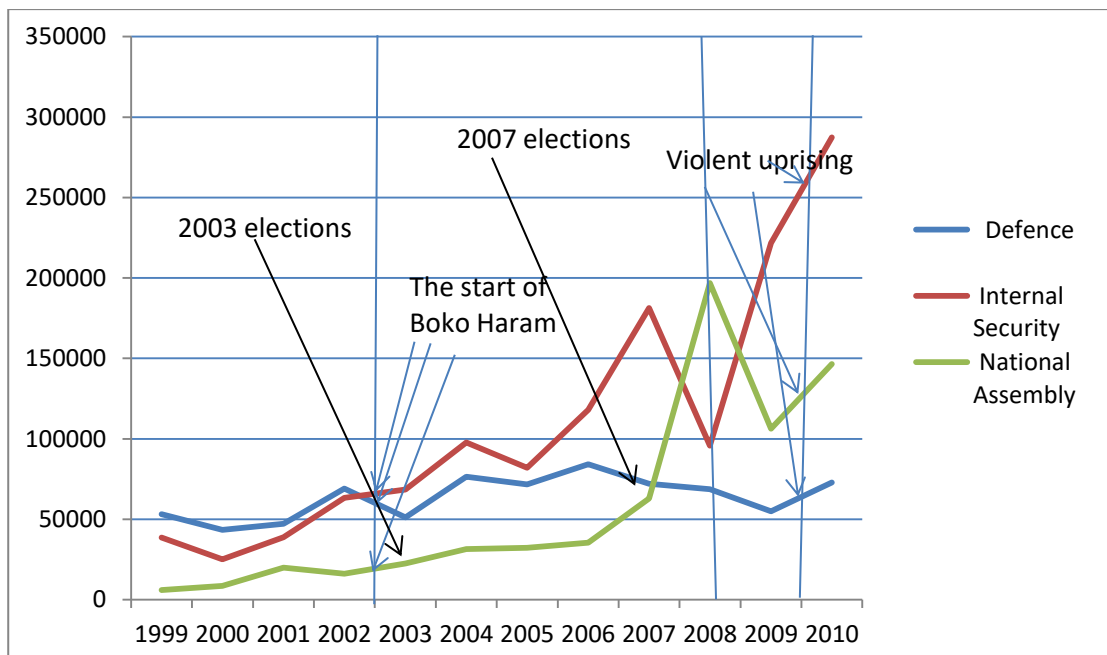
Note: The vertical axis shows the values in Naira million of different categories of recurrent government expenditure, while the horizontal axis shows the period in years from 1994 to 2005.

A lack of national unity due to ethnic and regional differences has also provided a platform for a seizure of power by a group of Nigerians with a common agenda that is not reflecting the voice of all Nigerian citizens and which has in turn further affected the behaviour of government spending in terms of security and administration. For example, from Figure 4.6 below it is clearly evident that from 1999 recurrent expenditure on defence has fallen which could have allowed the start of terrorist activities. It can be seen from Figure 4.6 that the start of Boko Haram’s activities in 2002 occurred after a period of declining expenditure on defence. However, recurrent expenditure on internal security and national assembly which caters for the well-being of the legislative arm⁴⁵ of the Nigerian government appears to have risen prior to, and after the start of, Boko Haram’s activities in 2002. Growing extremism may have led to a violent uprising in July 2009 and this period also corresponded with rising expenditure on internal

⁴⁵ The Nigerian National Assembly, which is the legislative arm of government, comprises of two chambers and these are the House of Senate (the upper chamber) and the House of Representatives (the lower chamber). These two chambers are the supreme institution concerned with law making in Nigeria and served as check on the executive arm of government (see National Assembly of Nigeria 2016 for further explanation).

security as illustrated in Figure 4.6 below. Yet, rising expenditure on internal security has not helped to curtail violence.

Figure 4.6 Federal Government Recurrent Expenditure and Boko Haram Activities



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of current expenditure on defence, internal security and national assembly in Nigeria’s local currency (Million Naira) while the horizontal axis shows the period in years from 1999 to 2010.

From Figure 4.6 above, it appears that political elections have taken place in 2003 and 2007. This also showed that there has been a stable democracy since 1999 as there was evidence of elections after a four year period. However, some of these elections have been characterised with vote buying and violence in the political campaigns (Bratton 2008). Bratton (2008), suggest that, in a democratic setting, an election campaign is supposed to be a peaceful and open discourse of persuasion.

Also Narayan et al. (2011), state that democracy is occasionally associated with the right to vote but they define it more extensively than a country having elections. They follow the definition offered by Rivera-Batiz and Rivera-Batiz (2002, pp. 135–136) who documented that: “Democracy ... (extends to) whether a country has checks and balances on executive powers, constitutional processes

and guarantees, freedom of the press and the absence of censorship, clear and effective judicial and legal structures, incumbent term limits, and transparency, openness and citizen input in policymaking” (Narayan et al. 2011, p. 900).

From the above analysis, it is clear that there were elections in Nigeria but the democratic setting has not given room for a peaceful campaign. From Figure 4.6, periods of elections in 2003 and 2007 were seen to be largely followed by rising expenditure on the national assembly and internal security. This outcome depicts arguments in the political economy literature focusing on democracy and economic growth. Keefer and Khemani (2005), for example, state that one way in which governments can improve economic growth is through their choice of public expenditure. When allocated appropriately, public expenditure can overcome market failures that exacerbate poverty. Yet distortion and misallocation of expenditure are common and often undermine development (Keefer and Khemani 2005).

Government expenditure covers wage bills for large state administrations, public projects with limited public usefulness and farm subsidies absorbed by the wealthiest farmers, all at the expense of quality public services (Keefer and Khemani 2005). A significant fraction of voters in many countries have low incomes and democratisation might be expected to benefit these voters. However, policymakers in poor democracies regularly misallocate public expenditure away from types of spending that most benefit the poor, either directly or indirectly (Keefer and Khemani 2005).

Thus, a rise in government expenditure on the Nigerian national assembly and internal security in the presence of political elections can also mean a misallocation of public expenditure as a lack of insecurity appeared to be on the increase despite rises in such expenditure. According to Nurudeen and Usman (2010), government performs two functions and this includes protection and security and provisions of certain public goods. However, the provision of security is low in Nigeria.

Also increased expenditure on the national assembly which houses the legislative arm of government⁴⁶ can result from political influence, such as the need to

⁴⁶ The Nigerian National Assembly is the nation's highest legislature, whose power to make laws is summarized in Chapter 1, Section 4 of the 1999 Nigerian Constitution. The National Assembly is a bicameral legislature. It comprises of a Senate with 109 members corresponding to the 109 senatorial districts in the country. Senatorial

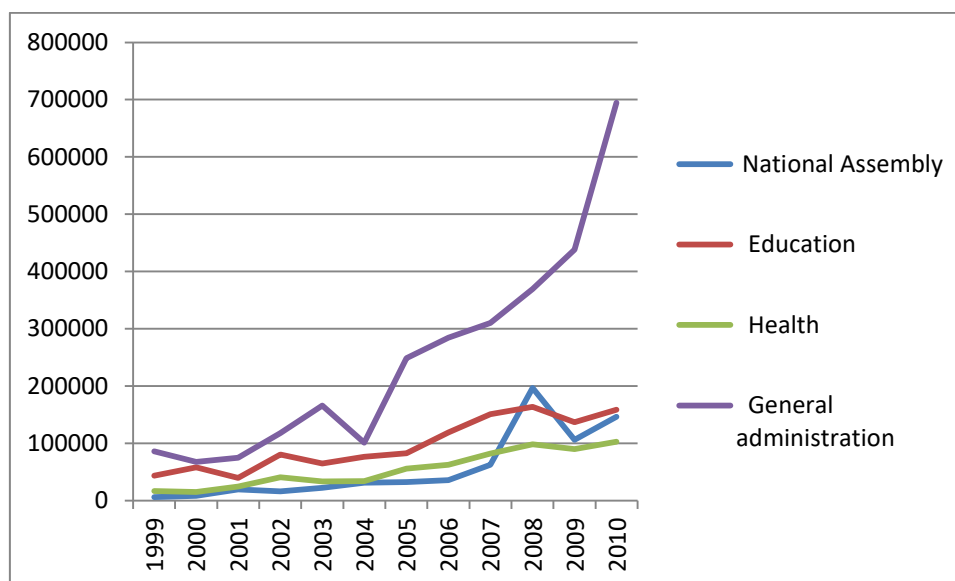
represent diverse ethnic groups, especially the minority tribes in the country's political affairs. According to Keeper and Khemani (2005, P. 23) "the effects of increasing the political power of minority groups provide some indication that both problems of inter-group hostility and of credible commitments in political competition undermine public policy in polarized countries".

The structure of the Nigerian national assembly depicts a mandated political representation (see, for example, Pande 2002). According to Pande (2002) there are a number of essential principles concerning the scope and functioning of a representative democracy. "First, that citizens' group identity is informative of their policy preferences. Second, those members of disadvantaged groups often fail to have a voice in the political process. Third, that increasing political representation for members of these groups enhances their voice in the policy process, while having no other untoward effects on their overall policy influence. And finally, that increased group voice in the policy process translates into improved policy outcomes for members of that group" (Pande 2003, P. 2).

Pande (2003) suggest that mandated reservations in state legislatures resulted in increased public sector job quotas for scheduled minority groups in the public sector but significantly lower resources were allocated to education. The findings of Pande (2003) may also be similar with the pattern of government expenditure (Figure 4.7 below) in Nigeria where the representative democracy includes minority tribes. In Figure 4.7, government expenditure after the return to democratic rule appeared to be on the increase for all sectors, especially on general administration which is higher than education and health. Rising expenditure on general administration could mean rising wage bills for state administrations which may have resulted from increased public sector job quotas. This is evident in Nigeria through the Federal Character Commission. The Commission has been established to ensure justice and equity in the distribution of public offices among the federated units of Nigeria.

Districts are evenly distributed among the thirty six states in Nigeria. Each state has three senatorial districts while the Federal Capital Territory (FCT) Abuja has just one senatorial district. Also, there are 360 members in the House of Representatives representing the 360 Federal Constituencies, into which the country is divided based on population. The structure is modelled after the Federal Congress of the United States and is supposed to guarantee equal representation of the 36 states in the country irrespective of size in the Senate and proportional representation of population in the House.

Figure 4.7 Government Expenditure

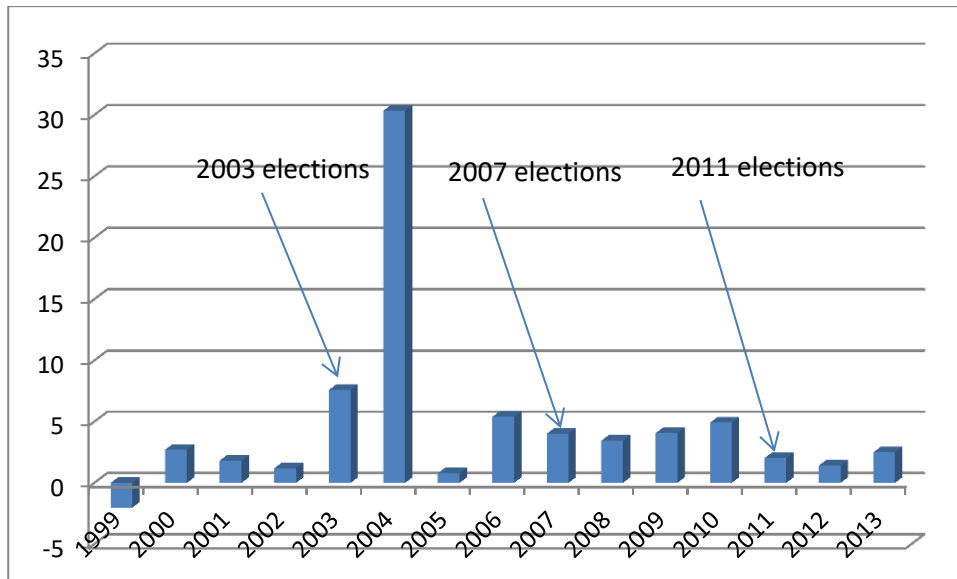


Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of current expenditure on national assembly, education health and general administration in Nigeria's local currency (Million Naira) while the horizontal axis shows the period in years from 1999 to 2010.

The analysis above shows the economic and institutional reforms after the return to democratic rule in 1999 and the evidence of a stable democracy through elections conducted in 2003 and 2007. These events corresponded with a rise in government expenditure as illustrated in the figures above to improve economic growth. However, from Figure 4.8 below, the outcome is contrary to that expected in a democratic setting as economic growth represented by GDP per capita growth recorded low levels except in 2003 and 2004 which coincided with increases in world oil prices (see, for example, Hamilton (2011) for an analysis of historical oil price changes). Also, Narayan et al (2011) suggest that, of the components of democracy, changes in the nature of the legislature, as a fundamental political institution, are likely to have the largest effect on long-run economic growth path.

Figure 4.8 GDP Per Capita Growth (Annual %)



Source: World Bank Development Indicators (2014)

Note: The vertical axis shows the annual growth rate of GDP per capita in Nigeria, while the horizontal axis shows the period in years from 1999 to 2013.

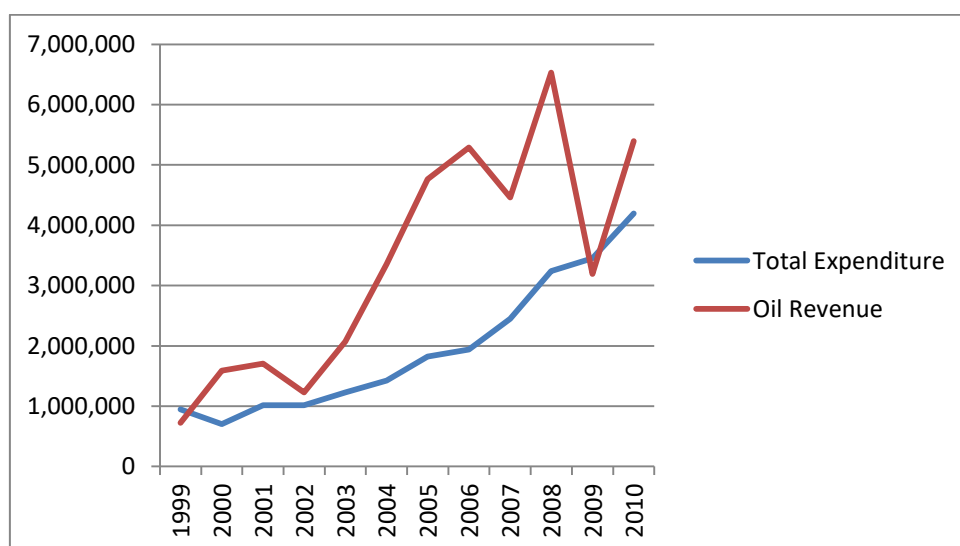
The weak economic growth observed using the GDP per capita levels indicates that democracy which was accompanied by reforms and large representation in the Nigerian legislature did not result in improved economic performance in the country and this also reflects some findings in the literature. For example, Przeworski and Limongi (1995) asked the question of whether the political realm of democracy enhances or hinders economic growth. Also researchers question the economic benefits of democracy in, for example, weak-capacity African economies (Knutsen 2013).

On the other hand, all the above problems could be largely linked to a failure to transform the rentier and patronage system that was built on fractured lines of ethnic and regional differences to help policies and reforms work as expected. Instead, various Nigerian governments, both military and civilian, have initiated policies and reforms without giving due consideration to the historical facts of the political, social and economic development of Nigeria. The reforms and policies initiated only provided employment opportunities to the highly educated minority that have connections to fill the quota system and this led to the

expansion of the civil service and other government departments which is evidenced through rising recurrent expenditure. As a result, the public sector has become a burden on a government that largely depends on external rent which fluctuates with the demand for, and supply of, oil or other forms of energy within different countries. For example, the discovery of shale oil in the United States, which used to be a major importer of Nigerian oil, has reduced the level of demand and thus the level of oil exports. In fact, Nigeria did not export oil to the United States for the first time in July 2014 after a record of continuing oil export since 1973 (Blas 2014).

In this context any reforms/policies initiated to move Nigeria forward would not bring material benefits in the long-run and instead the country will continue to deteriorate economically, politically and socially. Reforms in 1999 and the subsequent periods may have only succeeded in creating a larger government that heavily depends on fluctuating external rental income which cannot be guaranteed to sustain the Nigerian economy for many years to come. This is depicted in Figure 4.9 below which illustrates the pattern of government expenditure and also the rising and fluctuating oil revenue that is largely attributed to changes in world demand and supply.

Figure 4.9 Total Government Expenditure and Oil Revenue (1999-2010)

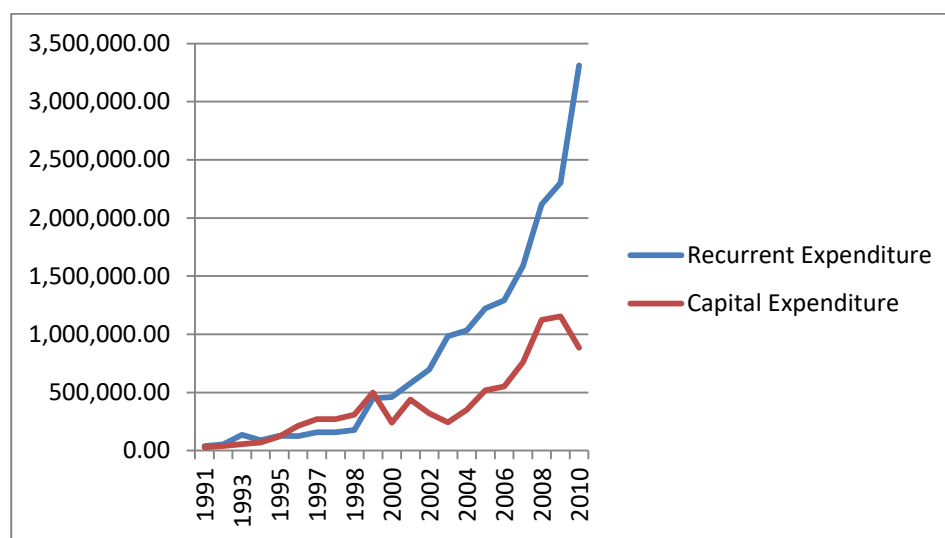


Source of Data: Central Bank Nigeria (2010)

Note: The vertical axis shows the value of total government expenditure and oil revenue in Naira million, while the horizontal axis shows the period in years from 1999 to 2010.

According to the literature, volatile oil revenue makes it challenging to pursue a prudent fiscal policy and this resulted in a variety of problems ranging from stimulating investor uncertainty to illogical spending policies (Stevens 2003 and Kilian 2010). Another explanation is that volatile oil revenues would be consumed rather than invested (Sachs and Warner 1999). From the above discussion and illustrations it is observed that recurrent and total government expenditure kept rising over the years despite fluctuating oil revenues. To examine further, it is observed in Figure 4.10 below that recurrent expenditure is higher than capital expenditure and this show that government revenue which is largely financed by volatile oil rental income (see, trend in Figure 4.11 below) is more consumed rather than being invested in public projects.

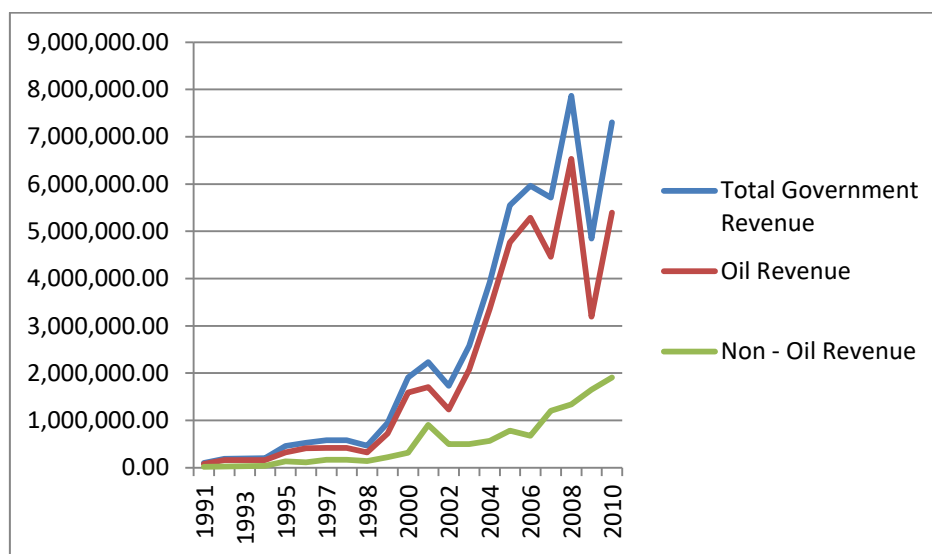
Figure 4.10 Recurrent and Capital Expenditure (1991-2010)



Source of Data: Central Bank Nigeria (2010)

Note: The vertical axis shows the value of total government expenditure and oil revenue in Naira million, while the horizontal axis shows the period in years from 1991 to 2010.

Figure 4.11 Categories of Government Revenue (1991-2010)



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of total government revenue, oil revenue and non-oil revenue in Nigeria's local currency (Million Naira) while the horizontal axis shows the period in years from 1991 to 2010.

As a result, the reforms may have succeeded in creating larger government spending. Each period of reform or policy usually comes with a requirement for establishing a government agency or department to help monitor and deliver the programmes. One significant feature in the process of employment in established public offices in Nigeria is the consideration of ethnic and regional backgrounds to ensure equity among the various regions without placing priority on competence that could help promote the intended aims and objectives of such public organisations. This resulted in the establishment of a Federal Character Commission in Nigeria by Act No 34 of 1996.⁴⁷ This agency has been established to implement and ensure justice and equity in the distribution of socioeconomic infrastructures and public offices among the federating units that made up Nigeria.

For instance, reforms targeted at the oil sector from 1999 came with the establishment of government agencies such as the NEITI begun in 2007 and charged with the responsibility for the development of a framework for transparency and accountability in the reporting and disclosure by oil companies

⁴⁷ See Federal Character Commission of Nigeria (2014).

of revenue due or paid to the Nigerian government. NEITI has 59 staff⁴⁸ whose salaries are paid by the Nigerian government. However, despite NEITI's existence, there are indications that the NNPC has not accounted for almost \$50 billion in revenue from oil exports which should have been remitted to the Nigerian government under law (Brock 2013).

The Petroleum Products Pricing Regulatory Agency (PPPRA) is also a government agency in Nigeria established in 2003 and charged with the responsibility to monitor and regulate the supply, distribution and the prices of refined oil products. Its staff are also paid by the Nigerian government. Despite PPPRA's existence, there are claims of fuel scarcity and the rising cost of fuel which is higher than the official rate. For example, there are reports by the media such as BBC Radio (Hausa service)⁴⁹ in April, 2015 of fuel scarcity and long queues at filling stations. The price has significantly risen to between N105 and N155 per litre of petrol compared to the official rate of N55 fixed by the government.

However, despite the establishment of these various government agencies to help monitor and manage the oil sector, there is still a scarcity of refined petroleum products, unabated gas flaring, oil spillage and low domestic content in the oil industry among other problems. These unsatisfactory outcomes may show that there was inefficiency in the administration of government institutions established to enhance economic growth and development. It may also indicate evidence of rent seeking as large sum of money is expended yearly by government to cater for the continuity of these agencies.

Democracy may motivate politicians to select a variety of sound policies (see, for example, Lake and Baum 2001, De Mesquita et al. 2002 and Lindert 2004) but there is still the question of effectively implementing these policies when state capacity is weak (Knutsen 2013). Also, Knutsen argued further that the regime type may not matter for economic development in weak-capacity states. As such, some researchers suggest that democracy may hinder economic growth in such situations as democracy may reduce political stability and aggravate distributional conflicts (see, for example, Huntington 1968). Weak state capacity

⁴⁸ See NEITI (2015)

⁴⁹ This is radio news by BBC in Hausa language. The Hausa language is branch of the Afrosiatic language spoken in some parts of the Sahel region in Africa. It is largely spoken in Nigeria (See Heine and Nurse 2000)

in Nigeria may explain the lack of efficiency in the above policies established as there is evidence of unsatisfactory outcomes.

Likewise, the continuation and implication of regional and ethnic diversity coupled with the rentier system may be reflected in the rapid implementation of policies without due consideration given to concerns of accountability and transparency. A significant part of the problems of governance regarding transparency, accountability and corruption in Nigeria is revealed in the most important sector of the Nigerian economy, i.e. oil, and specifically within the downstream production activity. For example, the most problematic sector over the years has been the downstream area, which is the distribution link with the final consumers of refined oil products in the domestic economy (Odulari 2008). This has further undermined other sectors of the economy, such as manufacturing and transport which requires energy to function efficiently. The transportation sector, for example, is vital to agriculture which is predominantly located in the rural areas in Nigeria and needs to deliver farm produce in a timely form to the market place. However, most of the farm produce has been left to rot and consumers tend to pay high prices because of food shortages.

In addition, it can be seen that beside the issue of Dutch Disease which the literature explained as the deterioration of the manufacturing sector by the booming natural resource sector due to an appreciation of the real exchange rate value of the domestic currency, which makes manufacturing exports less competitive and thus less attractive to foreign importers (see, Corden and Neary 1982) there other factors intensifying the resource curse. This signifies that the Dutch Disease explanation alone cannot fully show the reason behind the lack of growth as there were also institutional and governance problems in the oil sector that possibly exacerbated the adverse effects of oil production on other economic sectors. There was supposed to be easy access and availability of energy to help promote economic activity.

The above outcome can further confirm the evidence of the weak capacity of the Nigerian state as suggested by the literature (see, for example, Knutsen 2013). Also Easterly and Levine (1997) argued that ethnic diversity affect economic performance and most of this effect works indirectly through public policies, political instability and other economic factors.

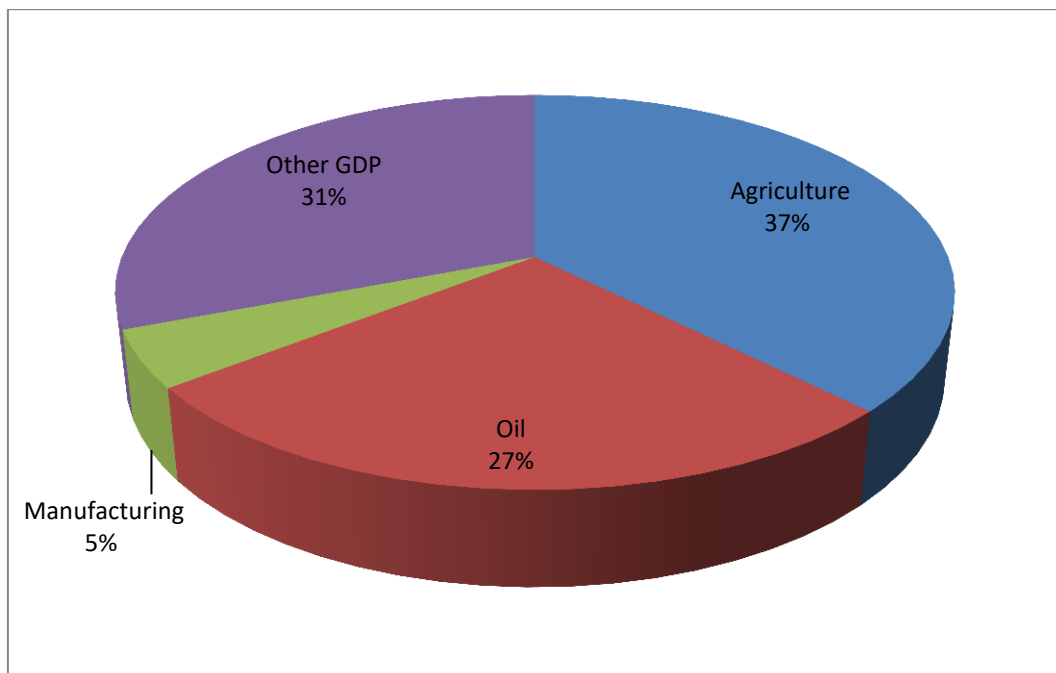
To argue further reform programmes within the oil sector of Nigeria have largely focussed on the state control of economic policy prescriptions with a lack of attention given to the institutional provisions, political realities and conditions faced by the beneficiaries prior to implementing the programmes. In other words, a lack of appropriate apparatus for governance, transparency and accountability that could help deliver the intended goals of nationalisation has hindered the benefits. As such the outcomes show that the effects have not been particularly successful.

In addition, the shift to state intervention which started in 1971 and subsequent government reforms especially from 1999 seems to be plagued with several problems within the oil sector. This has resulted in an unsatisfactory set of consequences. For example, the government has had to subsidise the price of imported refined oil products due to the inefficient functioning of the state owned domestic refineries. The fuel subsidy has become an unbearable burden on the Nigerian government because it announced its removal in December 2015 due to falling government revenue and fraud in the scheme (Ibekwe 2015). Moreover, it has resulted in a ceaseless crisis in the supply of refined oil products which is acute in some parts of the country, particularly in the north. This problem has culminated in the decision by the government in 2003 to deregulate the downstream oil sub-sector. However, the style of its implementation has been contentious because it ignores the economic (Odulari 2008) as well as the political realities in Nigeria.

4.4 RETURN TO DEMOCRATIC RULE AND THE IMPACT ON ECONOMIC SECTORS

To illustrate further the impact of the return to a stable political system in 1999, major economic sectors are examined. The significant contribution of these sectors (agriculture, manufacturing and oil) to GDP as illustrated in Figure 4.12 below are used as measures of economic performance. For example, using Figure 4.13 below, it is clearly evident that the period of reforms from 1999 to 2010 did not show significant changes in the annual growth rate of oil, manufacturing and agricultural output. Figure 4.13 illustrates the output of the oil, manufacturing and agricultural sectors in Nigeria.

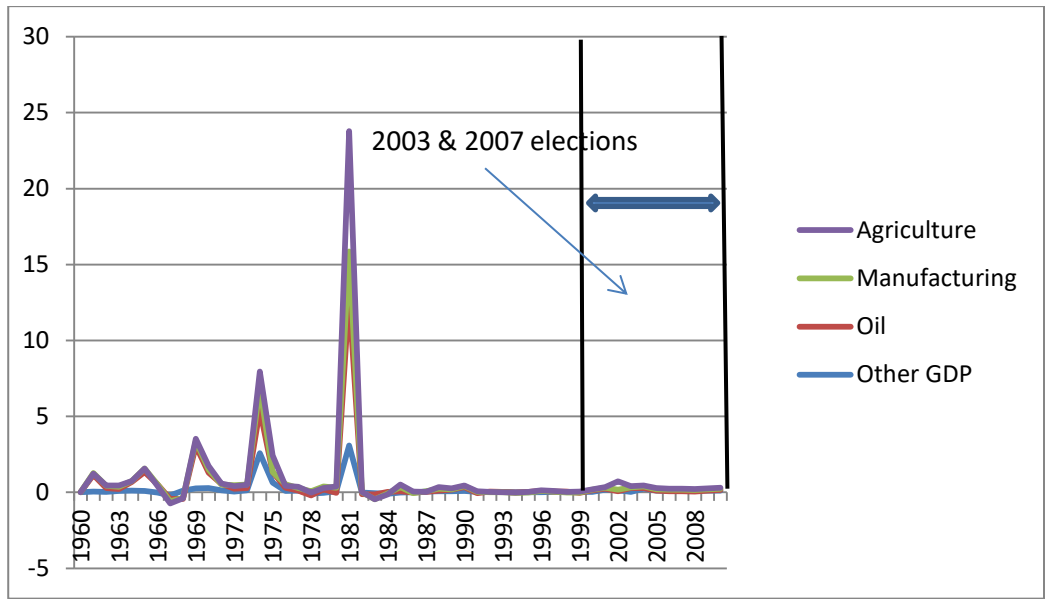
Figure 4.12 Output of Oil, Manufacturing, Agriculture and Other GDP



Source of Data: Central Bank of Nigeria (2010)

Note: Other GDP mean other components of Nigeria's GDP and these include building and construction, wholesale and retail trade, services and other industrial activities.

Figure 4.13 Periods of Economic Reforms (1999 – 2010)



Source of Data: CBN (2010)

Note: (1). The vertical axis shows the changes (annual rate) of oil, manufacturing, agricultural and other components of GDP output, while the horizontal axis shows the period in years from 1960 to 2010.

(2). Other GDP mean other components of Nigeria’s GDP and these include building and construction, wholesale and retail trade, services and other industrial activities.

Other explanations of a lack of growth as shown in the current period after democratic return could be due to Dutch Disease, declining terms of trade and oil price volatility effects. However, they alone cannot explain the low levels of growth as there were institutional and governance issues and it can be argued that lack of a common sense of national unity tied to ethnic and regional backgrounds may have produced these unsatisfactory outcomes. For example, the literature has subsequently point to the adoption of a political economy approach which encompasses both economic and political assumptions in the investigation between natural wealth and economic growth (Bevan et al. 1999, Collier 2010 and Luong and Weinthal 2010). For instance, Bevan et al. (1999) suggested that social forces were considerable determinants in influencing the economic policies and hence economic outcomes in Nigeria and Indonesia.

Another explanation that could support the argument is that there is a disconnection between initiated development plans and economic sectors despite

increases in government expenditure due to short sightedness by political leaders in their struggle for power. In other words, development plans or policies are not initiated in the interest of the general population but to appease supporters and interest groups that largely come from one region of the country.

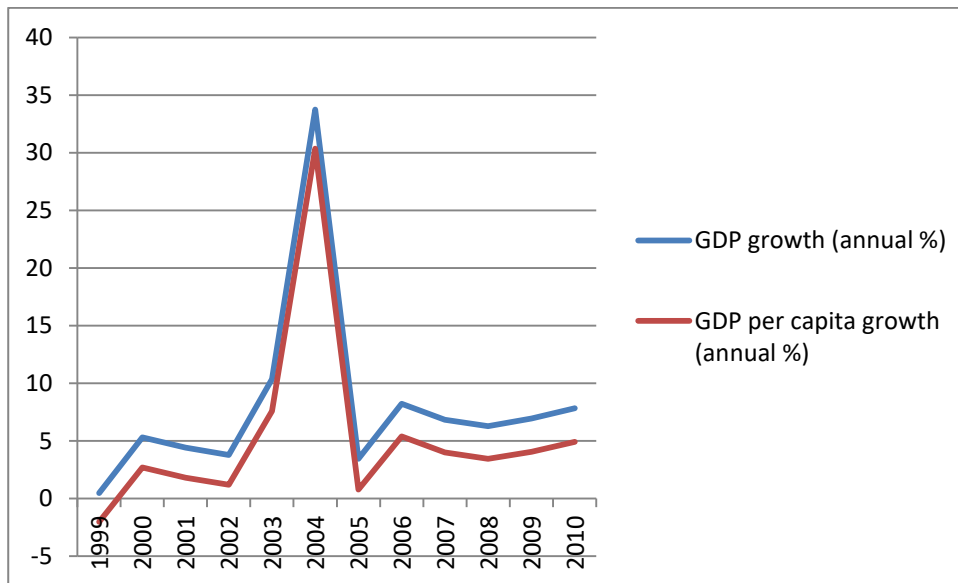
This type of outcome has been supported by studies reviewed in Chapter Two. For example, Ross (1999) stated that cognitive theories blame policy failures on a lack of foresight of the politicians and societal theories try to explain the pernicious influence of the privileged classes.

Furthermore, the literature on the effects of democracy on economic growth has shown that improved economic growth is not necessarily seen in a democratic regime (Przeworski and Limongi 1995). Also, Collier and Hoeffler (2009) suggest that in developing economies, the combination of natural resource rental income and democracy has been considerably growth-retarding. Narayan et al. (2011) and Aisen and Veiga (2013) also confirm this negative impact of democracy on economic growth.

4.4.1 Impact on Gross Domestic Product

We now turn to the aggregate performance of the economy using the GDP. The annual growth rates of GDP and GDP per capita in Nigeria from 1999 to 2010 are shown in Figure 4.14 below. It can be seen that from Figure 4.14 below there were sharp increases and declines in GDP and GDP per capita recorded between 2002 and 2005. Prior to and after these years the annual rates of growth of GDP and GDP per capita did not record such a trend. The literature also reported that natural resource booms are sometimes accompanied by declining GDP per capita (Sachs and Warner 1999).

Figure 4.14 Annual Growth Rate of GDP and GDP Per Capita

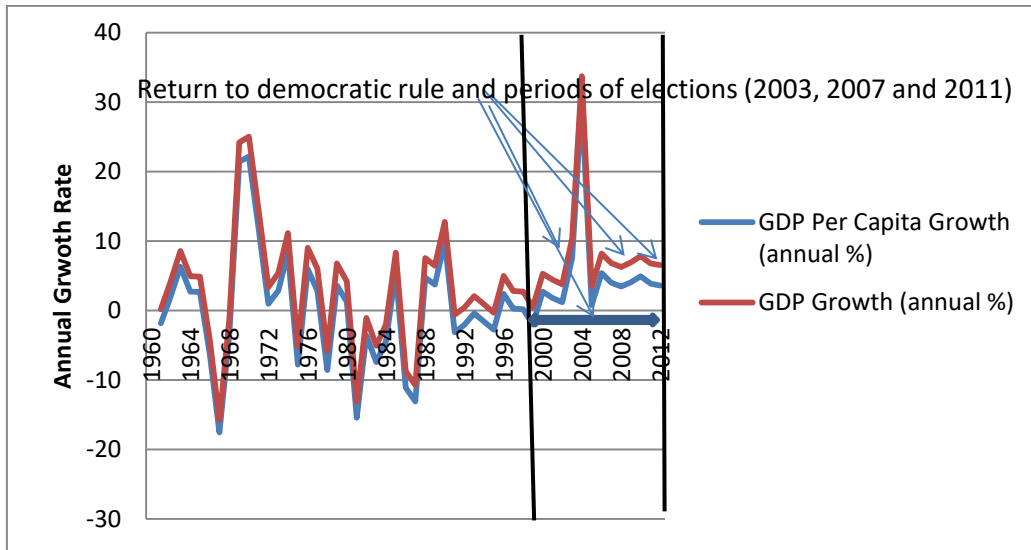


Source: World Bank Development Indicators (2014)

Note: The vertical axis shows the annual growth rate of GDP and GDP per capita in Nigeria, while the horizontal axis shows the period in years from 1999 to 2010.

Also looking at previous years before 1999, decreases in GDP were recorded in 1986 (Figure 5.15 below) which coincided with a falling world oil price as shown in Figure 4.16 below. This illustrates the trend of annual imported crude oil prices in US\$ per barrel in nominal and real price. Implicitly, it also means that, due to a neglect of the non-oil sectors, the Nigerian economy is affected by the vagaries of oil prices which in turn affects oil revenue that largely finance government expenditure and the resulting negative consequences on other sectors.

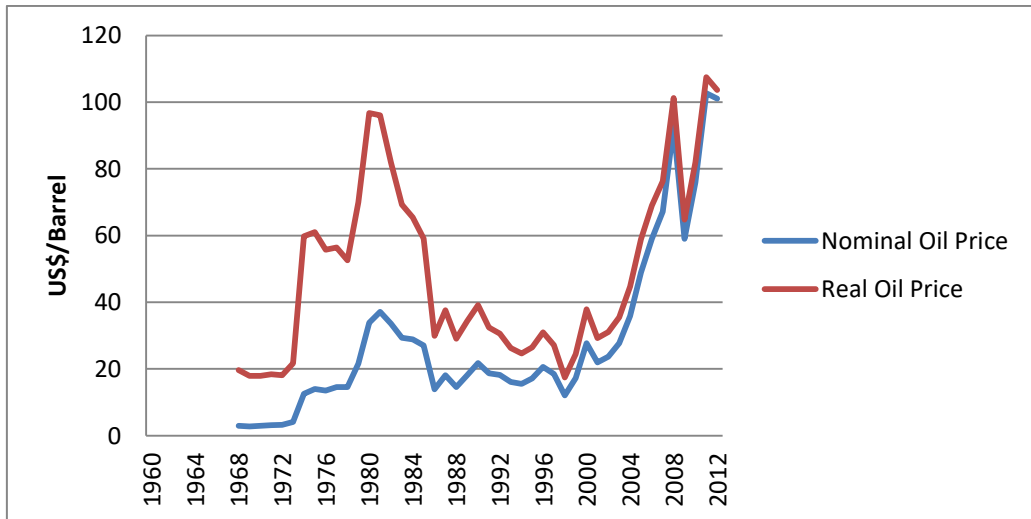
Figure 4.15 Annual Growth Rate of GDP and GDP Per Capita



Source of Data: World Development Indicators (2015)

Note: The vertical axis shows the annual growth rate of GDP in Nigeria, while the horizontal axis shows the period in years from 1960 to 2013.

Figure 4.16 Annual Imported Crude Oil Price (Dollars per Barrel)

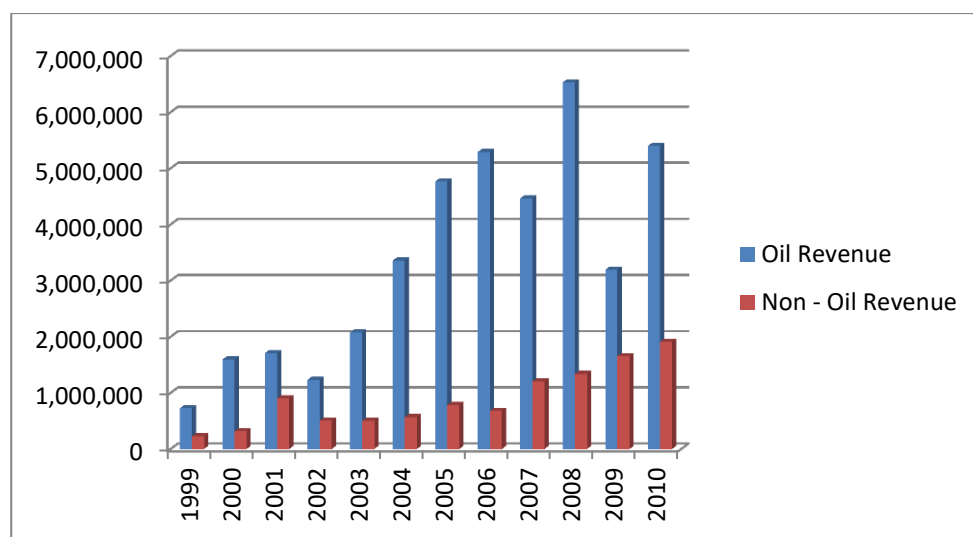


Source of Data: Energy Information Agency (2014)

Note: The vertical axis shows the price (nominal and real) of imported crude oil, while the horizontal axis shows the period in years from 1960 to 2012.

The above outcome may help explain the rise in GDP witnessed in the early 2000s and can be claimed that was not tied to real economic activities like manufacturing and agriculture but to oil price increases. To substantiate this argument further it was evident that despite increases in oil revenues (Figure 4.17 below) and the return to democratic rule in 1999, the living standard of the majority of Nigeria citizens had not improved as shown by the poverty gap indicators in Figure 4.18 below. From Figure 4.18, it was clear that the poverty gap at \$1.25 and \$2 earnings per day appeared to have risen over time from 1986 to 2010 except for the year 2004. Focusing on the reform period which started in 1999 with the return of democratic rule under the leadership of the PDP, the poverty gap at \$1.25⁵⁰ and \$2⁵¹ earnings per day in 2004 meant that 26.89 percent and 44.67 percent of the Nigerian population was living on less than \$1.25 and \$2 respectively. In 2010, the percentage of Nigerian population living on less than \$1.25 and \$2 a day was 27.46 percent and 44.79 percent respectively. This means that the Nigerian population living on less than \$1.25 and \$2 a day has increased.

Figure 4.17 Nigeria’s Oil Revenue and Non-Oil Revenue



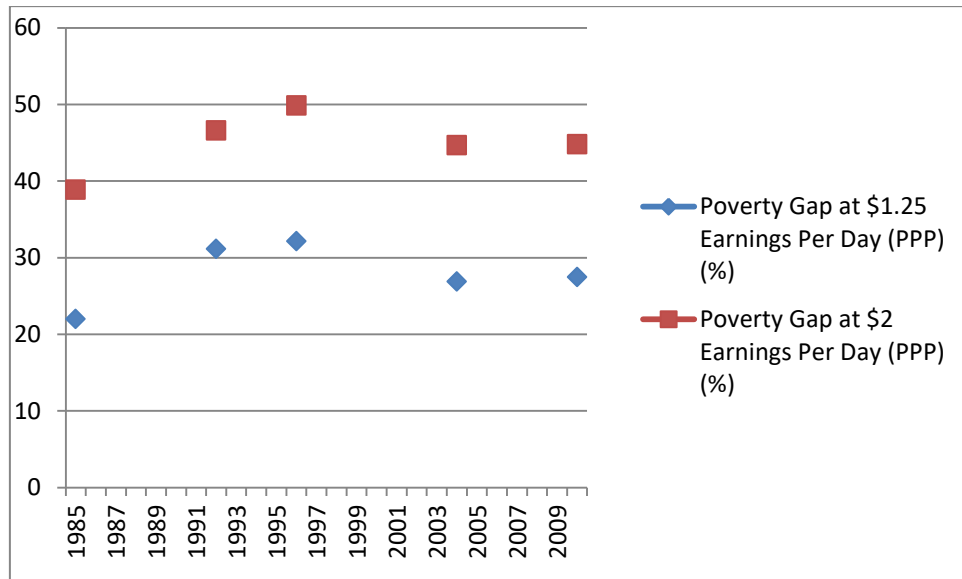
Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of Nigeria’s oil revenue and non-oil revenue in Naira million, while the horizontal axis shows the period in years from 1999 to 2010.

⁵⁰ Nigerian population earning below \$1.25 a day indicates the percentage of the population living on less than \$1.25 a day at 2005 international prices (World Bank 2014)

⁵¹ Nigerian population earning below \$2 a day signifies the percentage of the population living on less than \$2.00 a day at 2005 international prices (World Bank 2014)

Figure 4.18 Poverty Gap Indicators in Nigeria



Source of Data: World Bank Development Indicators (2015)

Note: The vertical axis shows the poverty gap in percentage terms, while the horizontal axis shows the period in years from 1985 to 2010. It is also observed that there are missing data points in the series.

There are also doubts that the increase of the oil prices recorded in recent years has allowed the government to use such windfalls to modernise infrastructure, create employment and improve social indicators (World Bank 2013). This is because, according to the World Bank, the year 2010 recorded the continuation of double-digit inflation (13.8 percent), the depletion of the remaining Excess Crude Account (ECA) reserve, and an outstanding balance of payments deficit, notwithstanding the strengthening of crude oil prices. Furthermore, gross monetary foreign reserves decreased from US\$ 42 to 32 billion during the year. In addition, the draw-down of the ECA in 2010, regardless of the economic recovery and stronger crude oil prices, exposed weaknesses in the rules surrounding the management of the fund, motivating the government to establish the Sovereign Wealth Fund in 2011 with the rationale of adopting stronger rules for the responsible management of the country's oil wealth.

Issues surrounding the management of resource funds in Nigeria also portray a study in the strand of the literature that focuses on the means by which resource rich countries can escape the resource curse. For example, Humphreys et al.

(2007) showed theoretically that the significance of natural resource funds lies in their effects on the incentives facing political players. They supported their theoretical investigation by empirical analyses of institutions and expenditure decisions. For natural resource funds to be effective, they based their arguments on regulated withdrawals which should be guided by clear rules and not general rules. Second, key decisions should be made by parties representing diverse political constituencies. Finally, there should be high levels of transparency concerning their status and operation. For example, there should be a unified budgetary process and the public reporting of payments.

The claim by World Bank (2013) also reflects the argument made in the literature which states that volatile oil revenues would be consumed rather than invested (Sachs and Warner, 1999). In this case, periods of rising oil prices have given the Nigeria more revenue but instead some economic indicators deteriorated.

The deterioration in economic indicators like GDP per capita in the face of rising oil prices which means more oil revenues and period of a stable democracy means that other factors are hindering the progress of economic growth. For example, a significant feature of Nigeria is ethnic and regional diversity which this study also based its argument on. Yang (2008), for example, finds that in countries with high degrees of ethnic diversity, democracy appears to substantially lower growth and in countries with low ethnic diversity such a relationship is not significant.

In addition, the living standard of Nigerians may have deteriorated because of the weak performance of non-oil revenues in comparison with oil revenue as shown in Figure 4.17 above. The non-oil sectors (i.e., manufacturing and agriculture) that form part of the GDP have been neglected and these support the majority of the Nigerian labour force, in particular agriculture. In other words, the apparent neglect of the non-oil sectors has led to weak performance and low revenue for the government. This in turn has led to a loss of employment and the promotion of rent seeking in Nigeria as some unemployed people will strive to have access to government contracts that are not necessarily executed efficiently due to lack of strong governance and institutions that ensures law and order, accountability and transparency so as to minimise corrupt practices. This type of development have further weaken the non-oil

sectors which will help intensify the resource curse as people tend to look for cheap means of making money through access to oil rental income that finances government contracts.

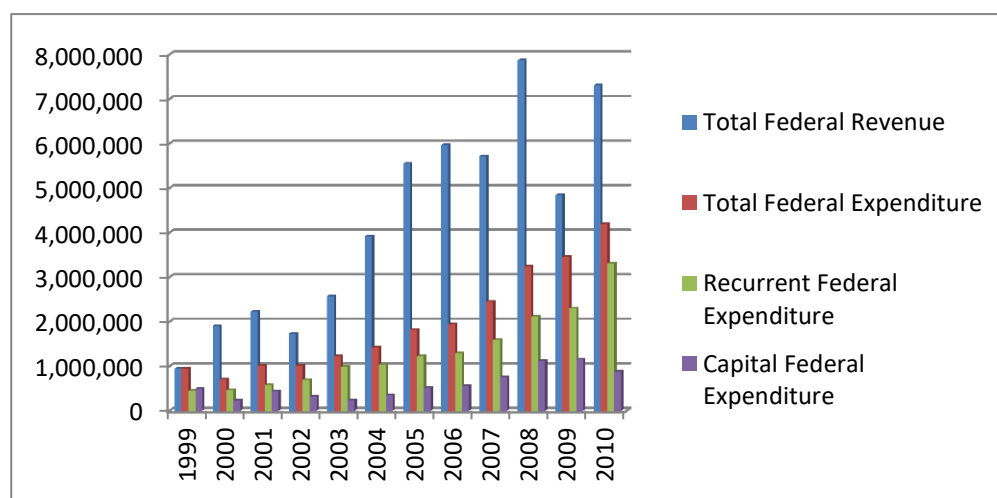
The above outcome reflects the explanation in the literature which states that reliance on oil leads to deterioration of manufacturing/agricultural sectors due to the appearance of the Dutch Disease. In the case of Nigeria, the Dutch Disease effect cannot fully explain the low levels of non-oil revenue in comparison to oil revenue because there is apparent short-sightedness by most of the political regimes (military or civilian) in the administration of Nigeria. This short-sightedness linked to societal rivalry was also evident in the citizens where they elected leaders based on communal identity and the elected politicians are also Nigerians with the same psychological bearing tied to ethnic and regional rivalry. As such, societal rivalry provided a channel for the appearance of economic symptoms of the adverse effects of oil production such as Dutch Disease which can appear in various forms. For example, the literature stated that the symptoms of Dutch Disease include a decrease in savings and physical investment (Payrakis and Gerlagh 2007).

Also the initiations of economic policies that were largely based on raising government expenditure, most especially recurrent as evidenced from the preceding analysis dominate government administration. This type of government spending behaviour can be linked to societal rivalry where promotion of a common national goal was absent. The combination of these factors helped in weakening the non-oil sectors as public investment that can help move the traditional sector (i.e., agriculture) was lacking in the needed areas where its activities were largely carried out.

The issue of lack of foresight by political actors has also been discussed in the literature under the cognitive approach. This perspective argued that natural resource wealth leads to various types of emotional or irrational behaviour on the part of the government and this outcome leads to weak economic policy-making and institutional capacity (Ross 1999). Mitra (1994) suggested that natural resource booms create an inclination to optimism in countries that benefit, in turn leading to excessive government spending. Also, Krause (1995) argued that natural resource booms lead to 'wishful thinking' among policy-makers in natural resource abundant countries.

In support of the previous discussion, the neglect of the non-oil sector can be attributed in terms of cuts and low levels in capital expenditure as shown in Figure 4.19 below. This includes spending on the construction of infrastructural facilities such as roads, bridges, dams, electricity production etc that could support sectors such as manufacturing, agriculture, health, communication, transport and education. For example, there are claims that most infrastructural facilities in Nigeria have deteriorated and have led to the closure of manufacturing firms (Gboyega 2011). However, recurrent expenditure appears to be rising over time despite changes in total federal revenue as shown in Figure 4.19 below. This may indicate an increase in government size over time as wages and salaries of public sector workers are financed by recurrent expenditure.

Figure 4.19 Federal Revenue, Total Expenditure, Recurrent Expenditure and Capital Expenditure



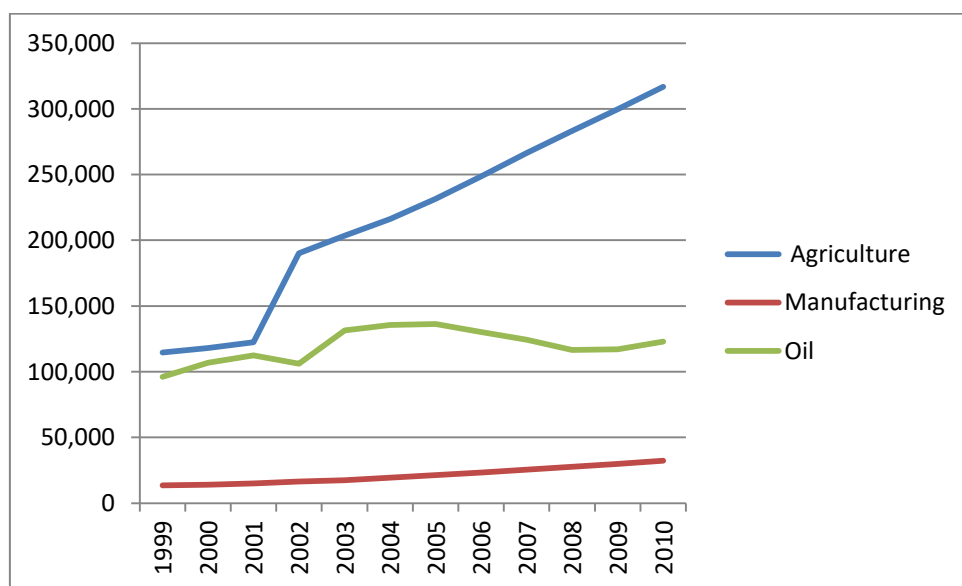
Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of Nigeria's total federally collected revenue, total government expenditure, recurrent expenditure and capital expenditure in Naira million, while the horizontal axis shows the period in years from 1999 to 2010.

It can be clearly seen that the performance of the agricultural and oil sectors are higher than that of manufacturing throughout the period under observation as shown in Figure 4.20 below. This should have resulted in a greater injection of capital expenditure into the Nigerian economy that can support manufacturing activities in the country. As such it can be further argued that reforms which

included diversification of the Nigerian economy through promotion of the private sector especially of small and medium scale enterprises will improve manufacturing activities if capital expenditure on infrastructural activities had not experienced cuts over time.

Figure 4.20 Output of Oil, Manufacturing and Agriculture (1999-2010)



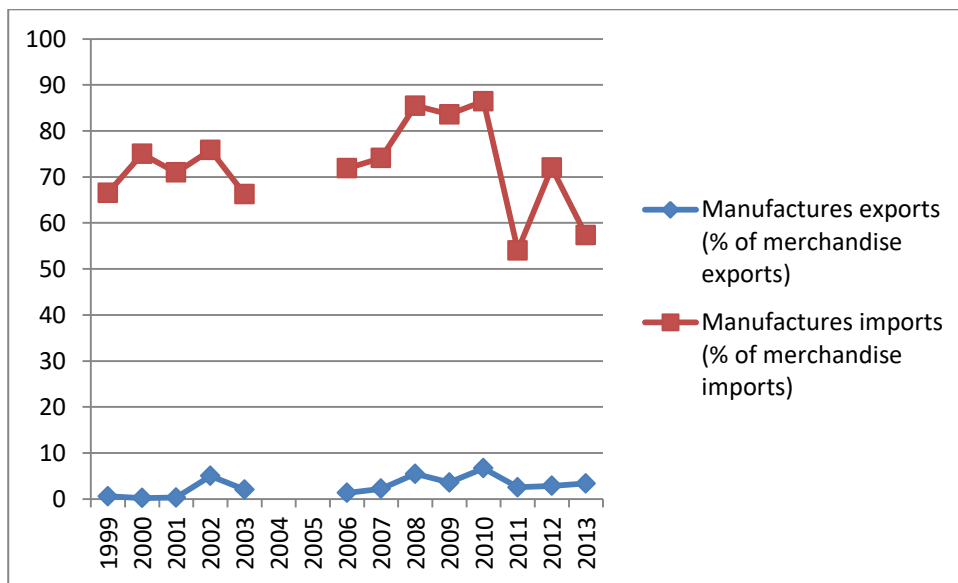
Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the value of outputs of oil, manufacturing and agriculture in Naira million, while the horizontal axis shows the period in years from 1999 to 2010.

The deterioration of manufacturing activities have resulted in low levels of manufactured exports and high levels of manufactured imports as illustrated in Figure 4.21 below. For example, manufacture imports as a percentage of merchandise imports was 71.88 percent in 2006 while manufactured exports as a percentage of merchandise exports was 1.34 percent in 2006. In fact there were further declines in manufacture exports from 6.66 percent in 2010 to 2.55 percent in 2011 when years outwith the study period are taken into consideration which also coincided with a period of democratic rule under the administration of the PDP. Rising manufacture exports will improve employment opportunities and living standards of Nigerian citizens because of the forward and backward linkages that manufacturing activities provide in an economy.

Researchers such as Hirschman (1958), Seers (1964), and Baldwin (1966) stated that linkages from manufacturing exports are more value adding compared with primary product exports. This could be contextualised using the Nigerian economy which largely depends on export of primary commodities, especially in crude oil as evidenced by the rising oil revenue in comparison with non-oil revenue as shown in Figure 4.17 above.

Figure 4.21 Manufacture Exports and Imports



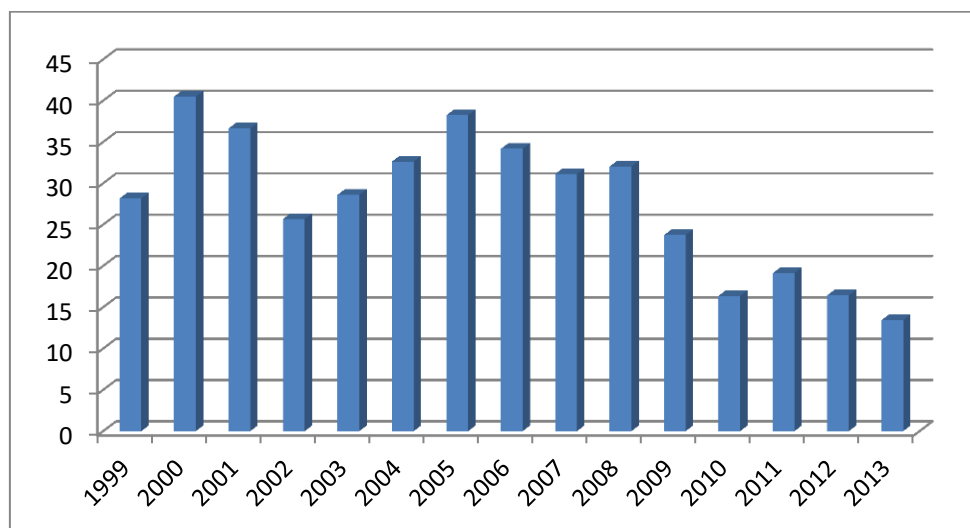
Source of Data: World Bank Development Indicators (2014)

Note: The vertical axis shows the value of manufactured exports and imports as percentage of merchandise exports and imports in Nigeria, while the horizontal axis shows the period in years from 1999 to 2013. It is also observed that there are missing data points (2004 and 2005) in the series.

Likewise, the reform agenda from 1999 also targeted the Nigerian oil industry due to problems particularly in terms of transparency and accountability. However, the oil sector experienced declining performance over the period under study as shown in Figure 4.20 above. In 2005 the output value stood at N136, 345.54 million but in 2010 the value declined to N122, 957.87 million. In terms of oil rental income shown in Figure 4.22 below, the trend observed is also similar to that of oil output shown in Figure 4.20 above. The decline observed in the oil sector coupled with changes in world oil prices and the rising population in Nigeria as illustrated in Figure 4.23 below may have also resulted in the weak

performance of the annual growth rates of GDP and GDP per capita as shown in Figure 4.14 above.

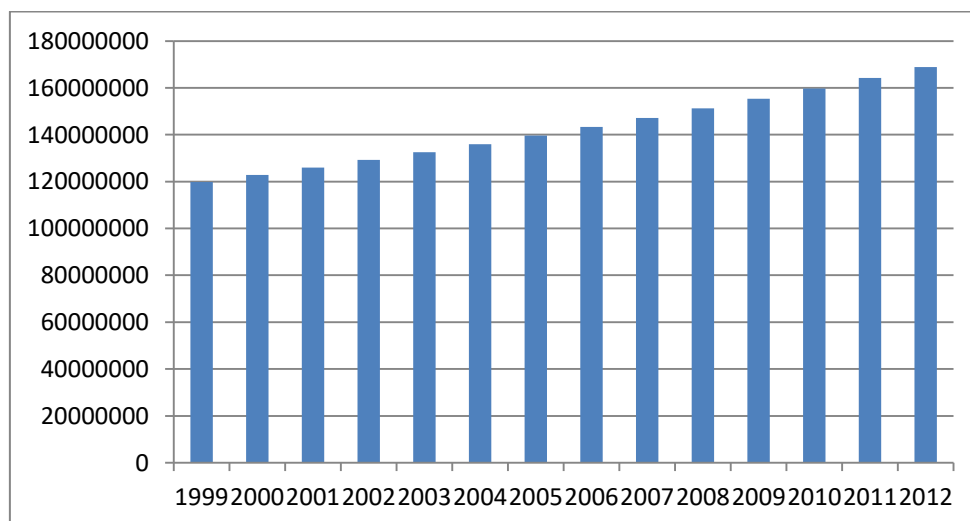
Figure 4.22 Oil Rental Income (percentage of GDP)



Source of Data: World Bank Development Indicators (2015)

Note: The vertical axis shows the value of oil rental income as a percentage of GDP, while the horizontal axis shows the period in years from 1999 to 2013.

Figure 4.23 Population in Million



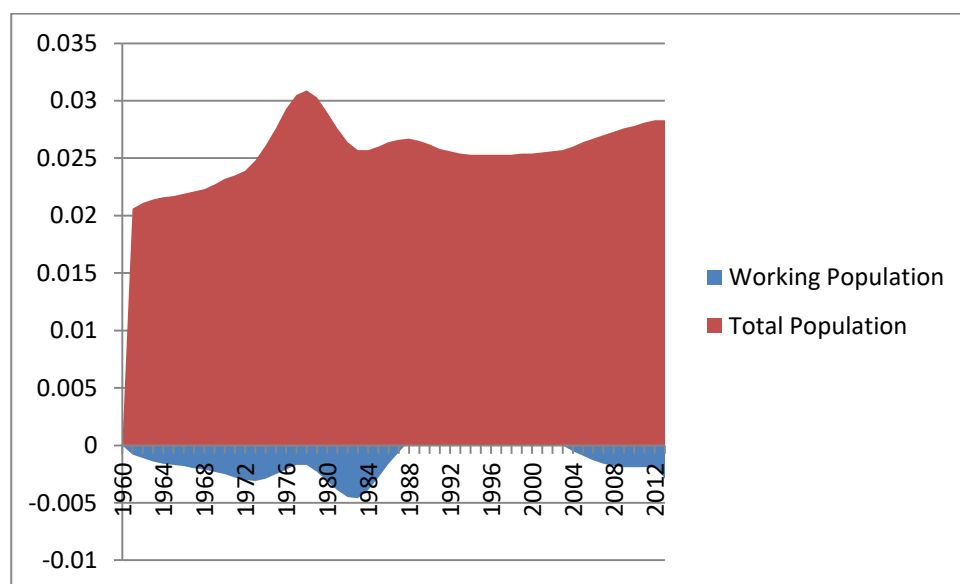
Source of Data: World Bank Development Indicators (2015)

Note: The vertical axis shows the figures of Nigeria's population in million, while the horizontal axis shows the period in years from 1999 to 2012.

According to Sachs and Warner (1997) countries will have a higher per capita growth if the working population (between ages 15 and 65) is growing faster than the whole population. According to them, this variable is employed to control for such demographic effects on measured economic growth and this demographic influence accounts for an economically significant part of the overall difference in economic growth rates between Africa and East Asia.

To depict Sachs and Warner’s analysis, the growth rate of the total population and the working population (ages 15-64) of Nigeria is illustrated in Figure 4.24 below. From Figure 4.24, it is clear that the whole population is growing faster than the working population and this could be the reason for the low growth rate in GDP and GDP per capita observed in Figure 4.14 above.

Figure 4.24 Total and Working Population (Growth Rate)



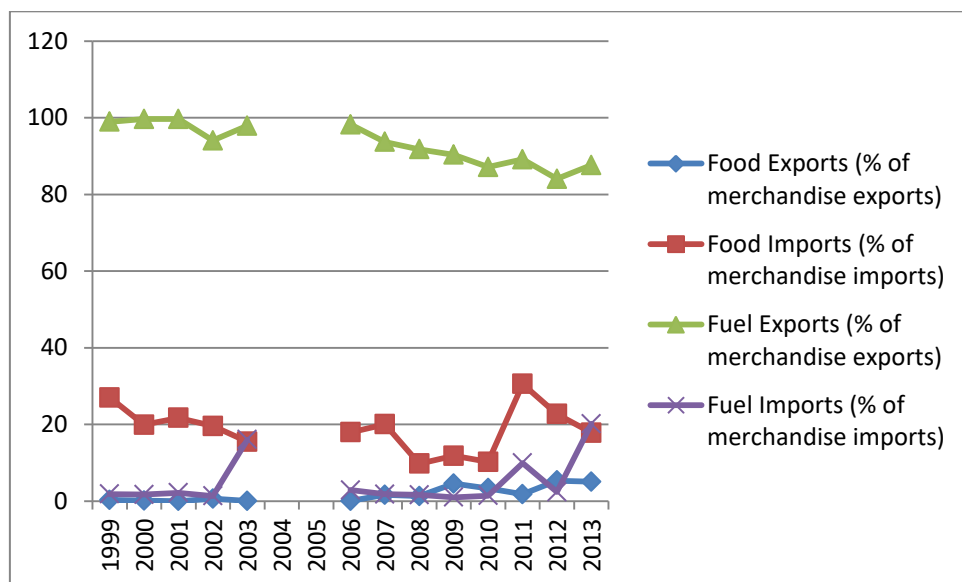
Source of Data: World Bank Development Indicators (2015)

Note: The vertical axis shows the figures of Nigeria’s population in million, while the horizontal axis shows the period in years from 1960 to 2013.

As such, these developments may have aggravated rising poverty levels observed in Figure 4.18 above as non-oil sector activities which produce food and employment opportunities even to the non-educated population are deteriorating coupled with low growth rate in the working population. The

deterioration of non-oil sector and low growth rate of working population may also have resulted in higher levels of food imports compared with food exports as shown in Figure 4.25 below in the midst of rising population.

Figure 4.25 Food Exports and Imports plus Fuel Exports and Imports

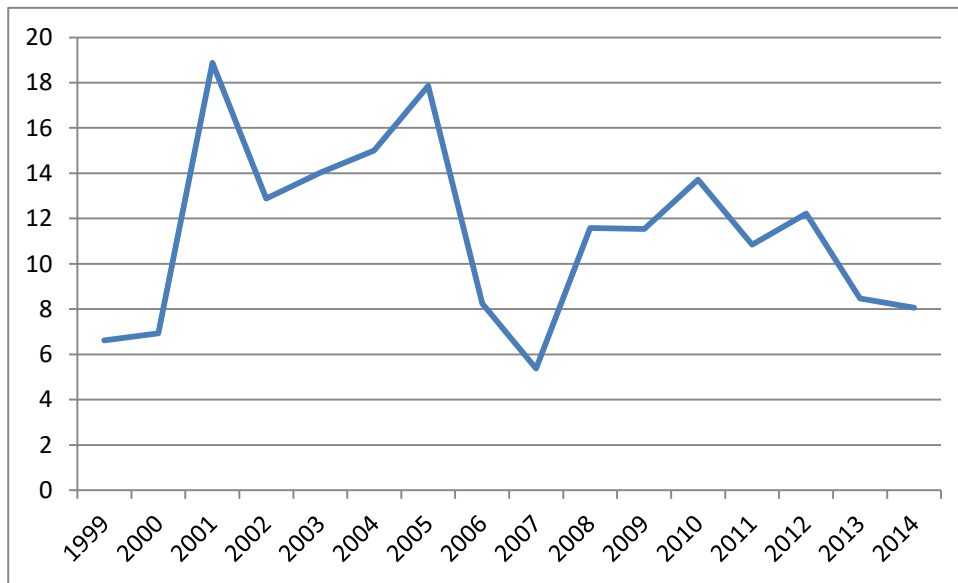


Source of Data: World Bank Development Indicators (2015)

Note: the vertical axis shows the value of food exports, food imports, fuel exports and fuel imports as percentages of merchandise trade, while the horizontal axis shows the period in years from 1999 to 2013. It is also observed that there are missing data points in the series for 2004 and 2005.

Similarly, the declining performance of the oil sector as shown in Figures 4.20 and 4.22 above may have resulted in declining fuel exports especially from 2007 as observed from Figure 4.25 above. Also there was a rise in fuel imports in 2003, 2011 and 2013. The summation of these different outcomes can result to periods of higher inflation especially in 2001 (18.87 percent) and 2005 (17.86 percent) as shown in Figure 4.26 below. It can be argued that the nature of government spending which appears to favour recurrent expenditure with a rising population and volatile oil rental income and declining oil output may have helped in aggravating rising poverty levels and the high level of consumer price inflation as shown in Figure 4.26.

Figure 4.26 Inflation in Consumer Prices (annual % increase)



Source of Data: World Bank Development Indicators (2015)

Note: the vertical axis shows the value of inflation (consumer prices), while the horizontal axis shows the period in years from 1999 to 2014.

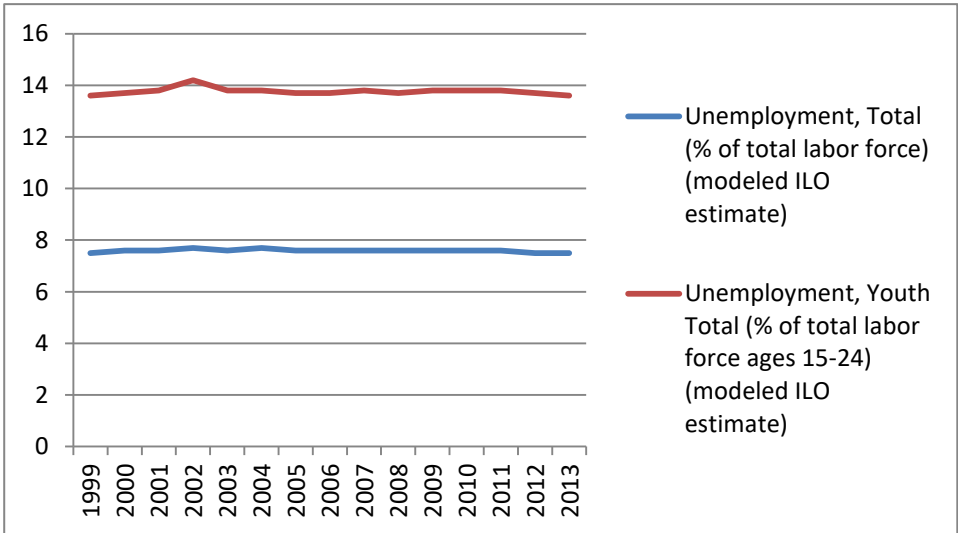
A rise in fuel imports can partly be attributed to the inefficiency of the existing four oil refineries in Nigeria which could have provided the country with enough fuel in terms of diesel, petrol and kerosene that are among the main source of energy in Nigeria beside firewood that is mostly use for cooking. As such, this has resulted in rising fuel import and imported refined oil products are subsidised by the government which means additional burden. The government should have invested the subsidy to improve the existing refineries or build additional ones across the country due to the concentration of the refineries in the Southern part of the country. Out of the four refineries, three are located in the South and only one in the North. Refined fuel like petrol and diesel is transported to the North by tankers due to the unstable operational activity by the Kaduna Refinery and Petrochemical Company (KRPC) which is sometimes caused by continual repairs and oil pipeline sabotage.⁵² According to Premium Times (2015), KRPC which has a daily refining capacity of 11,000 barrels of crude oil restarted production after closure for months.

⁵² See Premium Times (2016)

The scarcity of fuel due to inefficiency of refineries and other factors like oil pipeline sabotage leads to higher cost of transaction, especially in terms of transportation and communication and this leads to rising selling prices of produced goods and services. Impliedly this means that producers and consumers have to pay more for the goods and services they need and that translates to a cut in their disposable income and this affect their savings if they have any to close the gap in their planned purchases.

Moreover, it can be suggested that the nature of government expenditure which is largely focused on rising recurrent expenditure have resulted in the almost stagnant level of the unemployment rate as shown in Figure 4.27 below in the midst of rising population growth as shown in Figure 4.23 above.

Figure 4.27 Unemployment Rate in Nigeria (% of Total Labour Force)



Source of Data: World Bank Development Indicators (2015)

Note: the vertical axis shows the level of unemployment as a percentage of total labour force (modelled ILO estimate)⁵³, while the horizontal axis shows the period in years from 1999 to 2013.

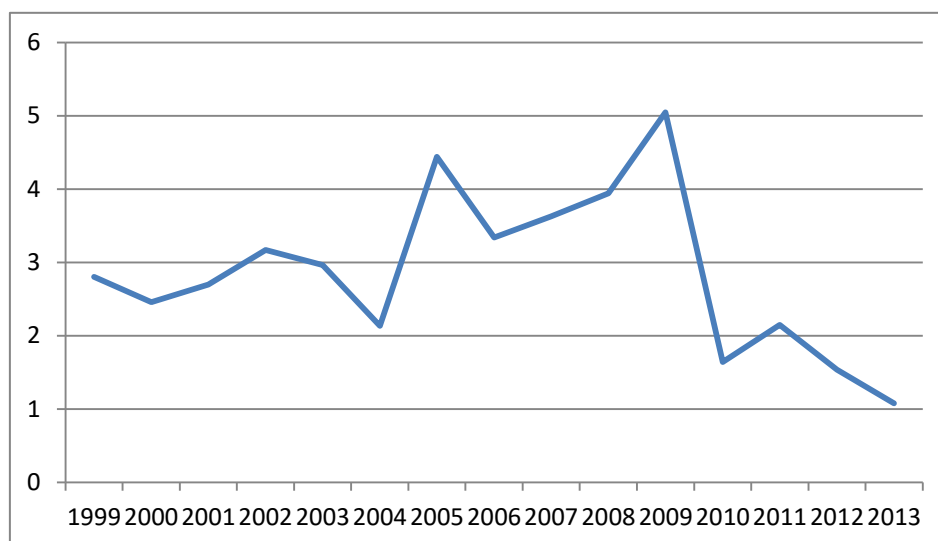
Stagnant levels of unemployment, which may have been tied to the pattern of government spending, indicated that a large part of the oil revenue was allocated to consumption rather than investment. For example, increased capital spending on infrastructural facilities, especially where they were needed, will

⁵³ ILO is the International Labour Organisation and the estimate is based on ILOs’s methodology

have boosted private sector small and medium scale enterprises and this will in turn create job opportunities for the local people in that area. The literature suggests that the key mechanism by which democracy is thought to impede economic growth are pressures for immediate consumption, which reduce investment (Przeworski and Limongi 1995). In the case of Nigeria, this argument can be seen through rising recurrent expenditure. It is argued in the literature that only states which are institutionally protected from such pressures can counteract them and democratic states do not have such safeguards (Przeworski and limongi 1995). As such, a stagnant level of unemployment during a democratic period in Nigeria meant that many people will remain unemployed as the rate has not declined to show further absorption of those not working.

Another factor that can contribute to rising inflation and unemployment is electricity instability. Power generation received by firms declined as recorded outages in a typical month increased in number from 25.2 in 2007 to 36.4 in 2014 (World Bank Development Indicators, 2015). This outcome affects business activities such as manufacturing and agriculture that employs many of the Nigerian population. This could be one of the reasons for the higher levels of imports compared with exports in manufactures as shown in Figure 4.21 above and declining foreign direct investment as illustrated in Figure 4.28 below. Foreign investors may not want to invest in Nigeria because of a lack of sufficient and constant electricity generation needed for companies to operate. It is clear that beside Dutch Disease and oil price volatility that can hinder manufacturing and agricultural activities, the inefficient manner of delivering public goods and services, especially energy in a country rich in oil is an obstacle to growth and development.

Figure 4.28 Foreign Direct Investment, Net Inflows (% of GDP)



Source of Data: World Bank Development Indicators (2015)

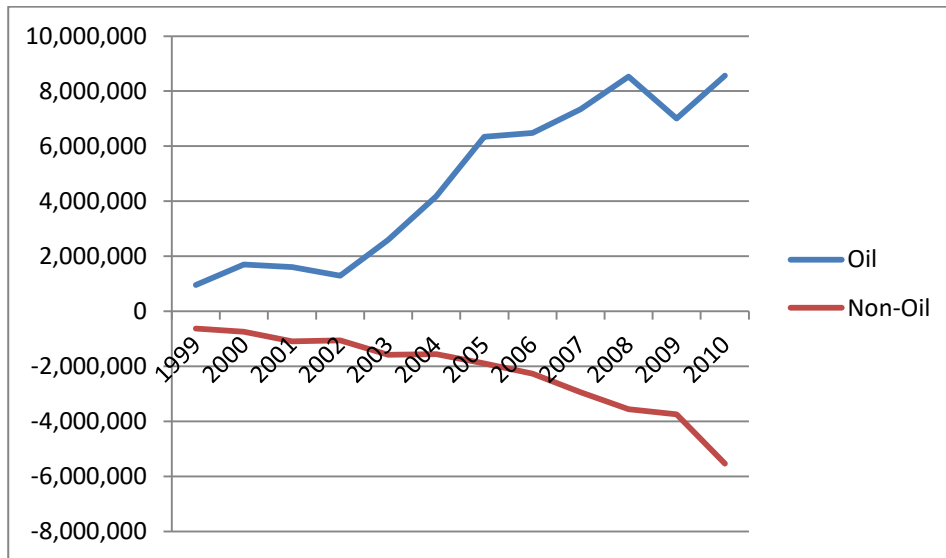
Note: the vertical axis shows the value of foreign direct investment (net inflows) as a percentage of GDP in Nigeria, while the horizontal axis shows the period in years from 1999 to 2013.

Also, this affect Nigeria's balance of trade as imports of manufactures are part of non-oil exports. This can be seen in Figure 4.29 below which depicts Nigeria's trade balance in oil and non-oil exports. The non-oil balance of trade declined over time and recorded a negative trend, indicating a trade deficit. This outcome is also supported by the literature on economic approach which states that declining terms of trade is a problem to countries that produce and export primary commodities like oil and agricultural products. For example, Prebisch (1950, 1964) and Singer (1950) argued that primary product exporting countries are at a disadvantage in trading with the developed economies because of declining terms of trade which suggests that the price of exports falls relative to imports.

It is also clear from Figure 4.29 below that since the return to stable democratic rule in 1999; the non-oil trade balance appears to decline over time and that of oil increases. This shows that economic reforms targeted at the non-oil sector do not help to promote exports of goods which could help provide income and employment opportunities due to external and domestic demand. The stable

democratic regime achieved from 1999 appeared not to have promoted the gains of democracy in other economic sectors and instead the oil sector which brings rental income to the government and meagre employment opportunities to the few educated citizens seems to benefit from this regime.

Figure 4.29 Nigeria’s Balance of Trade – Oil and Non-Oil

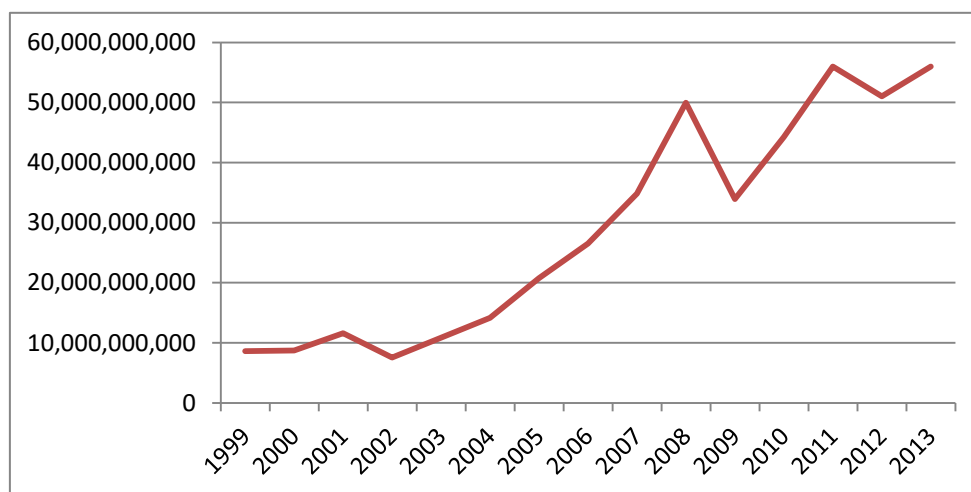


Source of Data: Central Bank of Nigeria (2010)

Note: the vertical axis shows the value of balance of trade in Nigeria’s local currency (Million Naira) while the horizontal axis shows the period in years from 1999 to 2010.

It can also be argued that a negative non-oil trade balance and rising merchandise imports as shown in Figure 4.30 below may have resulted in a falling exchange rate for the naira as shown in Figure 4.31 below. This may have adversely affected the cost of importation and other foreign transactions especially with the fall of world oil prices in some years and towards the end of 2014. This has led to a fall in the value of the Naira against foreign currencies such as the US dollar and the pound sterling. This outcome may have further fuelled inflation especially in 2000, 2002, 2005 and 2010 as shown in Figure 4.32 below.

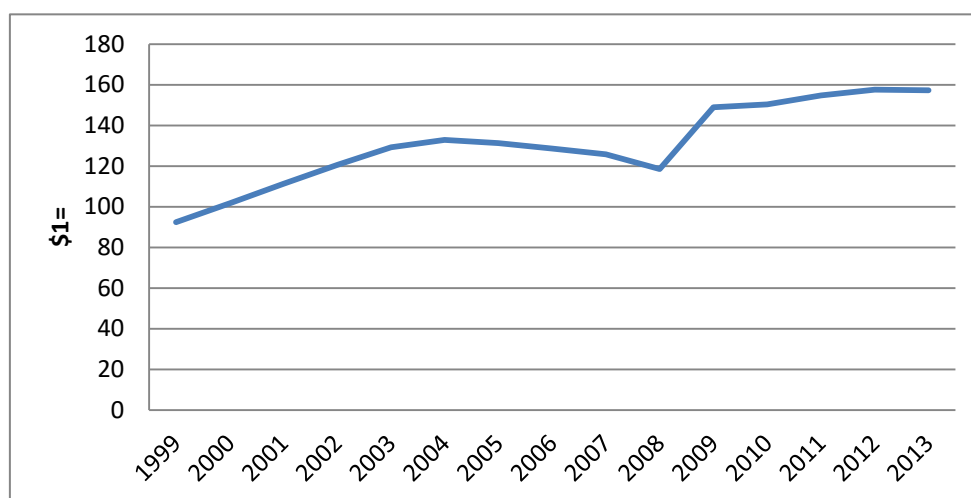
Figure 4.30 Merchandise Imports (current US\$)



Source of Data: World Bank Development Indicators (2015)

Note: the vertical axis shows the value of merchandise imports in current us dollars, while the horizontal axis shows the period in years from 1999 to 2013.

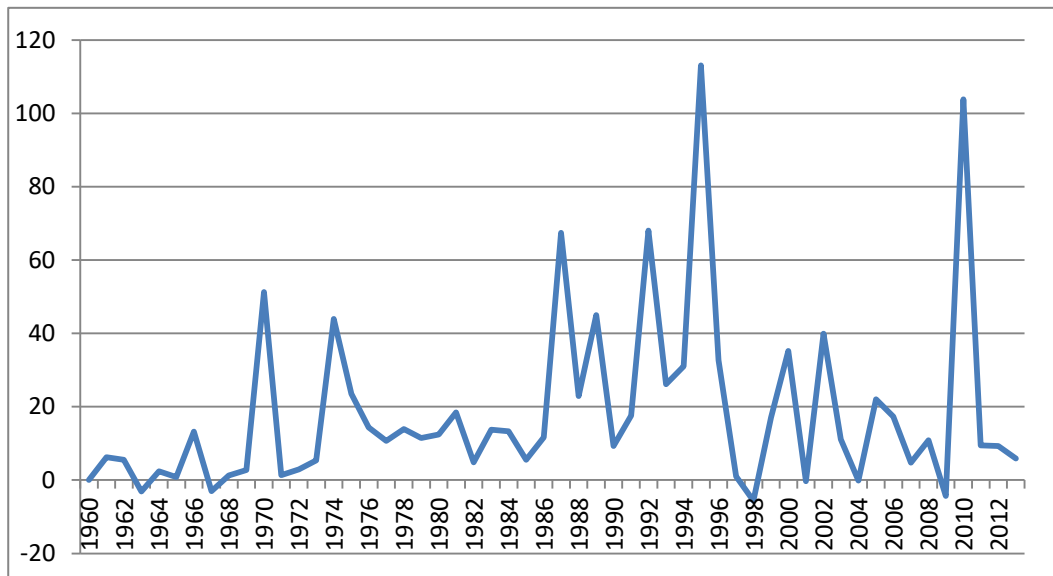
Figure 4.31 Official Exchange Rate (Naira per US\$, period average)



Source of Data: World Bank Development Indicators (2015)

Note: the vertical axis shows the value of the official exchange rate in the naira per US dollar, while the horizontal axis shows the period in years from 1999 to 2013.

Figure 4.32 Inflation, GDP Deflator (annual %)



Source of Data: World Bank Development Indicators (2015)

Note: the vertical axis shows inflation as measured by the annual growth rate of the GDP implicit deflator⁵⁴ which depicts the rate of price change in the Nigerian economy, while the horizontal axis shows the period in years from 2003 to 2013.

The above evidence provides a good illustration of why the assumptions of economic perspective such as Dutch Disease, oil price volatility, lack of forward and backward linkages and declining terms of trade produces an inadequate analysis when political approach which is largely underpinned by societal, institutional and governance explanations is ignored. It can also be inferred and argued that continued issues of regional and ethnic diversities coupled with institutional weakness that resulted in a change in the politics of Nigeria after the return to democratic rule in 1999 has hindered the benefits expected to be achieved from democracy and rising oil revenues. Instead, poverty in terms of food, energy and insecurity among others appeared to be on the increase.

In addition, the literature also suggests that ethnic diversity is positively related with underdeveloped financial systems, distorted exchange rates, low schooling, and lack of infrastructure (Esterly and Levine 1997). Also it is argued that in

⁵⁴ The GDP implicit deflator is the ration of GDP in Nigeria's local currency to GDP in constant local currency (World Bank 2015).

factional and predatory states, growth deteriorate in spite of the prominence of peasant farming with its diffuse socio-economic linkages that should support economic development (Auty and Gelb 2001). This also depicted the Nigerian situation where it was clearly evident that the financial system was characterised by malpractice, the value of the domestic currency had also declined and lack of infrastructure adversely affected sectors like agriculture and manufacturing. In addition, despite the importance of the agriculture in Nigeria, which had been widely practiced even before oil discovery and ethnic issues had not impeded its progress. However, it showed that ethnic divisions do matter after oil discovery and this resulted in growth deterioration as shown above which also portrayed some of the suggestions in the literature.

Furthermore, some studies such as those by Easterly and Levine (1997) and Narayan et al. (2011) stated that a number of reasons have been offered for weak economic performance in Sub-Saharan African countries and these include high population growth (see Figure 4.23 above), inadequate export performance (see Figure 4.21, 4.25, 4.29 and 4.30 above), low levels of investment in human capital (Nigeria largely depends on non-refined oil exports for source of income), inefficiencies in the public sector (evidenced by, for example, a lack of refined energy despite an abundance in oil and gas) and ethnic conflicts (see, Table 4.2 above).

The above suggestions made by some studies in the literature have also been observed in the Nigerian situation. It can also be inferred that oil revenues have been wasted as they have not been translated into sustainable economic growth as evidenced by the analysis above. For example, Ascher (1999) argued that natural resource-rich countries have generally wasted their resources because political elites have a tendency to use them to pursue various political goals including the funding of contentious development programs, achieving control over resource rent allocation, providing economic benefits to specific groups, avoiding accountability and crafting rent-seeking activities.

Also, Sala-I-Martin and Subramanian (2003) argued that waste and corruption in the oil sector rather than the Dutch Disease has been responsible for Nigeria's weak long run economic performance. Also, despite a return to democracy and increases in oil revenue, there is still evidence of weak economic performance.

Cheung (1998), for example, put forward a third argument that corruption is more likely to flourish under a democracy than in a dictatorship.

4.5 SUMMARY

As democracy was restored, one party (PDP) amidst others won the various elections conducted until 2015. However, the PDP's dominance was associated with political misconduct in elections. This outcome showed that the political landscape has somewhat changed as the PDP was not basically formed as a regional party because of its constituents. People from the different regions in Nigeria formed the PDP. This served to highlight that a lack of national unity and gradual dependence on the oil sector may have given an opportunity for some politicians with common interests to come together and take control of the affairs of the country that is not in the interest of the general population.

The PDP's administration introduced economic reforms to revive the economy from a dwindling state. For example, the reforms targeted the oil, manufacturing and agriculture sectors in order to improve diversification of the Nigerian economy and curtail the resource curse effects. In addition, institutions that will strengthen law and order and minimise corrupt practices such as money laundering were established. It is evident that the problems of the resource curse which can be explained in terms of economic concepts of the Dutch Disease effect, oil price volatility and declining terms of trade has appeared to have affected economic sectors adversely. But they alone cannot be blamed for the resource curse as diversity in ethnic and regional factors may have influenced the change in ownership structure of the oil industry to state control which gives more access and power to political leaders and the negative consequences on economic sectors are evident, especially in terms of energy provision. The change in ownership structure appeared to have promoted rent seeking as more government agencies were established in the name of monitoring the oil sector and most of them are headed by political associates.

The PDP until May 2015 was also viewed as a rent seeker especially in the last administration of the party as complaints of a lack of accountability and transparency are reported in the institutions governing the oil industry, particularly the NNPC due to lack of efficiency in the provision of energy and the

issue of accounted funds expected to be remitted into government account in the Nigerian Central Bank. These various outcomes showed that the issues of Dutch Disease, rent seeking, institutional and governance failures and taking advantages of the state ownership structure of the oil industry persist even under the PDP's administration.

Also rising oil revenues from the 1960s which appear to have boosted government expenditure in previous administrations before the return to democratic rule in 1999 did not show a positive impact on economic performance. This seems to be the same during the period of democratic rule as rising government expenditure did not correspond with rising economic performance when key sectors like manufacturing and agriculture are considered. This outcome points to institutional weakness which may have been inherited from previous regimes. Institutions such as the legislative arm of government appeared not to be concerned with a lack of connectivity between expenditure and economic performance.

Furthermore, despite the reforms by the PDP government the economic situation continued declining and poverty and unemployment heightened as key sectors such as oil, manufacturing and agriculture deteriorated. Observed growth in GDP and GDP per capita was only recorded in periods of rising world oil prices which in turn meant rising oil revenues but in reality this was accompanied with weak economic performance. This could point to the underlying issues of rent seeking which had been prevalent due to the continuing and growing reliance on the oil sector which provided easy access to money that could help support the activities of political leaders in power. Programmes or policies intended for reforming the Nigerian economy appeared to be ways of having access to oil rental income as government spend money to execute contracts which may not necessarily support economic activities. In addition, government subsidises refined oil products but there appeared to be scarcity and rising cost of energy. Instead of seeing positive changes in the economy the resource curse tended to manifest itself more and more over time as various avenues kept developing and made the situation complex for any policy to work effectively.

Also, it appears that a lack of national unity associated with the amalgamation of different regions across different political and social backgrounds coupled with a neglect of agriculture and the discovery of oil in one region have transformed the

political and economic conditions in Nigeria. These various outcomes appeared to have hindered the benefits associated with an oil rich economy. The neglect of agriculture and the subsequent reliance on the oil sector which became the dominant provider of government revenue appeared to have boosted government expenditure; however there appears to be little multiplier effect on the rest of the economy. As such, the changed economic and political landscapes appeared to have created an avenue for a new political order which is not based solely on regional aspects after the return to democratic rule.

In conclusion it is evident that the continuity of several factors such as ethnic conflicts, regional rivalry, reliance on the oil sector and stable democratic rule has adversely affected the level of economic performance in the country, particularly key sectors of oil, agriculture and manufacturing. For example, oil has gradually become the leading sector and the dominant generator of income for the government but has not been able to provide employment opportunities for Nigerian citizens due to low domestic content and could not support sufficient refined oil products for domestic use despite existing refineries. The performance of the oil sector has dwindled over time and as such could not provide the forward and backward linkages needed to improve the performance of key sectors like agriculture and manufacturing despite rising oil revenues and government expenditure.

In addition, the Nigerian government has established several institutions to deliver the intended economic objectives of its nationalisation program and to minimise money laundering and corrupt practices especially after the return to democratic rule in 1999 due to the dwindling performance of the oil sector and other sectors but there appears to be no significant improvement as issues of a lack of efficiency, transparency and accountability are being reported by academics, government officials and the media.

CHAPTER 5

METHODOLOGY

5.1 INTRODUCTION

This Chapter presents the methodological approach employed in this study. From the literature review discussed in Chapter 2 and the analysis of the trajectory of political and institutional changes in terms of economic outcome in Nigeria as shown in Chapters 3 and 4, this chapter further discusses the empirical methods employed in this research. For example, the recent literature on the resource curse and development indicated that, for resource-rich countries to break free from the problems associated with an abundance in natural resources, scholars and policy makers should take into account the multifaceted and interconnecting problems of politics in addition to examining the various economic variables (see, for example, Acemoglu et al. 2000, Auty 2001, Davis et al. 2003, Melhun et al. 2006, Luong and Weithal 2006). As such, the literature on natural resource wealth and economic development acknowledged that the problem of a lack of development in resource rich countries is more than an economic issue and requires a more comprehensive look at the role of politics and its function in delivering economic outcomes. In other words, to see the problem of a lack of economic development as purely economic is too simplistic and academics have highlighted the importance of aspects of the political economy, such as the developmental stages of the political state to initiate a sustained, rapid and equitable economic development (Auty 2001).

The basic building block behind the methodology of this thesis is adapted from the study by Bevan et al. (1999) which combined an “analytical economic history” and a “political economy” approach. In their comparative study between Indonesia and Nigeria titled “The Political Economy of Poverty, Equity and Growth”, they provide a critical examination of the economic history of the two developing economies from 1950 to 1985. The study examine the processes

that produced different levels of growth, poverty and equity in in Indonesia and Nigeria, which are conditioned on each country's initial resource endowment and economic structure and policies, forms of economic organization and national institutions using a historical narrative and an insightful explanation of how and why events occurred. Bevan's et al study also tries to detect the role of ideology and interest groups in influencing policy in these two countries.

For example, in order to explain the events that happened in Nigeria, Bevan et al. (1999) examines themes such as the colonial period from political independence to chaos, civil war and reconstruction, the first oil cycle, the second oil cycle, economic growth and living standards, factor and product market, government finance and the political economy of public policy. They also explained the outcomes which the historical evolutions of these events have helped to shape the trajectory of economic performance.

The following sections below describe the empirical methodology, time period selected, data description and model specification.

5.2 EMPIRICAL METHODOLOGY

This study employs two methods of empirical analysis. These are descriptive and econometric methods. The descriptive method summarises the data through the use of a visual summary in the form of tables and graphs. The reason for this is to provide a basis for a more extensive empirical analysis which employs an econometric model using time series that uses secondary and qualitative data in the form of dummy variables.

Empirically there are several ways to analyse the relationship between natural resource wealth and economic performance but this study will apply a quantitative method which adopts an econometric model against other empirical methods in the form of a vector autoregression (VAR) model as a methodological tool which also allows the quantitative analysis of a dynamic relationship over time using secondary data. The VAR econometric model is employed in order to test the hypotheses derived and informed by Chapters 4 and 5 which examines the historical political economy of Nigeria in relation to oil production and economic performance. While many models may potentially be able to account

for this type of relationship, there are at least two reasons why a VAR model is the most compelling. Firstly, Stock and Watson (2001) suggest that since VAR models include current and lagged values of multiple time series, they capture comovements that cannot be detected in univariate or bivariate models (Farzanegan 2011). Secondly, many causal assumptions have been proposed in the resource impact literature. For example, as is well documented, the increase in the role of indirect effects such as government action and institutional quality, as opposed to direct effects such as revenue volatility and Dutch Disease, point towards a gradual evolution process in the political economy approach to underpin several causal assumptions (see, for example, Luong and Weithal 2004, 2010 and Collier, 2010 for more details). Thirdly, causal issues in the impact of natural resources are complex and recent studies responded in applying a broader framework. For example, academics have examined the structure of ownership over mineral resources, the importance of strong institutions and the relative influence of domestic versus international factors (see, for example, Luong and Weithal 2004).

A VAR is an n-equation, n-variable model and this provided a new macro-econometric framework that has great capacity (Stock and Watson 2001). VAR models have been used to study the relationship between oil price changes and economic growth (see, for example, Hamilton 1983, Baumeister and Peersman 2013a, 2013b). Blanchard (1989) employed the VAR model based on a traditional Keynesian model involving an aggregate demand equation, Okun's law, a price-setting equation, the Phillips curve and a monetary policy rule for the US economy. In addition, Bernanke and Mihov (1998) modelled the market for bank reserves as part of a study of U.S. monetary policy using a semi-structural VAR framework. They jointly analyse a vector of policy indicators rather than a single indicator. Their approach allows for changes in the operating procedures of the Federal Reserve Bank of the USA over time. In the spirit of the above-mentioned studies, this study will also employ the VAR model to examine the relationship between oil and economic performance in Nigeria.

5.3 TIME PERIOD SELECTED FOR THE STUDY

The period of study considered in the examination of oil and economic development in Nigeria is from 1960 to 2010. This period is selected because during this time Nigeria had experienced changes in its economic and political systems. In relation to the former, Nigeria had undergone a transition from a largely market based economy to that of more state controlled system. Nigeria also shifted its economic dependence from agriculture which is widely spread across the country to that of oil which is basically situated in one region of the country. The changes in the economic system also reflected changes in economic policy from that of a colonial administration to one of indigenisation after Nigeria's independence in 1960. This was followed by a gradual liberalisation of some economic sectors such as telecommunications and a part of the downstream sector of the Nigerian oil industry in the 2000s.

Focusing on the political system, Nigeria had undergone many changes, especially in the political regimes (military and civilian) that governed the country since independence. Table 5.1 below illustrates the different political regimes in Nigeria from 1960 – date.

In addition, Nigeria had undergone changes in its regional structure after independence in 1960. For example, there was a regional system which later evolved into a state system and the gradual creation of more states from 1967-1976 (12 States), 1976-1987 (19 States), 1987-1991 (21 States), 1991-1996 (30 States) and 1991 – Date (36 States). Before and after independence, Nigeria comprised of three regions of Northern, Western, and Eastern. The creations of states serve to highlight the role of government policy in trying to unite Nigeria and bring about an equal distribution of wealth, especially for minority ethnic groups who felt marginalised. Moreover, Nigeria instituted a federal system in 1963 as against its British colonial legacy practised prior to 1963. This system serves to highlight Nigeria's move towards a framework that will cater for the ethnic and regional background upon which the country was formed before independence.

Table 5.1 Political Regimes in Nigeria since Independence

Political Regimes	Period
Civilian	1960 – 1966
Military	1966 – 1979
Civilian	1979 – 1983
Military	1983 – 1998
Civilian	1999 – Date

Source: Created by author based on historical information of Nigeria in Metz (1991), Khan (1994), Falola and Heaton (2008) and Lewis (2009).

Changes in the political structure in Nigeria help to illustrate the extent to which political factors could influence the stable functioning of government and development plans or policies implemented with consequences for various institutions such as the Nigerian National Petroleum Corporation (NNPC), the Department of Petroleum Resources (DPR) and the Pipelines and Products Marketing Company Limited (PPMC). These had been established to deliver the various goals of the nationalisation of the Nigerian oil industry that could help promote growth and reduce poverty.

Similarly, political regime changes also reflected a lack of political stability in Nigeria after achieving independence. The periods of political instability are reflected in the theoretical underpinning of the literature on oil production and economic growth in developing countries. Capturing periods of political instability in Nigeria is significant in order to see whether such phenomena had any effect on Nigeria's economic growth.

The next section below presents a discussion of the secondary data employed in order to achieve the aim and objectives of this study with reference to the development of the Nigerian political economy.

5.4 DATA DESCRIPTION

This study reveals the use of different data series, length of time and methodology to examine the relationship between oil and economic performance in Nigeria. This country is selected based on its dependency on oil as a natural resource as well as its exposure to other economic and political problems associated with oil in the literature. This study will be contrasted with earlier studies, particularly those focusing on Nigeria, by including more variables in order to adopt a wider theoretical framework of the political economy as indicated by the recent literature.

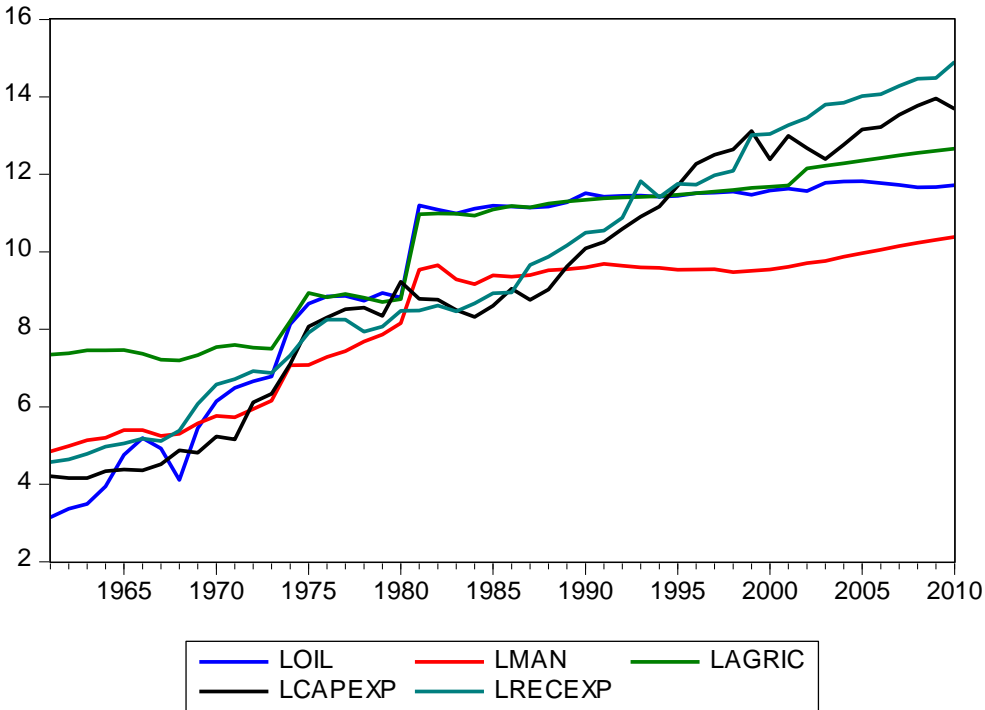
The data employed are annual series for the period 1961 – 2010 to quantitatively examine the main aim of this study. However, there are exceptions in the graphical descriptive statistics where data is employed from 1960 and beyond 2010 for the purpose of illustration. This length of time for the quantitative analysis is similar to that of a study by Ogunleye (2008) but is extended from 2006 to 2010 for this research. The length of time also depends on the start date and end date of the variables. The year 1961 is chosen because the variables of recurrent and capital expenditure starts from 1961 and those of oil, manufacturing and agriculture start from 1960. But they all have the same end date as sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (2010). The economic and social performance data were obtained from CBN and World Bank Development Indicators and are quoted in Nigerian local currency (Naira) with minor exceptions.

In terms of variables for the quantitative analysis, this study employs the output of the oil, manufacturing and agricultural sectors, and government expenditure which comprises of recurrent and capital expenditure. These variables are in real prices and the first three are components of real Gross Domestic Product (GDP)⁵⁵ in Nigeria. The variables have also been transformed into logarithmic form. The plot of the variables in their log levels is illustrated below in Figure 5.1 below which shows the evolution of the output of the oil, manufacturing and agricultural sectors, and government spending (capital and recurrent) in Nigeria.

⁵⁵ At constant 1990 basic prices (CBN Statistical Bulletin 2010).

The transformation into logarithm form is based on the fact that many economic variables usually have an underlying rate of growth, which may or may not be constant over time; for instance, GDP, consumer price index or money supply tend to grow at an annual rate (Dimitriou and Hall 2011). The three series representing oil, manufacturing and agricultural output in this study are components of the GDP in Nigeria. The series are annual and this means that they tend to grow at an annual rate. Also most macroeconomic variables follow a trend pattern and largely not stationary as the mean continues to rise. The issue of a continually rising mean prevents the data from being stationary no matter the amount of differentiation conducted. The non-stationarity of the data gives rise to one of the major reasons for taking the logarithm of data before applying formal econometric analysis (Dimitriou and Hall 2011).

Figure 5.1 Transformed Variables into Logarithms



Source of Data: CBN Statistical Bulletin (2010)

Note: The vertical axis shows the evolution of the output of the oil, manufacturing and agricultural sectors, and government spending (capital and recurrent) in Nigeria, while the horizontal axis shows the period in years from 1961 to 2010.

5.4.1 Justification of the Economic Variables

The reason for the choice of these variables is due to their major roles in the Nigerian economy. At one time in the trajectory of economic development, these variables have become important sources of income or have been given special attention by the government through economic policies to help move such sectors forward.

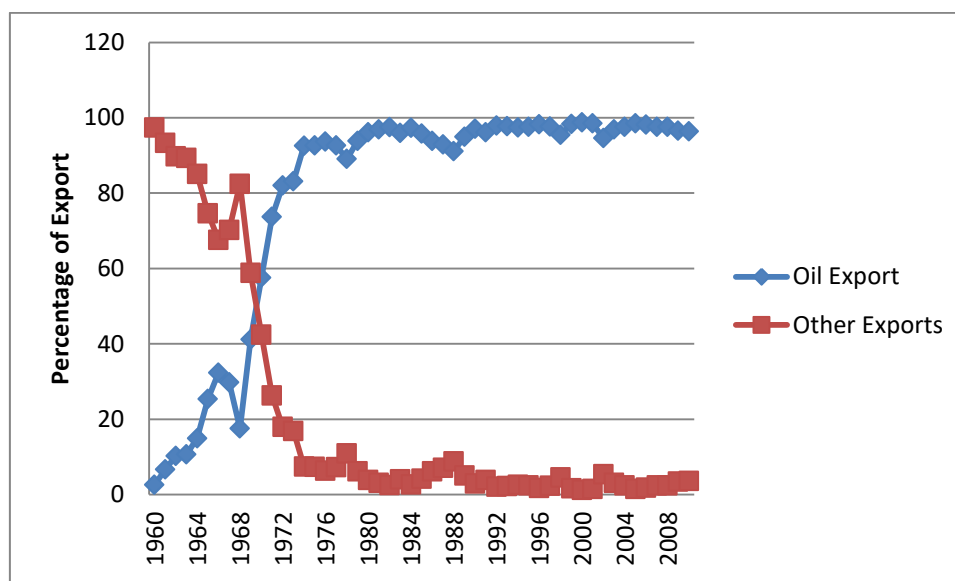
In the next sub-sections we look at the importance of these variables separately so as to give a clearer justification behind their selection. This will be drawn both from the literature and their importance in the Nigerian economy.

5.4.1.1 Oil Output Variable

Oil production has gradually become the main source of revenue for the Nigerian government from the start of exports in 1960 and has also taking a leading role over all sectors especially from the 1970s to date in terms of revenue generation and composition of exports. As such, oil has also been a dominant source of income and government revenue (CIA 2016) and oil accounts for about 75 percent of Nigeria's consolidated budgetary revenues (World Bank 2016).

In 1960, oil exports accounted for about 2.6 percent of export earnings but the contribution of oil to exports surged, especially in the 1970s as it accounts for about 60 percent in 1970 and about 83 and 93 percent in 1973 and 1974 respectively. That notwithstanding, the oil contribution to total exports continued to rise in the subsequent decades. For example, as of 2000, the oil sector accounted for more than 98 percent of exports, as well as generating about 33% of Nigeria's GDP (see Figures 5.2 and 5.4 below).

Figure 5.2 Oil and Non-Oil Exports



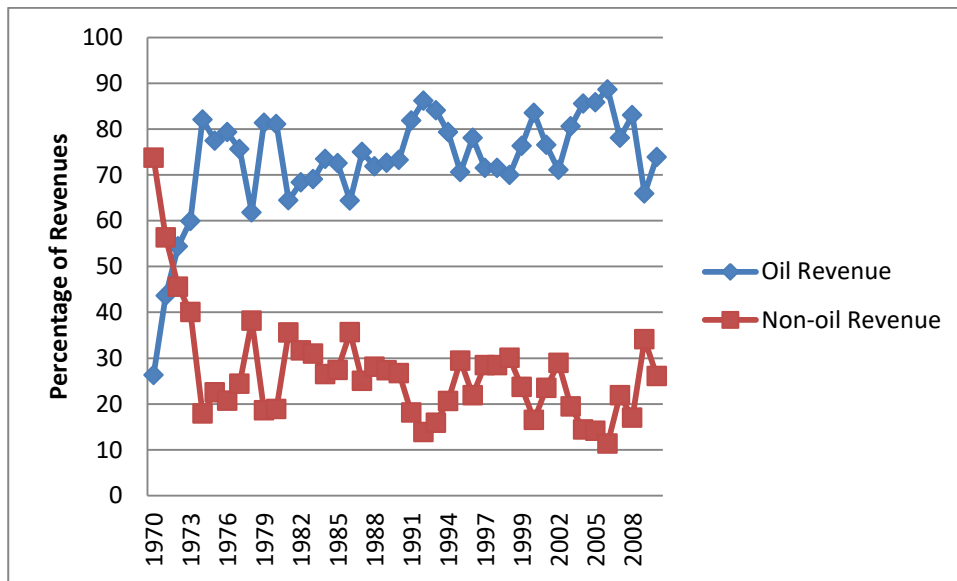
Source of Data: CBN Statistical Bulletin (2010)

Note: The vertical axis shows the evolution of oil and non-oil exports in Nigeria, while the horizontal axis shows the period in years from 1960 to 2010.

In summary, the contribution of the oil sector in terms of total exports is illustrated in Figure 5.2 above. It is clear that from 1970 oil exports surpassed other non-oil exports in the Nigerian economy. The trend shows a substitution role of oil for other exports.

In addition, the contribution of the oil sector is evident in government revenue. For example, oil revenue accounted for about 27 percent of government revenue while non-oil revenue accounted for about 74 percent. However, this trend changes from 1972 when the oil sector recorded a contribution of almost 55 percent and non-oil accounted for about 46 percent. This development continued since the early 1970s and oil has contributed significantly to government revenue in Nigeria (see Figure 5.3 below).

Figure 5.3 Oil and Non-Oil Revenues



Source of Data: CBN Statistical Bulletin (2010)

Note: The vertical axis shows the evolution of oil and non-oil revenues in Nigeria, while the horizontal axis shows the period in years from 1970 to 2010.

The selection of the oil variable in this study is also motivated by the literature as reviewed in Chapter 2. In this chapter, one of the early and major views in the economic perspective is commodity price volatility which can affect the terms of trade. Vagaries in the oil price and the effects on economic growth have been a subject of intense debate among academics. This type of analysis has not been limited to oil exporting countries but also to importing countries due to the importance of oil as a major source of world energy.

The analysis between oil price changes and economic performance has received considerable attention from academia and other stakeholders such as the media and government policy makers due to the importance of oil, especially developing economies like Nigeria. Many of these developing countries rich in oil have limited diversified economies and as such any significant changes in the oil price affects their economic performance through several channels such as the Dutch Disease which leads to an appreciation of their domestic currency (see, Corden and Neary 1982) volatile revenue which makes it challenging for their governments to pursue a prudent fiscal policy (Stevens 2003 and Kilian 2010).

Other political channels of effect have also been presented by the political economy literature. These are not direct in their impacts such as economic means; they are indirect and are linked to political factors as drivers, such as ethnic diversity which is common in African economies (see Easterly and Levine 1997). This brings about political instability or impedes democracy (Wantchekon 2002, Jensen and Wantchekon 2004), leads to weak governance and conflicts (Collier and Hoeffler, 1998, 2004 and 2005),

From Figures 5.2 and 5.3 it is clear that Nigeria will be affected by changes in oil prices due to the dependence of the country on oil as a leading export commodity and a major source of government revenue. Changes in oil price which Nigeria alone cannot determine as there are other large producers like Saudi Arabia, Russia, Iraq, Venezuela, Algeria, Norway, United States and United Arab Emirates, will affect the country's economy.

Several studies in the literature have also examined the effects of oil wealth on the Nigeria economy. Various studies by Bevan et al. (1999), Sala-i-Martin and Subramanian (2003), Mehlum et al. (2006), Ogunleye (2008), Iwayemi and Fawowe (2011) and Akinlo (2012) have adopted several key approaches in the literature to study the lack of growth in Nigeria despite an abundance in oil wealth. For example, Akinlo (2012) employed oil output along with other variables to examine the impact of oil on economic growth in Nigeria.

5.4.1.2 Manufacturing Output

The justification behind the employment of manufacturing output as a variable is motivated by the literature review. Its use is also in line with the theoretical literature which suggests that oil production and exports leads to a deterioration of the manufacturing sector. According to the literature, the initial explanation for the resource curse of the Dutch disease was purely economic (Collier 2010). The employment of manufacturing output is also essential because of its key importance in determining economic performance as it provides forward and backward linkages to push other economic activities. For example, researchers such as Hirschman (1958), Seers (1964) and Baldwin (1966) suggested that backward linkages from the supply of primary product exports would be limited compared to manufactured exports.

The Dutch Disease hypothesis has been studied extensively due to the observed appreciation of the domestic currency of resource-rich exporters and the apparent decline of the manufacturing and/or the agricultural sector in resource-rich countries. This outcome has been confirmed by some studies (Corden and Neary 1982 and Fardmanesh (1991). Also studies focusing solely on Nigeria such as those by Olusi and Olagunju (2005), Ogunleye (2008), Ogbonna et al. (2013) also confirmed the effect of Dutch Disease on the Nigerian economy. Studies such as that by Sala-i-Martin and Subramanian (2003), Aliyu (2009) and Iwayemi and Fawowe (2011) fail to find the effect of Dutch Disease in Nigeria. For example, Sala-i-Martin and Subramanian (2003) suggest that waste and corruption from oil rather than the Dutch Disease has been responsible for Nigeria's weak long run economic performance. The lack of consensus in the literature on the effect of the Dutch Disease suggests that there is scope for more analysis to help find the channels that hinder economic growth.

In addition, the Nigerian government after independence also targeted industrialisation of the economy through the First National Development Plan's economic reform agenda and subsequent economic reforms, especially after a return to democratic rule in 1999. This period also saw the promotion of small and medium scale enterprises. Moreover, from Figure 5.4 it can be seen that Nigeria is showing significant evidence of manufacturing decline. Fardmanesh (1991), for example, estimates the effect of the Dutch Disease for five developing oil exporting countries (Algeria, Ecuador, Indonesia, Nigeria and Venezuela) with significant manufacturing and agricultural sectors using time series annual data for the period 1966 to 1986.

5.4.1.3 Agricultural Output

Furthermore, the use of agricultural output also reflects the theoretical literature which argued that oil endowed developing countries experience a decline in their manufacturing/agricultural sectors due to the appreciation the domestic currency and the enclave nature of the oil industry which requires high skilled labour (see, for example, Corden and Neary 1982 and Fardmanesh 1991).

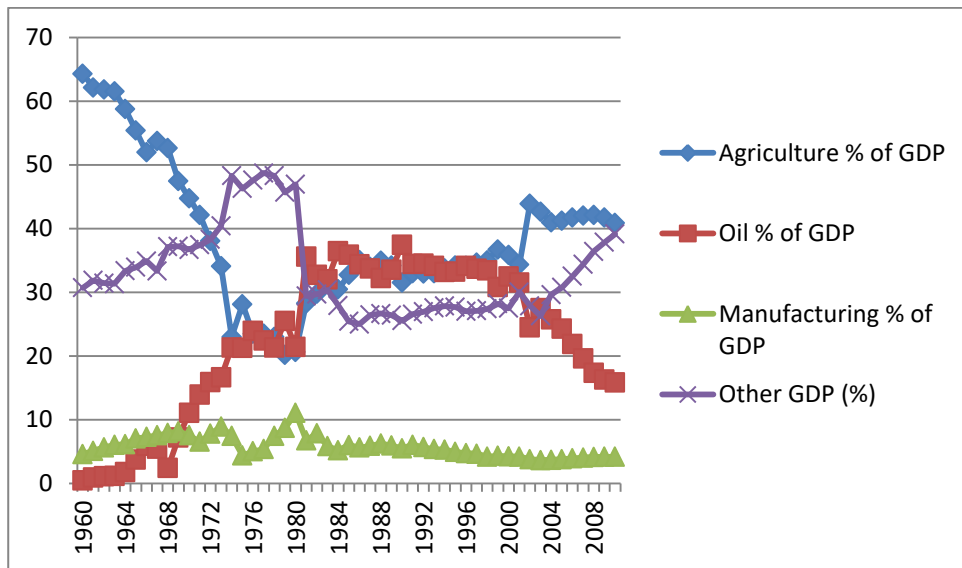
The use of agricultural output is also necessary because agriculture used to be the mainstay of the Nigerian economy. It is also the key source of livelihood for

the majority of the Nigerian population, especially in the rural areas (World Bank 2016). According to World Bank (2016), the Nigerian labour force, like that of many African countries, is profoundly concentrated in agriculture and the sector grew by about 6.8 percent annually from 2005-2009.

To reflect back, in 1960 the agricultural sector accounted for about 65 percent of total GDP. However, from the 1970s this sector saw a major decline as it only accounted for about 25 percent of GDP in 1975 and oil which accounted for about 0.5 percent in 1960 showed a contribution of more than 21 percent of total GDP (see, Figure 3.4 for the different developments of oil, manufacturing and agricultural output in GDP in Nigeria from 1960 to 2010).

These three variables of oil, manufacturing and agricultural output constitute a significant share of GDP in Nigeria as shown in Figure 5.2 below. Figure 5.5 depicts the output of oil, manufacturing, agriculture and other sources in GDP from 1960 to 2010. From Figure 5.5 below it can be seen that the share of agriculture is large as it accounts for 41 percent of total GDP while oil accounts for 27 percent and manufacturing 5 percent of total GDP in Nigeria. As such, the use of the three variables to depict the trajectory of economic performance over time will provide a more effective examination of the justification of the argument of this thesis.

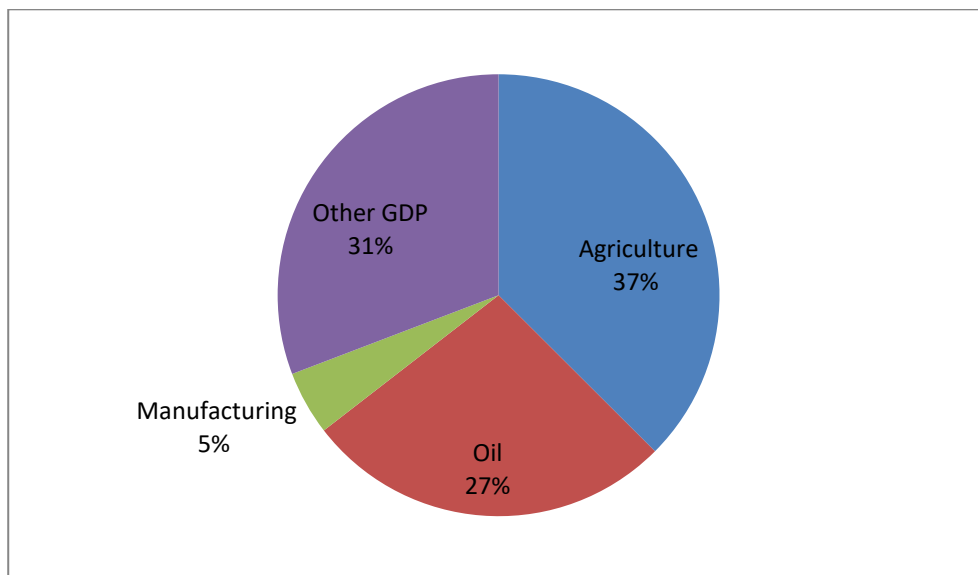
Figure 5.4 Percentage Output of Oil, Manufacturing, Agriculture and Other GDP in Nigeria (1960 – 2010)



Source of Data: CBN Statistical Bulletin (2010)

Note: The vertical axis shows the development of the oil, manufacturing and agriculture sectors in Nigeria, while the horizontal axis shows the period in years from 1960 to 2010.

Figure 5.5 Output of Oil, Manufacturing, Agriculture and Other GDP



Source of Data: CBN Statistical Bulletin (2010)

Note: (1). Other GDP means other components of Nigeria's GDP and these include building and construction, wholesale and retail trade, services and other industrial activities.

(2). The data for the various components of GDP are from 1960 to 2010.

5.4.1.4 Government Expenditure

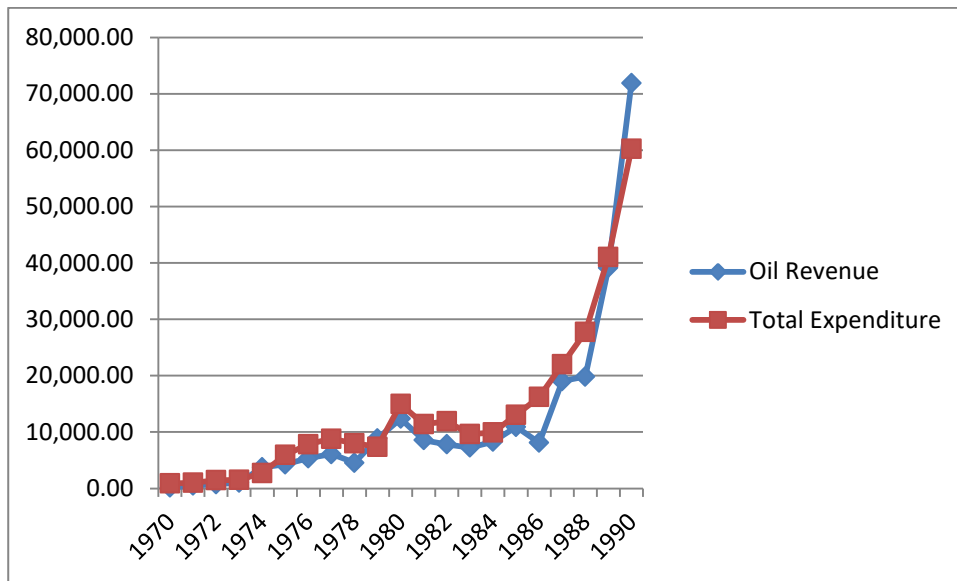
This section presents the government expenditure variable which comprises of the two categories of recurrent and capital expenditure. The use of government expenditure in this study is motivated by the literature and also shows the oil sector's contribution to economic performance in Nigeria due to the significant contribution of oil in total government revenue as shown previously.

From a strand of literature in development economics which focuses on public spending and economic growth, it is evident that there is a plethora of studies on this relationship (see, for example, Landau 1983, Aschauer 1989, Easter and Rebelo 1993, Ramey and Shapiro 1998). Also, many economists cite fiscal policy as one of the most important tools in determining the growth performance of a country (Easterly and Rebelo 1993). However, there is no consensus on whether fiscal policy is productive due to differences in the theoretical frameworks adopted by researchers.

Beside the significance of government expenditure in improving economic performance, it is evident that in Nigeria it has been on the increase which could be due to rises in oil revenue as illustrated in Figure 5.6 below. Figure 5.6 shows the evolution of oil revenue and government expenditure from 1970 to 1990 so as to provide evidence and the 1970s are years that witnessed the significant changes in the contribution of the oil sector in the Nigerian economy due to world increases in the oil price, especially in the mid-1970s (see also Figures 5.2, 5.3 and 5.4 above for more evidence).

As such, it is important to use government expenditure in the analysis of the relationship between oil and economic growth. This will help to show whether oil has contributed to the improvement of economic performance in Nigeria since the oil revenues are not distributed to the population directly. Instead it is used in the administration and management of the country as shown by the various categories of government spending in Nigeria. This comprises of recurrent and capital expenditure.

Figure 5.6 Evolution of Oil Revenue and Government Expenditure



Source of Data: Central Bank of Nigeria (2010)

Note: The vertical axis shows the evolution of oil revenue and government expenditure in Nigeria, while the horizontal axis shows the period in years from 1970 to 1990.

Government expenditure in Nigeria comprises of administration, economic services, social and community services, transfers plus capital expenditure. These components are also disaggregated into other components. For example, administration entails spending on internal security, general administration, defence and national assembly while economic services are classified into agriculture, construction, transport and communication and other economic services. Expenditure on social and community services consists of health, education and other social and community services. Also, transfers comprises of categories such as public debt servicing, pension and gratuities and contingencies/subventions (CBN Statistical Bulletin 2010).

5.4.1.5 Economic Data

Due to the nature of the economic data or variables employed which are time series in nature; this section describes the data statistically in order to summarize the information in a meaningful way as this could provide valuable insight into this group of economic variables selected for this study.

Table 5.2 below presents the summary statistics for the measures of oil output (LOIL), manufacturing output (LMAN), agricultural output (LAGRIC), capital (LCAPEXP) and recurrent expenditure (LRECEXP). All the variables are in logarithmic form. The summary statistics of agriculture has a positive log mean of about 10.15, indicating that the output of the agricultural sector is larger than that of the other sectors. The manufacturing sector has the lowest mean log value of about 8.27 and the rest have a mean log value of at least 9.2. This shows that the mean log values of all the economic variables are not very different from each other.

Also the highest maximum log value among the variables is 14.9 and this is recorded by recurrent expenditure; manufacturing has the lowest, with a maximum log value of 10.38. This also shows that the disparities between the maximum log values of the variables are close to one another as shown in Table 5.2. The highest maximum log value recorded by recurrent expenditure is observed in 2010 and this can be seen in Figure 5.1 above. This outcome could also highlight rising recurrent expenditure fuelled by the oil sector as it has already become a dominant sector of government revenue.

In terms of minimum log values, the agricultural sector recorded the highest log value of about 7.20 and oil has the least log value of 5.14. The minimum log value of the agricultural sector is observed in 1968 and may be due to the growing importance of the oil sector in comparison with agriculture as shown in Figure 5.4 above. Also, the minimum log value recorded by the oil sector appeared in 1961 after oil exports had just begun in 1960 and had not taken the lead in economic activities (see Figure 5.4).

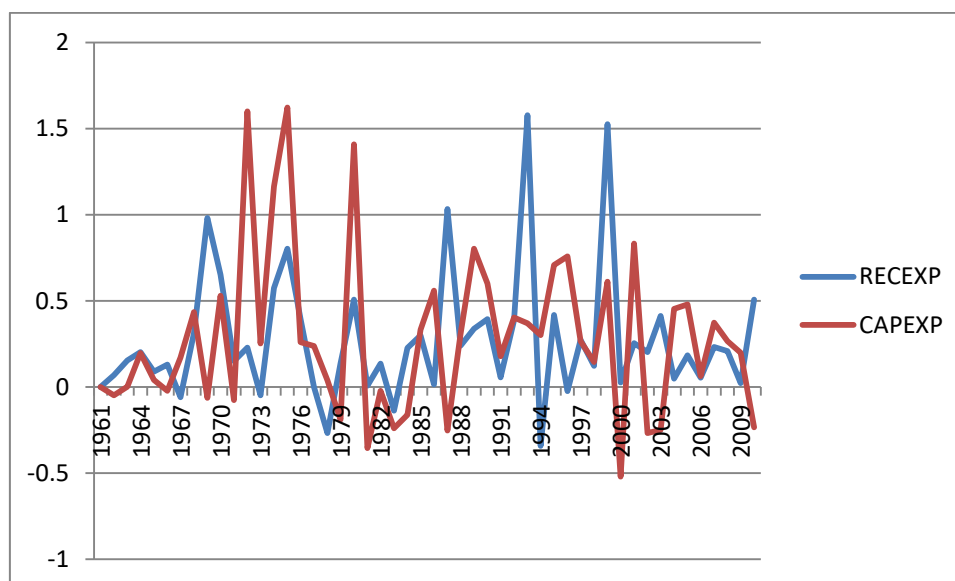
Table 5.2 Descriptive Statistics of Variables in Logarithm Form

	LOIL	LCAPEXP	LRECEXP	LMAN	LAGRIC
Mean	9.387	9.200	9.605	8.267	10.147
Median	11.169	8.909	8.941	9.436	11.122
Maximum	11.823	13.958	14.901	10.382	12.666
Minimum	3.1442	4.156	4.573	4.848	7.199
Std. Dev.	2.891	3.209	3.188	1.878	1.964
Observations	50	50	50	50	50

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

It is obvious from Table 5.2 above that capital expenditure has the highest standard deviation with a log value of about 3.21 followed by recurrent expenditure which has a log value of about 3.19. From Figure 5.7 below it is clear that the annual rate of change in these two variables is characterised by high and continuous variability. This signifies high volatility in the two variables and may be linked to volatility in oil prices which are largely dictated by supply and demand conditions in the world or by government spending policies. In contrast, from Figure 5.8 below which illustrates the annual rate of change in oil, manufacturing and agriculture is not characterised by high and continuous volatility.

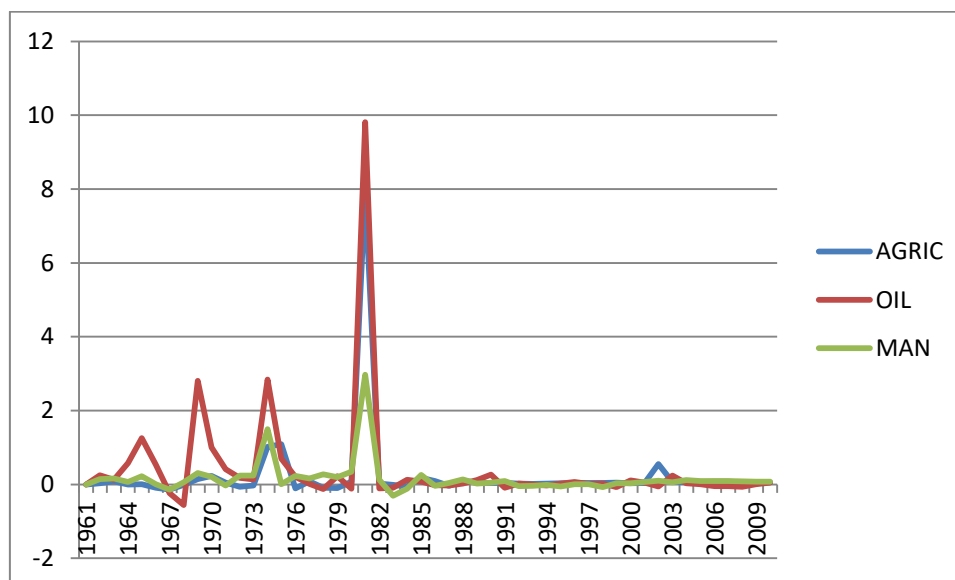
Figure 5.7 Percentage Change in Capital and Recurrent Expenditures



Source of Data: CBN Statistical Bulletin (2010)

Note: The vertical axis shows the annual rate of change in capital and recurrent expenditure in Nigeria, while the horizontal axis shows the period in years from 1961 to 2010.

Figure 5.8 Percentage Change in Oil, Manufacturing and Agriculture



Source of Data: CBN Statistical Bulletin (2010)

Note: The vertical axis shows the annual rate of change in the output of oil, manufacturing and agriculture in Nigeria, while the horizontal axis shows the period in years from 1961 to 2010.

5.4.2 Justification of Political Variables

Other measures in the form of dummy variables so as to depict a qualitative aspect of the study are also employed to reflect political and other institutional factors in Nigeria. The reason behind the use of the political variables is motivated by the literature and the evidence of political developments in Nigeria. Thus, there are key reasons for the inclusion of the dummy variables.

The dummy variables are constructed based on evidence from the literature on natural resource endowment and economic growth and historical information about the development of Nigeria's political economy (See, for example, Metz 1991, Khan 1994, Bevan et al. 1999, Falola and Heaton 2008 and Lewis 2009). Also from Table 5.1 above, it can be seen that the Nigerian political landscape has been characterised by different regimes.

In the spirit of studies on the political approach, such as that by Sachs and Warner (1997), Ross (2001), Smith (2004), Stijns (2005) , Ulfelder (2007), Oskarsson and Ottosen (2010) and Alexeev and Conrad (2011), this research employs dummy variables representing institutional and political factors in order to examine the relationship between oil and economic performance in Nigeria. For example, Alexeev and Conrad (2011) in their study of the relationship between natural resource wealth and economic development in relation to the quality of institutions use dummy variables to represent membership of the Commonwealth of Independent States and countries in transition from a planned to a market economy.

Likewise, Smith (2004) in his study of the relationship between natural resource wealth and political regime uses a dummy variable to represent different political regime periods. Ross (2001) and Oskarsson and Ottosen (2010) also employed a dummy variable to capture countries that are members of the Organisation for Economic Cooperation and Development (OECD). In addition, Ulfelder (2007) used dummy variables to mark periods when an autocracy had a new head of government and for the post-cold war period. Also Grier and Munger (2006) examine a sample of 155 countries using a large unbalanced annual panel data over the period 1950-2003 and defining dictatorship simply as a dummy

variable. Grier and Munger examine the relationship between different political regimes and economic growth.

5.4.2.1 Dummy Variable of Political Regime

The first dummy variable represents political instability in Nigeria from 1966 to 1998. First, in the analytical context, the relative influence of various political regimes (military and civilian) will reflect the opportunity cost of not having a stable and democratic political landscape which may undermine a coherent and lasting economic policy. Several empirical studies such as that by Wantchekon (1999), for instance, have argued that a 1% increase in natural resource dependence, as measured by the ratio of primary exports to GDP, increased the probability of authoritarian government by nearly 8%. Furthermore, he suggested that countries which were rich in natural resources were more likely to experience a failed or slow transition to democracy. Similarly, Jensen and Wantchekon (2004) argued that resource abundant countries in Africa were more likely to be authoritarian and experience breakdowns in democracy after a democratic transition. Ross (2001) also concluded that a state's reliance on oil or mineral exports tends to make it less democratic.

Thus, this reflects the Nigerian situation, where the oil sector provides a large share of government revenue and source of foreign exchange.⁵⁶ Therefore, resource abundance encourages contests for the receipt of rental income that tend to engender factional or autonomous predatory political states. To stay in power, the governments of resource abundant countries need to find a way to redistribute rental income to favoured groups. They tend to do so at the expense of a coherent economic policy. Auty and Gelb (2000) suggested that factional and predatory states tend to encourage individual tribes or tribal coalitions to channel political energy into capturing the government. For example, Easterly and Levine (1997) find that ethnic diversity fosters rent-seeking behaviour that encourages the adoption of growth-retarding policies and inhibits consensus on investment in growth-promoting infrastructure.

⁵⁶ For example, the Nigerian economy is heavily dependent on its oil sector, which accounted for more than 95 percent of export earnings and more than 75 percent of federal government revenue in 2011, according to the U.S. Energy Information Administration (EIA 2012).

5.4.2.2 Dummy Variable of Nationalisation of Oil Production

Secondly, the inclusion of a variable for the period of nationalisation of the oil sector which coincided with Nigeria's membership of OPEC is undertaken to target the ownership structure and examine the associated benefits to the leading sector (oil) and the consequences for other key sectors such as agriculture and manufacturing. The change in ownership structure in 1971 may also reflect reasons proposed by some studies in the literature such as those by McPherson 2003 and Luong and Weithal 2010.

Similarly, one of the key reasons for establishing and joining OPEC by oil producing countries is a need to maximise benefits from the oil sector by nationalising oil production and establishing a national oil company. Thus, the time span of a change in ownership structure from 1971, which is more than a decade after the commencement of oil production and export, is a reasonable proxy to measure the economic benefits which accrued to the oil sector and in turn to other key sectors of the economy since then.

Beavan et al. (1999), for example, examined the differing economic fortunes of Nigeria and Indonesia between the 1950s and the late 1990s and examined a number of country factors linked to their respective economic, political and social structures. For example, the role of external factors in influencing the development of resource-rich economies is recognised. A considerable part of the literature on the resource curse focuses on the influence of domestic political variables on economic outcomes, particularly the nature of the state and the behaviour of political elites (Rosser 2006a). Beavan et al. (1999) argued that Indonesia's proximity to the East Asian Newly Industrialised Countries (NICs) is a significant reason for that country's relative economic success compared to Nigeria; hence they suggested that the external environment is vital.

In addition, the outcome for a country in relation to the natural resource curse may or may not occur depending upon the ownership structure chosen for the resource extraction and the endogenously determined fiscal regime which follows the ownership structure decision (Luong and Weinthal 2010).

Moreover, the period of nationalisation also saw the establishment of the Nigerian National Petroleum Corporation (NNPC) which reflects increased state intervention in oil sector management. The NNPC was established in 1977 and this was six years after nationalisation and nearly two decades after the discovery and export of oil in Nigeria. Therefore, we believe that capturing the period of nationalisation will be a reasonable proxy to measure the efficacy of the relationship between this period and subsequent reforms such as the establishment of NNPC with its subsidiaries and of the oil sector as well as other key activities such as agriculture and manufacturing. This line of argument has been provided by McPherson (2003), where he argued that political factors such as corruption and nationalism have weakened the efficiency and effectiveness of national oil companies in many oil rich countries and interrupted programs of national oil company reform.

5.4.2.3 Dummy Variable of Return to Democratic Rule

Finally, a dummy variable is included to reflect a period of stable democratic rule and the dominance of a single political party since 1999. Since returning to democracy in 1999, a single party has succeeded in winning all elections and has since then dominated the four year term for each president and for all the years since the return to democracy in 1999.⁵⁷ In this period, economic reforms have been initiated which targeted, in particular, the oil sector and others such as financial services and manufacturing. The key agenda of the reform is the need to transform the oil sector into a viable vehicle that could enhance growth. The reform agenda includes the desire for transparency in oil extraction and oil revenues, deregulation of the downstream sector, improved governance in the management of NNPC, greater local content in the oil sector and wider corporate social responsibility, among others. Several narrative studies such as that by

⁵⁷ Several scholars have studied the issue of single party dominance and the effects on economic growth. Magaloni and Kricheli (2010) claimed that the second half of the twentieth century and the beginning of the twenty first century have witnessed an unprecedented increase of one party autocracies. Other studies such as that by Geddes (2003) and Magaloni (2008) argued that, compared to other types of dictatorships, one-party regimes last longer and suffer fewer coups (see, for example, Geddes 2008 and Kricheli 2008), have superior counterinsurgency abilities (Keefer 2008) and enjoy higher economic growth (Gandhi 2008 and Wright 2008). However, in the case of Nigeria, the return of democracy came with a multi-party system but the elections have consistently been won by one party despite claims of violent ethnic and religious overtones

(Gboyega et al. 2011) documented the limited signs of multiplier effects in the oil industry on economic performance.

Furthermore, to depict themes in the literature, the analysis of government policy, particularly for oil, has been examined by Bevan et al. (1999) and Rosser and Sheehan (1995) respectively. The latter, in their study of oil and institutions, employed a VAR model of the Saudi Arabian economy. Rosser and Sheehan's results indicated that this economy was affected by world inflation and by Saudi oil policy.

However, we cannot independently predict the effect of political instability, oil nationalisation/Nigeria's membership of OPEC and the democratic period. It is still a subject of empirical investigation which is carried out in the subsequent chapters.

5.5 Econometric Analysis

The main purpose of this sub-section of the chapter is to present the econometric analysis employed so as to provide an additional layer of analysis by testing some of the hypotheses that are derived from the main argument. This gives the opportunity to re-examine the analysis made in Chapters 3 and 4 with different analytical tools. It has the advantage of providing a different perspective and deeper insights into the relationship between oil wealth and economic development in Nigeria.

The econometric analysis helps to show the techniques employed and applied. This also helps to show the support and justification for the main argument of this study and the hypotheses developed from the argument in Chapters 3 and 4.

To give additional support for the choice of econometric model and data selected for this research, studies such as those by Rosser and Shehan (1995), Farzanegan and Markwardt (2009) and Farzanegan (2011) also employed a VAR model containing variables in their investigation of the impact of natural resource wealth in oil on economic performance. For example, Farzanegan and Markwardt (2009) in their study of the relationship between oil price changes and economic performance in Iran employed quarterly data for the period of

1975 to 2006 using the variables of real industrial production per capita, exchange rate, inflation by yearly changes in Iranian consumer prices, public consumption expenditure, imports and oil price.

Focusing on Nigeria, studies by Olusi and Olagunju (2005), Ogunleye (2008), Aliyu (2009), Akpan (2009a and 2009b), Ogbonna et al. (2013) employed a vector autoregressive model or its variants such as the vector error correction model containing variables such as oil revenues, GDP per capita, household consumption, agricultural output, manufacturing output, industrial production, real effective exchange rate, real government expenditure, rate of inflation, agricultural exports, oil exports, oil price, money supply, short-term interest rate and consumer price index to study the relationship between oil and economic growth. For example, Ogunleye (2008) employed the variables of oil revenues, GDP per capita, consumption, infrastructural development (electricity output as a measure), agricultural and manufacturing output to examine the relationship between oil and economic growth using annual data from 1960 to 2004 and using a vector error correction model. Furthermore, Omolola and Adejumo (2006) also examined the impact of oil exports in Nigeria using variables of GDP, oil price changes, real exchange rate, money supply and the inflation rate using a VAR model.

5.5.1 Estimation of the VAR Model

This sub-section presents the second method employed in the empirical analysis of this study of an econometric model to examine the dynamic relationship between oil and economic growth in Nigeria. This technique incorporates both economic and political factors that characterise the trajectory of economic development in the country. The econometric method employed is the VAR model which uses time series data.

Firstly, there are several different viewpoints on the estimation process of a VAR model. One specific area of the argument is whether all variables in the model should be stationary. If one approach is to interpret the estimated coefficients of a VAR model on different lag levels, then it would be important to work with stationary variables (Farzanegan 2011). According to Farzanegan many advocates of the VAR model do not support the differentiation of the non-

stationary but cointegrated variables. However, this will lead to loss of valuable information (see, Sims 1980). Therefore, the decision to employ a VEC model in the case of non-stationary but cointegrated variables (see, Heij et al 2004 p. 667) has to be examined.

Another important issue in a VAR model is choosing the optimal lag length. In practice, researchers usually employ 12, 4 or 1 lags for the monthly, quarterly and annual data respectively. On the other hand, economic theory in general does not provide any conclusive guidelines on the suitable level of lag length to employ and the period for which changes in a variable should be taken into account (Farzanegan 2011). However, there are several statistical criteria used to find the optimal lag length and some are Akaike information criterion, Hannan–Quinn information criterion and Schwarz information criterion (Farzanegan 2011). The properties of the times series data used for this study will be analysed by employing a unit root test, a lag length test and a cointegration test as in the sub-sections below.

5.5.2 Unit Root Tests

Firstly, the endogenous variables of oil, manufacturing and agriculture are examined for the presence of unit roots. In the presence of unit roots, Johanson co-integration tests will be employed to investigate a possible long run co-movement between the non-stationary variables. The direction of integration of the variables employed is examined using an ADF test (Dickey and Fuller 1979) and a PP test (Phillips and Perron 1988). The results of these tests are shown in Table 5.3 below. The two tests show that all the five variables are integrated in the same order I (1) and are not stationary. However, the variables are stationary after the first differentiation as shown in Table 5.3. This evidence suggests a possible long run relationship among the five variables as shown in Figure 5.1 above. To test for cointegration among the variables, a Johansen cointegration test is used (see, Johansen 1988, 1991, 1995). The cointegration test is presented in Table 5.5 below.

Table 5.3 Unit Root Tests

Variable	ADF		ADF		PP		PP	
	Levels		First difference		Levels		First difference	
	Constant	Constant + trend	Constant	Constant + trend	Constant	Constant + trend	Constant	Constant + trend
LOil	-2.48	-1.16	-6.79*	-7.45*	-4.50*	-0.55	-6.79*	-15.95*
LMan	-1.63	-0.99	-5.74*	-5.87*	-1.59	-1.07	-5.68*	-5.81*
LAgric	-0.77	-1.90	-6.56*	-6.49*	-0.72	-1.93	-6.59*	-6.55*
LCapexp	-0.69	-1.91	-7.38*	-7.33*	-0.70	-2.28	-7.40*	-7.35*
LRecepx	-0.05	-3.08	-7.92*	-7.83*	0.28	-3.09	-8.90*	-8.78*

*Significance at 1% level

**Significance at 5% level

***Significance at 10% level

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

After checking the integration of the variables, the next step is to select the optimal lag length of the underlying VAR model. The lag length test is presented in the next section.

5.5.3 Lag Length Selection

The optimum lag length to employ is determined using the lag length selection tests. The lag length of 1 is selected on the basis of the sequential modified LR test statistic (LR), Final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ). Thus, the lag length of 1 is used for estimation of the VAR. The VAR lag order selection criteria are presented in Table 5.4 below.

Table 5.4 VAR Lag Order Selection Criteria

Variables: Manufacturing, Oil, Agriculture, Capital Expenditure and Recurrent Expenditure

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-210.5561	NA	0.012504	9.806785	10.40308	10.03016
1	18.78080	378.9044*	1.76e-06*	0.922574*	2.512697*	1.518244*
2	35.26842	23.65615	2.71e-06	1.292678	3.876627	2.260641
3	64.77944	35.92647	2.57e-06	1.096546	4.674323	2.436802
4	93.60643	28.82698	2.86e-06	0.930155	5.501759	2.642705

* Indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction criterion
 SC: Schwartz information criterion
 HQ: Hannan-Quinn information criterion

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

The next section below presents the cointegration tests due to the presence of unit roots in the time-series variables employed for the analysis. The unit root tests indicated that the variables are not stationary in levels. This signifies that there is the presence of a long-run relationship among the variables.

5.5.4 Cointegration Tests

The cointegration tests according to Hamdi and Sbia (2011) is based on the multivariate Johansen approach (1988) which employs two statistical tests of the Trace and Max-Eigen values. Also, the Johansen's (1991) method provides testing for cointegration in a multiple-equations system while Engle and Granger (1987) methods allows for a single-equation framework.

The results of the cointegration tests from a system of equations are presented in Table 5.5 below. The two tests suggest the existence of one cointegrating vectors. This indicates the presence of a long-run relationship among the variables. The existence of disequilibrium in cointegrated variables is corrected using a VEC model. The VEC model also tests for long and short-run causality

among cointegrated variables (Hamdi and Sbia 2011). The numbers of cointegrating relations is employed on the basis of the Trace and Max-Eigenvalue statistics and are presented in Table 5.5 below. Table 5.5 shows the unrestricted cointegration rank tests for both trace statistic (panel 1) and max-eigen statistic (panel 2). Panel one show the trace statistic and the second panel presents the max-eigen statistic. The complete analysis of the cointegration tests are shown in the appendix.

Table 5.5 Cointegration Tests for Trace and Max-Eigen Statistics

Panel 1: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.520030	80.69037	69.81889	0.0053
At most 1	0.348759	45.45689	47.85613	0.0826
At most 2	0.290124	24.87088	29.79707	0.1661
At most 3	0.158849	8.422994	15.49471	0.4213
At most 4	0.002492	0.119747	3.841466	0.7293

Panel 2: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.520030	35.23349	33.87687	0.0343
At most 1	0.348759	20.58601	27.58434	0.3020
At most 2	0.290124	16.44788	21.13162	0.1998
At most 3	0.158849	8.303247	14.26460	0.3487
At most 4	0.002492	0.119747	3.841466	0.7293

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

- Note: (1). Both Trace test and Max-Eigenvalue indicates 1 cointegrating equation at the 5 percent level
(2). *Denotes rejection of the hypothesis at the 5 percent level
(3). **MacKinnon-Haug-Michelis (1999) p-values
(4). Variables observed Cointegration Tests: Manufacturing, Oil, capital Expenditure, Recurrent Expenditure and Agriculture. Also the institutional variables representing nationalisation of oil production, political instability and return to a stable democratic rule are also embedded in the cointegration tests.

Due to the presence of non-stationarity and evidence of cointegration among the variables, this study will therefore adopt the variant of the VAR model which is the Vector Error Correction (VEC) model. This technique is used when there is evidence of cointegration and is presented below in section 5.5.5.

5.5.5 Vector Error Correction (VEC) Model

In this section, the empirical investigation of the relationship between oil and economic performance has three objectives. The first is to investigate the long-run relationship between the variables employed. The second is to explore the short-run dynamic causal relationship among the variables. The third is to use OLS to estimate the individual VEC equations that can examine the validity of the hypotheses established in Chapter 6 which captures the impact of political and institutional factors on economic performance variables.

To recap, the fundamental testing technique before using a VEC model needs three steps. The first is to examine whether the variables have a unit root to check the stationarity of each variable (Engle and Yoo 1987). This is achieved by employing the ADF and PP tests. The second procedure is to investigate whether there is a long-run association between the variables. This is achieved by the use of the Johansen Cointegration method. All these techniques have been conducted above. Lastly, if all variables are integrated of order one (I(1)) and cointegrated, short-run elasticities can be calculated using the VEC technique. In this instance, an error correction mechanism exists and changes in the dependent variables are analysed as a function of the level of the disproportion in the long-run association, which is captured by the ECT (Hamdi and Sbia 2011). Moreover changes in the other explanatory variables will capture all short-term relationships between the variables (Pao and Tsai 2010). The VEC model in the five variables case is written as follows:

$$\begin{aligned}\Delta oil = & \alpha_1 + \sum_{i=1}^p B_{1i}\Delta oil_{t-1} + \sum_{i=1}^p B_{1i}\Delta capexp_{t-1} + \sum_{i=1}^p B_{1i}\Delta recexp_{t-1} + \sum_{i=1}^p B_{1i}\Delta man_{t-1} \\ & + \sum_{i=1}^p B_{1i}\Delta agric_{t-1} + \lambda_1 ECT_{t-1} + \lambda_1 Dummy + \mu_{1t}\end{aligned}$$

$$\begin{aligned}\Delta capexp = & \alpha_2 + \sum_{i=1}^p B_{2i}\Delta coil_{t-1} + \sum_{i=1}^p B_{2i}\Delta capexp_{t-1} + \sum_{i=1}^p B_{2i}\Delta recexp_{t-1} \\ & + \sum_{i=1}^p B_{2i}\Delta man_{t-1} + \sum_{i=1}^p B_{2i}\Delta agric_{t-1} + \lambda_2 ECT_{t-1} + \lambda_2 Dummy + \mu_{2t}\end{aligned}$$

$$\begin{aligned}\Delta recexp = & \alpha_3 + \sum_{i=1}^p B_{3i}\Delta coil_{t-1} + \sum_{i=1}^p B_{3i}\Delta capexp_{t-1} + \sum_{i=1}^p B_{3i}\Delta recexp_{t-1} \\ & + \sum_{i=1}^p B_{3i}\Delta man_{t-1} + \sum_{i=1}^p B_{3i}\Delta agric_{t-1} + \lambda_3 ECT_{t-1} + \lambda_3 Dummy + \mu_{3t}\end{aligned}$$

$$\begin{aligned}\Delta man = & \alpha_4 + \sum_{i=1}^p B_{4i}\Delta coil_{t-1} + \sum_{i=1}^p B_{4i}\Delta capexp_{t-1} + \sum_{i=1}^p B_{4i}\Delta recexp_{t-1} \\ & + \sum_{i=1}^p B_{4i}\Delta man_{t-1} + \sum_{i=1}^p B_{4i}\Delta agric_{t-1} + \lambda_4 ECT_{t-1} + \lambda_4 Dummy + \mu_{4t}\end{aligned}$$

$$\begin{aligned}\Delta agric = & \alpha_5 + \sum_{i=1}^p B_{5i}\Delta coil_{t-1} + \sum_{i=1}^p B_{5i}\Delta capexp_{t-1} + \sum_{i=1}^p B_{5i}\Delta recexp_{t-1} \\ & + \sum_{i=1}^p B_{5i}\Delta man_{t-1} + \sum_{i=1}^p B_{5i}\Delta agric_{t-1} + \lambda_5 ECT_{t-1} + \lambda_5 Dummy + \mu_{5t}\end{aligned}$$

Where ECT is expressed as follows:

$$ECT = Oil_t - \beta_0 - \beta_1 capexp_t - \beta_2 recexp_t - \beta_3 man_t - \beta_4 agric_t$$

Where $t = 1 \dots T$, denotes the time period.

Source of the VEC Equation: Hamdi and Sbia (2013)

According to Hamdi and Sbia (2011), an important advantage of the VEC model is that it can also be employed to confirm causality between the variables in the case of a long-run relationship. The VEC also helps to differentiate between short-run causality among the variables and each variable's continuing correction from the long-run equilibrium over a series of incomplete short-run changes (Fasano and Wang 2001). For that reason, a VEC model can present a more effective appreciation of the nature of non-stationarity between different variables in time series analysis (Hamdi and Sbia 2011).

CHAPTER 6

PRESENTATION OF HYPOTHESES AND RESULTS

6.1 INTRODUCTION

This chapter presents some hypotheses which are informed by Chapters 3 and 4. These hypotheses are tested using econometric techniques and their results are discussed in order to give additional support to the analysis made in Chapters 3 and 4, which offer justification and support to the main argument of this study. The verification of the main argument with additional and sophisticated empirical analysis is important in order to understand the dynamic nature of the evolution of the historical political economy of Nigeria and the impact on economic sectors.

However, the informed hypotheses will not cover all aspects of the historical political economy of Nigeria in relation to the main argument but they largely depict the main economic and political changes. The main argument is that a lack of national unity or identity in Nigeria has hindered the benefits associated with the abundance of oil reserves. This is a key factor in understanding the weak economic performance and low levels of development and it is necessary to look at the history of economic and political development in Nigeria.

Also, before the discussion of the proposed hypotheses, this chapter first presents a correlation matrix of the economic variables considered for the further empirical analysis as discussed in Chapter 5. The economic variables are also employed in conjunction with institutional variables for testing the proposed hypotheses.

Section 6.2 of this chapter presents a correlation matrix of the variables considered for additional empirical analysis. While section 6.3 presents the hypotheses and discusses the link of each to the analysis in Chapters 3 and 4. Section 6.4 discusses each result obtained from the econometric analysis and its

relationship to the main argument and Section 6.5 presents the conclusion of this chapter.

6.2 CORRELATION BETWEEN MAJOR ECONOMIC VARIABLES

This section presents a correlation matrix between the key variables analysed in Chapter 3 and 4. This is important so as to show the nature of the relationship between the variables considered for an additional layer of empirical analysis which is shown below in this chapter.

The variables to be employed for the correlation analysis are oil, manufacturing, agriculture and government expenditure (capital and recurrent) as shown in Table 6.1 below. These variables are employed to show the effect of the oil sector on economic performance. The government expenditure variable is selected because of the significant contribution of oil revenues in financing public expenditure as stated previously. This will help to show the contribution of the oil sector to the Nigerian economy as a whole. The remaining variables (oil, manufacturing and agriculture) are selected due to their significant contribution in GDP as shown in Chapters 3, 4 and 5 and also because they have been used in other studies in the literature as shown in Chapter 2. It is important to note that not all the variables examined will be included in the correlation analysis as the aim of the thesis is to examine the impact of oil on economic performance. As such, economic sectors that contribute significantly to GDP are considered.

The variables are set out in time series from 1961 to 2010 and have been transformed into logarithmic form as this transformation will be used in the empirical analysis. From Table 6.1, LOIL means the log of oil output, LCAPEXP represents the log of public capital expenditure, LRECEXP signifies the log of public recurrent expenditure, LMAN indicates the log of manufacturing output and LAGRIC means the log of agricultural output.

Table 6.1 Correlation Matrix for Major Economic Variables

	LOIL	LCAPEXP	LRECEXP	LMAN	LAGRIC
LOIL	1.000				
LCAPEXP	0.903	1.000			
LRECEXP	0.877	0.985	1.000		
LMAN	0.984	0.919	0.897	1.000	
LAGRIC	0.945	0.935	0.933	0.977	1.000

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

From Table 6.1 it can be seen that the variables employed are all highly correlated. For example, it shows that oil correlates with public capital and recurrent expenditure and also with oil and manufacturing as well. However, some of the correlations are higher or more positive between some variables. For instance, agricultural output is more effectively explained by manufacturing output as it has a correlation coefficient of 0.977 (97.7 %) which, is almost 1. Oil has a correlation coefficient of 0.945 (94.5 %), public capital expenditure has a value of 0.935 (93.5 %) and lastly public recurrent expenditure has a coefficient of 0.933 (93.3 %). In general, from Table 6.1, the variables are highly correlated with coefficients near 1. The lowest correlation is between public recurrent expenditure and oil which shows that recurrent expenditure is explained by oil output with a value of 0.877 or 87.7 percent.

It is obvious that the degree of linear association between the variables in the correlation table above is high. The high evidence of linear association does not imply that changes in the variables causes changes in themselves. Rather, there is evidence of a linear relationship between the set of variables and that changes in them are on average related to an extent given by the correlation coefficient (see, Brooks 2008, p. 28). However, as correlation in statistical analysis does not mean causality, this study further employs a more rigorous and robust statistical analysis as discussed in Chapter 5 and carried out below. The regression techniques help to show whether these highly correlated variables have a causal relationship with each other. Regression as an analytical tool has more flexibility and power than correlation (Brooks 2008, p. 28).

6.3 PROPOSED HYPOTHESES

The hypotheses are presented in this section. For clarity, this section will further present the hypotheses in different sub-sections.

6.3.1 Presentation of Hypothesis 1

As discussed in Chapter 3, Nigeria was originally a British colony that was created from the amalgamation of separate regions which were politically, economically and socially distinct, although they shared a commonality in agriculture for economic enhancement. After amalgamation in 1914 and political independence in 1960, the regions in Nigeria still relied on agriculture as the main source of both domestic and foreign earnings. However, the discovery of oil in the 1950s and the gradual and increasing dependence on oil, especially in the 1970s which coincided with high oil prices in the world, brought immense wealth to Nigeria. These different and sudden outcomes, such as oil reserve discovery, political independence and rising oil revenues, coincided with and witnessed political upheavals that were tied to the regional and cultural differences in Nigeria. In turn, it was claimed that these outcomes led to the gradual neglect of basic and key economic sectors such as agriculture and manufacturing. In particular, agriculture was still the mainstay of the population and started to witness a significant declining trend in the 1970s as shown in Table 3.2 of Chapter 3.

According to the theoretical literature reviewed in Chapter 2, the decline of manufacturing and/or agricultural sectors signify the effect of the Dutch Disease due to the appreciation of the domestic currency which makes exports of manufactures and food expensive. Several studies focusing on the economic effects of natural resource wealth, in particular oil or gas stated that the first disadvantage of resource abundance is through the impact of the Dutch Disease. For example, studies by Corden and Neary (1982) and Corden (1984) and Benjamin et al. (1989) explain that natural resource wealth hinders growth of the industrial sector, which is assumed to be the key driving force of the economy and this effect is caused either through an appreciation of the real

exchange rate or the absorption of factors of production by the natural resource sector.

Likewise, other theoretical explanations of the adverse effect of resource abundance on economic growth have been partly considered to be symptoms of the Dutch Disease. For example, the explanations include a decrease in both savings and physical investment (Payrakis and Gerlagh 2007), impediments to entrepreneurship (Sachs and Warner 2001) and lower investment in education and human capital (Gylfason 2001).

However, some studies in the literature argued that the empirical evidence concerning the relationship between natural resource wealth such as oil and gas and economic growth does not provide great support for the Dutch Disease hypothesis as an explanation of the negative effect of resource abundance on economic performance (Leite and Weidmann 1999 and Sala-i-Martin and Subramanian 2003). For example, Sala-i-Martin and Subramanian (2003) found no evidence of the Dutch Disease effect in Nigeria. This evidence is also consistent with the work of Spatafora and Warner (1995) who also reported no evidence of a Dutch Disease effect between oil wealth and economic performance variables among developing oil-exporting countries, which included Nigeria. According to Sala-i-Martin and Subramanian (2003) waste and corruption from oil rather than the Dutch Disease has been responsible for the weak economic performance in Nigeria. According to them, natural resources like oil exert a negative and asymmetric effect on economic performance through their damaging impact on institutional quality.

The issue of institutional quality and other ideas that are not contingent on economic explanations started to offer more insight and this led to the development of the political economy approach which is concerned with issues beyond those explained by economic institutions. For example, this subsequent approach looked at the role of political, legal and social institutions in addition to economic institutions. As reviewed in Chapter 2, the political economy approach looked at the role of different institutions and their effect on economic growth in resource rich countries. A study by Collier and Hoeffler (2005) claimed that resource rich economies often depend on a system that is based on patronage and do not nurture a democratic system based on electoral competition, scrutiny and civil rights. Other studies such as those by Fearon and Laitin (2003), Jensen

and Wantchekon (2004) and Ross (2004) offered different institutional explanations. One of the frequently studied views is the theoretical positive relationship between oil abundance and civil war. However, this argument has been criticised both theoretically and empirically (Oskarsson and Ottosen, 2010).

The divergent and often criticised theoretical and empirical explanations which are contingent on economic and political economy perspectives give room for further analysis in order to provide alternative and deeper investigation behind the adverse effect of natural resources on economic performance. As such, this study intends to offer a new hypothesis which is informed by the existing literature as reviewed in Chapter 2 and above. This seeks to validate the analysis conducted in Chapters 3 and 4 on the political economy development of Nigeria in relation to oil production and exports.

To verify the development of the political economy before and after independence and in the 1970s when oil started to make a significant contribution in terms of revenue generation in Nigeria, the following hypothesis is presented.

H₁: *The lack of national unity due to the amalgamation of the North and South regions in Nigeria and gradual importance of the oil sector should have a negative impact on the manufacturing and agricultural sectors.*

6.3.2 Presentation of Hypothesis 2

This section presents a second hypothesis informed by Chapter 3. It will help to support the section and the argument that a lack of national unity and the gradual development of the oil sector with the inflow of oil rental income have further instigated political instability in Nigeria. Political instability started in 1966 just six years after Nigeria achieved political independence from Britain. In January 1966, a coup occurred and claimed to be largely carried out by military officers of the Igbo tribe. The Igbo is among the three major tribes in Nigeria from the South-East region. Subsequently, there were several coups that occurred in July 1966, 1975, 1976, 1983, 1985 and 1993. Most were primarily

linked to ethnic and regional differences to avoid domination of one region by other local areas.

The issue of an unstable political regime due to natural resource wealth, especially in oil, has been well documented in the literature. This is also underpinned by the political economy perspective as economic explanations alone such as the Dutch Disease could not offer deeper insights into the relationship between natural resource wealth and economic growth. Several studies such as those by Ross (2001), Wantchekon (2002), Lam and Wantchekon (2003) and Jensen and Wantchekon (2004) suggest that abundance in natural resources is linked to low levels of democracy. For example, Ross (2001) finds that oil and other minerals abundance are linked with considerably lower levels of democracy. Employing a similar framework but focusing on a single region and historical period in sub-Saharan Africa after the Cold War period, Jensen and Wantchekon (2004) also confirm this evidence (Ulfelder 2007). Smith (2004) employs a different dependent variable but still confirms this relationship, which is an argument that is largely consistent with rentier state theory. In contrast to all of the evidence linking natural resource wealth and a lack of democracy, Herb (2005) finds weak support for the claim that natural resource rental income hinders the development of democracy and argues instead that income, geographic region and the religious composition of a country's population are superior predictors of regime type (Ulfelder 2007).

Similarly, Ulfelder (2007) revisited the argument on the effects of resource abundance on political development with a research design that offered a new look at the problem. Ulfelder's argument here is the observation that much of the hypotheses developed about the relationship between resource wealth and democratisation convey a story about the survival of autocracy and not variations in all types of political regimes or reversals of democracy. He further raised concerns about the use of all-countries and all-year samples to examine theories of democratisation, suggesting that this framework can obscure significant differences in the forces driving stability and change among different types of political regimes.

In line with previous studies such as those by Ross (2001), Herb (2005) and Ulfelder (2007) and in contrast to them, this study employs a research design that is historical in nature so as to examine the forces that contribute to the

creation of unstable political regime in Nigeria which is tied to a lack of national unity due to the amalgamation of different regions that comprises of different ethnic and religious backgrounds to form the entity of Nigeria. In addition to the analysis of the development of the political economy of Nigeria in Chapter 3, this study aims to test the impact of an unstable political regime on economic performance. Implicitly, it aims to empirically examine the impact of changes in political institutions on economic performance using the economic sectors of manufacturing and agriculture.

Likewise, other studies have investigated the effect of political instability on savings (see, for example, Gyimah-Brempong and Traynor 1996) or investment (Gyimah-Brempong and Traynor 1999) in Sub-Saharan Africa. Alesina et al. (1996) also employed data on 113 countries from 1950 to 1982 to show that GDP growth is considerably lower in countries and time periods with a high tendency for government collapse. Chen and Feng (1996) suggest that regime instability, political polarization and government repression all have a negative effect on economic growth. More recently, Aisen and Veiga (2013) examined the effects of political instability on economic growth from 1960-2004 in 169 countries and found that higher degrees of political instability are connected to lower growth rates of GDP per capita. In particular, political instability has been found to be one of the main reasons for the observed weak economic growth in Sub-Saharan Africa (Guillaumont et al., 1999).

To portray the unstable political environment in Nigeria due to societal issues, the following hypothesis is presented below.

H2: *Political instability instigated by a lack of national unity and oil rental income should have a negative impact on economic performance in Nigeria*

6.3.3 Presentation of Hypothesis 3

In Chapters 3 and 4, it is stated that the oil industry gradually became a leading sector in terms of revenue generation in Nigeria. In addition, as part of further control of economic activity by the Nigerian government after independence, the oil sector was nationalised to reduce foreign domination by international oil

companies (IOCs). This also highlights another political and economic development in Nigeria.

As Nigeria developed from political independence, the oil sector was nationalised in 1971. This also coincided with Nigeria becoming a member of OPEC, which as a policy prescription requires its members to nationalise their respective oil sectors. In addition, the occurrence of a civil war (1967 – 1970) that originated in the oil producing region situated in the South-East of Nigeria influenced the government to seek greater control of the oil sector.

Also, as discussed in Chapters 3 and 4, there are many problems in the oil sector such as a scarcity of refined oil products especially in the Northern part of Nigeria and a lack of transparency and accountability associated with the state owned national oil company. The national oil company was given more powers in 1977 after its merger with Federal Ministry of Mines and Steel. This led to the establishment of the Nigerian National Petroleum Company (NNPC) which was saddled with the responsibility of the refining, transportation and marketing of oil products to provide sufficient energy in the domestic economy.

On the other hand, there are arguments in the literature concerned with the ownership structure of the natural resource sector. For example, Luong and Weithal (2010) argued that the ultimate macroeconomic consequences of natural resources largely depend on the underlying ownership structure with which these countries choose to manage their resource wealth. In many developing countries rich in natural resource, mineral deposits are owned by the state, which is the first claimant on the rental income (Luong and Weithal 2010). In theory, natural resource wealth should serve to support the state's influence over society by giving it a revenue gain that can insulate it from pressures coming from interest groups (Ross 1999).

Also, empirical evidence from the literature suggested that the ownership structure of the resource sector affects the link between resource wealth and economic growth. This viewpoint suggests that private ownership is more effective than state ownership (Ross 2001 and Luong and Weithal 2010) in building effective governance institutions because domestic and foreign investors largely prefer such institutions that are sound and transparent and help to support accountability. For example, Ross (2001) suggested that privatisation may prevent the problem of rent-seizing. In addition, Luong and Weithal (2010)

argued that it is the ownership structure of natural resource wealth that determines economic outcomes in resource-rich countries rather than political, social or institutional structures. McPherson (2003) also argued that political factors such as nationalism and corruption have weakened the efficiency and effectiveness of national oil companies (NOCs) in many oil producing countries and disrupted programmes of national oil company reform.

In the case of Nigeria, different oil company reforms took place prior to and after the return to a stable democratic rule. However, as discussed in Chapter 4, there are claims made about continuing problems in the oil sector which are seen to affect other sectors of the Nigerian economy such as transportation, manufacturing and agriculture. These adverse outcomes reflect the evidence provided by the literature which largely supports the existence of a private ownership structure to be more effective in contributing to economic performance.

In this study, a political economy framework is adopted, which traces the historical development of economic and political outcomes in Nigeria. It is employed to examine subsequent change in ownership structure and economic performance.

Therefore, the following hypothesis is established to support the analysis in Chapters 3 and 4.

H3: *Nationalisation of the Nigerian oil industry that coincided with OPEC membership and the subsequent establishment of a state oil company should lead to weak economic performance due to an inherent lack of national unity.*

6.3.4 Presentation of Hypothesis 4

The hypothesis is informed by the historical development of the political economy examined in Chapter 4 which reflected the end of political instability and authoritarian rule in Nigeria by the military and the return of democracy in 1999. As seen in Chapter 4 various economic reforms were introduced, especially to target the oil sector because of the problems in the industry which hindered its multiplier effect on other sectors of the Nigerian economy.

The stated hypothesis below supports the main argument because there appears to be further evidence of a lack of national unity since the return to democratic rule in Nigeria. This has presented itself in various forms such as fraudulent elections which people associated with ethnic, religious and regional differences and crises as discussed in Chapter 4. Furthermore, the period of stable democracy which began in 1999 was seen by many to be dominated by one political party which achieved power via the manipulation of the Nigerian political system due to an inherent and existing lack of unity that presented itself through ethnic, religion and regional rivalries.

The change in the political landscape in Nigeria which is associated with negative outcomes such as political party dominance and ethnic and religious conflicts is consistent with some suggestions in the literature on natural resource wealth and economic growth and on democracy and economic development as well. For example, Easterly and Levine (1997) argued that ethnic diversity found in Sub-Saharan African countries fosters rent-seeking behaviour that encourages the adoption of growth-retarding policies and inhibits consensus on capital investment in growth-promoting infrastructure.

Likewise Eifert et al. (2003) argued that the type of political system in oil exporting countries affects the expenditure of oil revenue. Using tools from political science they classified economies into five main groups of mature democracies, factional democracies, paternalistic autocracies, predatory autocracies, or reformist autocracies. In their analysis they classified Nigeria as a predatory autocracy due to its succession of military rulers. Nigeria returned to a democratic rule in 1999 and since then the military has remained outside government.

Another study in the literature by Collier and Hoeffler (2007) examined whether the adverse effect of natural resource wealth can be avoided by a democratic system. According to them, their question is at the intersection of two large and active literature studies, one investigated the resource curse and the other examined the economic consequences of democracy. Also the rise in commodity prices has generated revenue booms for natural resource exporters that were last experienced in the 1970s and the widespread failure of these resource rich countries to take advantage of those booms in the form of sustained economic growth is the empirical basis for the resource curse literature (Collier and

Hoeffler 2007). According to Collier and Hoeffler, between these periods of natural resource booms a prominent institutional change ensued, as resource-rich countries are now on average more democratic. As such, the importance of institutions and the possibility for change are now essential debates in development economics. Thus, the analysis of the economic consequences of democratization in natural resource rich countries is situated within this larger argument (Collier and Hoeffler 2007).

From the preceding analysis it would be interesting to examine the Nigerian situation in the presence of ethnic and regional rivalry that has shaped its political landscape prior to and after independence and the effect of these societal issues on the progress of a new democracy which also marked a significant institutional change. For example, Collier and Hoeffler (2007, p.2) stated that "The 'neocon agenda' of the United States, combined with two other influences, has increased the prevalence of resource-rich democracies. The agenda diagnosed the perceived ills of the Middle East as being due to its lack of democracy."

Likewise, Rachdi and Saidi (2015) stated that many countries in the last two decades experienced the introduction of many reforms to improve democracy. Moreover, the literature has provided evidence on the relationship between economic growth and democracy. For example, Przeworski and Limongi (1993) stated that there is no single answer to whether democracy fosters or hinders economic growth. There is mixed evidence on the relationship between economic growth and democracy and this led some studies such as those by Rachdi and Saidi (2015) to state that there is no consensus on the relationship.

The absence of consensus on the relationship between economic growth and democracy may be due to a variety of factors that are distinct to countries or geographic regions. For example Ross (2001) argued that resource rich countries are less democratic. Also Collier and Hoeffler (2007) stated that the lack of democracy in the Middle East is due to the resource abundance in the region.

Following on from these studies and from the analysis in Chapters 3 and 4 which depict the historical development of the political economy of Nigeria prior to and after its return to democratic rule in 1999 the following hypothesis is stated below so as to verify the main argument.

H4: *Reforms targeted to escape the resource curse that coincided with stable democracy and one ruling party should have a negative impact on economic performance due to an inherent lack of a national unity.*

6.4 DISCUSSION OF RESULTS IN RELATION TO THE HYPOTHESES

This section discusses the results obtained from the econometric analysis which is reported in the appendices. For clarity this section also presents the results obtained from the testing of the proposed hypotheses above in sub-sections as below.

6.4.1 Results from Econometric Analysis Using Vector Error Correction Model

Due to the existence of unit roots or non-stationarity of the time series data and further evidence of cointegration in the variables as reported in Sub-sections 5.5.2 and 5.5.4 of Chapter 5, the Vector Error Correction (VEC) model has been employed to analyse a possible long run co-movement among the five variables representing oil, capital expenditure, recurrent expenditure, manufacturing and agriculture. The results are also presented below.

Results from VEC Model

The VEC model is employed so as to examine the evidence of long-run and short-run relationships in the variables employed due to the fact that they are not stationary in their levels which means that there is evidence of a common trending and this is an indication that they move together in the long-run. More information and description of the employment of the VEC model in this analysis is presented in Chapter 5. From the estimated VEC model there is evidence of three cointegration equations or of the variables having a long-run relationship in three ways as shown in Chapter 5.

Since the objective of the study is to investigate the dynamic relationship between oil and economic performance (represented by components of GDP

such as manufacturing and agriculture), Tables 6.3 and 6.5 illustrate the results only where manufacturing and agriculture are the dependent variables respectively. Also as the optimal lag length is one, the short-run results are also presented for one lag of each variable. In the VEC model there are two scenarios to be reported which includes the short-run and long-run causality relationships. The long-run relationship is depicted by the Error Correction Term (ECT) as shown in Tables 6.3 and 6.5. In Tables 6.3 and 6.5, other specifications of the model are also reported. This is done because of the evidence of high correlation coefficients shown in Table 6.1.

However, before reporting results from the VEC estimates, Table 6.2 below reports the 1 cointegrating equation and its adjustment coefficients where manufacturing is the dependent variable. The evidence of cointegration was earlier shown in Table 5.5 in Chapter 5. Both Trace test and Max-Eigenvalue indicates 1 cointegrating equation. The complete output of the cointegration tests are shown in the appendix. Table 6.2 presents information about the long-run cointegrating relationship between the variables. Manufacturing is the dependent variable in this model and oil, capital expenditure, recurrent expenditure and agriculture are the independent variables. This long-run model from the cointegration analysis also reveals long-run coefficients and it can be seen that oil and recurrent expenditure have negative coefficients suggesting that when either oil or recurrent expenditure increases manufacturing decreases in the long-run.

The above finding supports Hypothesis 1 and is in line with the Dutch Disease hypothesis as shown in studies by Ellman (1981), Corden and Neary (1982), Olusi and Olagunju (2005) and Ogunleye (2008). For example, Ellman (1981) documented that, due to the exploitation of large deposits of natural gas in the North Sea in the Netherlands, the textile and clothing industries and others such as manufacturing, mechanical engineering, shipping, vehicles and construction industries deteriorated. Also, Ogunleye (2008) examined the long-run effect of oil revenues on GDP per capita, household consumption, infrastructural development, agricultural and manufacturing output using a vector error correction model (VECM) and argued that that a negative relationship exists for GDP per capita, agriculture and manufacturing in Nigeria.

Table 6.2 Results from Cointegrating Equation and its Adjustment Coefficients

1 Cointegrating Equation(s):	Log Likelihood	25.24852		
Normalized cointegrating coefficients (standard error in parentheses)				
LMAN	LOIL	LCAPEXP	LRECEXP	LAGRIC
1.000000	-0.769064 (0.12593)	0.406960 (0.11229)	-0.563474 (0.12530)	0.228634 (0.15990)
Adjustment coefficients (standard error in parentheses)				
D(LMAN)	-0.292132 (0.12659)			
D(LOIL)	0.035807 (0.25866)			
D(LCAPEXP)	-0.611666 (0.18094)			
D(LRECEXP)	0.134681 (0.16349)			
D(LAGRIC)	-0.018814 (0.17533)			

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

After the analysis of the cointegration tests, the next is to report the results from the estimates of the VEC model in Table 6.3 and 6.5. As reported in Panel A of Table 6.3, there exist a long-run causality running from oil, capital expenditure, recurrent expenditure and agriculture to manufacturing. This is due to the negative sign of the ECT, which is statistically significant at the 1% level. This result also support findings from studies such as those by Corden and Neary (1982), Olusi and Olagunju (2005) and Ogunleye (2008).

Table 6.3 Vector Error Correction Estimates Examining the Effects of Oil Wealth on Economic Performance using the Manufacturing Sector as the Dependent Variable

Regressor	Coefficient	t-value
Δ LOIL(1)	-0.269*** (0.146)	-1.840
Δ LCAPEXP(1)	0.151(0.101)	1.493
Δ RECEXP(1)	-0.034(0.135)	-0.249
Δ LAGRIC(1)	-0.098(0.181)	-0.543
ECT	-0.292*(0.127)	-2.308
C	0.155	1.139
Panel B:		
Δ LCAPEXP(1)	0.135(0.096)	1.394
Δ RECEXP(1)	-0.060(0.126)	-0.473
Δ LAGRIC(1)	-0.083(0.169)	-0.492
ECT	0.056*(0.20)	2.746
C	-0.079	-0.887
Panel C:		
Δ LCAPEXP(1)	0.179*** (0.105)	1.707
Δ RECEXP(1)	-0.031(0.138)	-0.225
ECT	-0.052(0.041)	-1.252
C	-0.077	0.787

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

Note: (1). *Significance at 1% level, **Significance at 5% level, ***Significance at 10% level
Standard errors in parentheses

(2). ECT means the error correction term in the VEC model and this is also measures the speed of adjustment towards equilibrium level. Institutional dummy variables are also included in the specification and regression analysis of the VEC model. The discussions of the effects of the institutional variables are presented below in the subsequent sub-sections.

The next step is to report whether there exist a short-run relationship between the variables in Panel A of Table 6.3. The estimates for short-run analysis also reveal a statistically significant negative relationship at the 10% level between

oil and manufacturing and none from the other variables. The evidence of a negative short-run causality from oil to manufacturing can also be examined using Wald Test as shown in Table 6.4. The Wald test shows the results of whether changes in oil in the short-run, which is after one year as shown by the lag length selection criteria in Table 5.4 in Chapter 5 affects manufacturing. The Null Hypothesis is that the effect of oil on manufacturing in the short-run is zero. From Table 6.4, the three probability values from the three test statistics show 10% level of significance meaning that the Null Hypothesis can be rejected. This means that there is a negative short-run causality from oil to manufacturing.

Table 6.4 Wald Test for the Effects of Changes in the Oil Sector on the Manufacturing Sector

Test Statistic	Value	Degrees of Freedom	Probability
t-statistic	-1.840245***	38	0.0736
F-statistic	3.386503***	(1, 38)	0.0736
Chi-square	3.386503***	1	0.0657

Null Hypothesis: $C(oil)=0$
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
$C(oil)$	-0.268683	0.146004

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

Note: (1). Restrictions are linear in coefficients.
(2). *Significance at 1% level, **Significance at 5% level, ***Significance at 10% level

The evidence of a negative short-run relationship between oil and manufacturing support Hypothesis 1 and is similar to the findings of Fardmanesh (1991), Sachs and Warner (1997), Brahmabhatt et al. (2010), Harding and Venables (2010) and Ismail (2010), who generally argue that that there is a negative relationship between natural resource wealth and economic growth. For example, Ismail (2010) employed detailed, disaggregated sectoral data for manufacturing to examine the implications of oil price changes from 1977 to 2004. His findings confirmed the negative relationship shown by earlier studies.

Due to the lack of statistically significant relationship between manufacturing and other economic variables except oil in Panel A of Table 6.3, the analysis

specified additional models in a reduced form. Some variables are excluded to avoid misspecification as variables are jointly considered in the first model, which are highly correlated with each other. However, there appears to be high correlation in all the correlation matrices above, which consider variables jointly and in reduced forms. From Panel B, which considers all the variables in Panel A but excluding oil, there is evidence of a long-run relationship from capital expenditure, recurrent expenditure and agriculture to manufacturing. This is due to the negative sign of the ECT, which is statistically significant at the 1% level. From the ECT, the speed of adjustment towards equilibrium level in this model is 5.6% which is lesser than 29.2% obtained in Panel A. The result support Hypothesis 1 and in conformity with findings such as those by Fardmanesh (1991), Usui (1998), Farzanegan and Markwardt (2009) and Harding and Venables (2010). For example, Harding and Venables (2010), argue that exports of natural resources have an adverse effect on non-resource exports.

In contrast, there is no evidence of short-run relationship between the variables. The obtained results are also similar to the findings established in Panel A and in line with findings from Gelb (1988), Sala-i-Martin and Subramanian (2003) and Iwayemi and Fawowe (2011). For example, Gelb (1988) reported no significant evidence of Dutch Disease in manufacturing sectors of a group of oil exporting countries he examined in his study. Iwayemi and Fawowe (2011), who also examined Nigeria using variables such as oil price measure, government expenditure, inflation, real exchange rate and net export, argue that oil price volatility did not have a significant effect on most macroeconomic variables.

Looking at the results in Panel C, there is evidence of lack of statistically significant relationship in the long-run as found in Panels A and B. The ECT is having the expected negative sign but the relationship is not significant from the t-statistics. The finding partly support Hypothesis 1 and also in support of studies such as Looney (1988) and Davis (1995). Looney (1988), who employed variables such as government expenditure, oil revenues, agriculture, non-oil manufacturing and real exchange rate also argued that in the long-run, effects linked with the Dutch Disease have been offset, leaving only short-run negative effects arising from appreciation of the real exchange rate. On the other hand, a positive and significant short-run relationship exists between capital expenditure and manufacturing at the 10% level. It is only in this model that capital expenditure which is largely financed by oil revenues as discussed in Chapter 5

affects manufacturing output. This finding is also in line with studies that argued on the lack of a negative relationship between natural resource wealth and economic performance as stated previously.

However, some researchers attributed the difficulty of finding evidence of the Dutch Disease effect to a broad range of factors, which includes conventional means such as small samples (most oil-exporting economies' key macroeconomic variables are measured annually and measurement bias in indices of aggregate manufacturing output (Ismail 2010). This is also the case in Nigeria where most economic data are measured annually and this can be seen in the data employed in the empirical analysis in this study. In addition, measurement bias in indices of aggregate output of economic data such as manufacturing, agriculture, government expenditure may have led to the high coefficient in the correlation analyses above.

After examining the effects of natural resource wealth in oil on economic performance using the manufacturing sector, the next is to examine the relationship with the agricultural sector as discussed in Chapter 5 and above. In this analysis, another different specification of the variables was conducted and as such other tests before the VEC model analysis were carried out. For example, a lag length selection criteria test was employed to determine the number of lags needed in analysis of the VEC model. The model specification with agriculture as the dependent variable also showed that one year lag is the appropriate lag length as shown by the different selection criteria. This is also similar with the manufacturing model and the output of this test is reported in the appendix.

After the lag length test, the next step is to examine evidence of cointegration among the variables due to the evidence of high R^2 observed when a VAR analysis was conducted. The issue of high R^2 was also observed in the manufacturing model specifications. The outputs of the VAR estimates are shown in the appendix. As such, further residual tests were conducted on the data before examining evidence of cointegration among the variables. This is also done due to lack of significance of some of the variables in the manufacturing model despite different specification and the high correlation coefficient in the correlation matrices above. In addition, for stationery VAR to be correctly specified, the residuals should contain white noises.

The first test is to plot the residual graphs of the variables to examine whether residuals are white noises or not. In this case, they are largely not because of the considerable large residuals in all the five graphs.⁵⁸ The large residuals observed may be related to some episodes, which could contain important information. For example, periods of significant changes in oil prices may have helped in producing these large residuals. From all the graphs, the years from 1970s, 1980 and the 2000s showed evidence of large residuals and these periods coincided with oil price volatility. For example, in the mid-1970s, there was a significant increase in world oil price which also resulted in higher oil revenue for Nigeria. This outcome could also affected government expenditure as discussed in Chapter 5. Also, in 1986 there was a considerable decline in oil price which affected oil revenues in many oil producing countries. The 2000s also witnessed increases in oil price due to a surge in demand from the global economy, which was largely attributed to growth in the emerging economies like China and India. The demand for oil also translated to more revenues for Nigeria from oil export. Beside external events that affected the oil sector and the effects on other economic sectors like agriculture, there was a civil war in Nigeria, which originated from the oil producing region as discussed in Chapter 3.

Similarly, the correlation covariance matrix of the residuals can be examined, which is presented in Table B6 of the Appendix. From the covariance matrix of the residuals, it is evident that the off-diagonal elements are not having zero values and this means that the residuals are correlated among themselves. This is expected because model is an unrestricted VAR model unlike the Structural VAR, which has restrictions. In addition, more tests can be conducted to examine the properties of the residuals such as the autocorrelation test, which can be examined using a correlogram as shown in Figure B3 in the Appendix. Each of the graphs in Figure B3 reports the sample autocorrelations for the estimated VAR residuals for the specified number of lags, which shows from 1 to 8. The dotted lines represents plus (+) or minus (-) two standard error bounds of the lag correlations. The AR(1) coefficients are not having large values and this indicates lack of short-term correlations. If the residuals are completely random, then the correlations for any lags should be close to zero and most of

⁵⁸ See Appendix for plot of the residual graphs

the values in the autocorrelations graphs should lie within the dotted lines in the graph and this seems to be the case in Figure B3.

Furthermore, an additional autocorrelation test of the residuals is employed in the form of an Autocorrelation LM test. The LM test can be applied to VAR in levels. The estimated output of this test is reported in Table B5 in the Appendix. The Null Hypothesis of the test indicates there is no serial correlation. To interpret the results, it is evident from the probability values, which are all more than 5% for all lags except for lag 6 that the Null Hypothesis of no serial can be rejected.

The evidence of serial correlation can be attributed to the frequency of the data which is annual and also this can reflect the suggestion made by Ismail (2010) on the issue of lack of a negative relationship between natural resource wealth and economic performance due to a broad range of factors, which includes conventional means such as small samples of macroeconomic variables, which are measured annually and measurement bias in indices of aggregate economic variables.

Also, a VAR stability condition check as shown in Table B3 and Figure B1 in section B of the Appendix was employed. Table B3 and Figure B1 presents the AR table and graph respectively, which reports the inverse roots of the characteristic AR polynomial (see Lütkepohl, 1991). The estimated VAR model is stable (stationary) if all roots have modulus less than one and lies inside the unit circle. The Table and Figure shows that the VAR model is stable. If the VAR model is not stable, certain results (such as impulse response standard errors) are not valid (Lütkepohl 2005). In addition to stability test, this study also examined the properties of the residuals from our estimated VAR as discussed above. The autocorrelation LM test tests show evidence of auto-correlation of residuals. This outcome, could lead to invalid results such as impulse response analysis.

However, the evidence of non-stationarity of the data as shown in Table 5.3 in Chapter 5 led this analysis to examine evidence of cointegration among the variables. The subject of whether the variables in a VAR model need to be stationary has been a recurring argument (see for example, Enders (2010). According to Enders (2010, p. 303) "Sims (1980) and Sims et al. (1990)

recommended against differencing even if the variables contain a unit root. They argued that the goal of the VAR analysis is to determine the interrelationships among the variables, not to determine the parameter estimates. The main argument against differencing is that it “throws away” information concerning the comovements in the data (such as the possibility of cointegrating relationships. Similarly, it is argued that the data need not to be detrended”. This issue has been discussed in Chapter 5 and the evidence of cointegration was found. As such, this chapter goes further to estimate the second model where agriculture is the dependent variable and in accordance with Enders (2010), who state that the aim of the VAR analysis is to determine the interrelationships among the variables, not to determine the parameter estimates.

Table 6.5 Vector Error Correction Estimates Examining the Effects of Oil Wealth on Economic Performance using the Agricultural Sector as the Dependent Variable

Regressor	Coefficient	t-value
Δ LOIL(1)	-0.147(0.202)	-0.727
Δ LCAPEXP(1)	0.271*** (0.140)	1.922
Δ RECEXP(1)	0.172(0.187)	-0.922
Δ LMAN(1)	0.759* (0.336)	2.258
ECT	-0.004(0.252)	-0.107
C	-0.207	-1.094
Panel B:		
Δ LCAPEXP(1)	0.286* (0.136)	2.101
Δ RECEXP(1)	0.121(0.179)	0.671
Δ LMAN(1)	0.560*** (0.327)	1.712
ECT	-0.051(0.092)	-0.559
C	-0.250	-1.975

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

Note: *Significance at 1% level, **Significance at 5% level, ***Significance at 10% level
Probability value in ()

Dummies capturing institutional changes are included in model specification, but are not reported in the Granger Causality Test.

It is clear from the two estimated models above that only short-run relationships exist between the variables. The ECTs are not statistically significant from Panels A and B of Table 6.5, although most of them have the negative expected signs. In the short-run, Panel A shows only capital expenditure and manufacturing have a positive and statically significant relationships at the 10% and 1% levels of significance respectively. The oil sector has the anticipated negative sign but the effect on agriculture in the short-run is not statistically significant. Also, recurrent expenditure is not having a significant impact in the short-run on the agricultural sector.

Similarly, Panel B, which presents a slightly different specification of the model reports findings in line with Panel A as there is no evidence of a long-run comovement in the variables employed. However, there is evidence of a short-run relationship running from capital expenditure and manufacturing to agriculture at the 1% and 10% levels of significance respectively. It is observed that recurrent expenditure displays the same results shown in Panel A as the relationship is positive but not statically significant.

From the above two models, it is clear that there is lack of a statistically significant long-run relationships among the variables. The short-run relationships reports positive impacts on the agricultural sector and these findings did not support Hypothesis 1 and they are also in line with evidences from studies such as those by Gelb (1988), Looney (1988), Davis (1995), Spatafora and Warner (1995) and Aliyu (2009). Moreover, some of the findings established in the models where agriculture is the dependent variable are also similar to the findings reported by the manufacturing models above. In the manufacturing models some of the variables have a positive impact in the short-run and the coefficients of the long-run relationships have the negative expected sign in all the models.

In summary, the above two models, partly support Hypothesis 1 and the main argument. The observed negative and positive evidence both in the short-run and long-run and the lack of a relationship in the short and long-run indicate mixed findings. These inconsistent results are in line with some findings established by studies in the literature as mentioned previously. For example,

Ogunleye (2008) examined the long-run effect of oil revenues on GDP per capita, household consumption, infrastructural development, agricultural and manufacturing output in Nigeria using a vector error correction model with annual data from 1960 to 2004. He reported that a negative relationship exists for GDP per capita, agriculture and manufacturing. However, the results further showed that even for variables with negative relationships in the current period, a positive relationship was established at subsequent time lags. Also, Looney (1988), in his study of the Saudi Arabian economy reported that in the long-run, effects linked with the Dutch Disease have been offset, leaving only short-run negative effects arising from appreciation of the real exchange rate. In addition, Davis (1995) found little corroborating evidence between natural resource wealth and economic performance indicators in mineral-based developing countries he employed in his study.

The mixed findings in the above analysis can also be attributed to a broad range of factors, which includes low frequency of the data given in annual aggregates and high correlation among the variables. The issue of high correlation is evident as shown above and this has led to different specifications of the correlation analysis but still there is a clear high correlation among the variables even in reduced form. Also, the various model specifications above yielded similar outcomes and it can be seen that the first specification, which included more variables in Table 6.3 showed more statistically significant relationships than the subsequent reduced form models. In Table 6.5, the results from the two specifications are almost the same. However, more reduced form specifications have been conducted to provide robustness and to avoid misspecification of the models. But it appears that these alternatives model specifications show more statistical issues such as high R^2 and lack of cointegration despite evidence of unit roots in the variables. The Appendix from section A to C contains the analysis of the different specifications of the models and their diagnostic tests. For example, the analysis of the different model specifications where agriculture is the dependent variable is found in section B of the Appendix.

The different model specifications to examine the impact of economic variables and other institutional factors on the agricultural sector showed that only two models were found with evidence of long-run relationships among the variables as shown in Panels A and B of Table 6.5 above and further confirmation in

section B of the Appendix. It is seen in Tables B24, 22, 30 and 33 of the Appendix that there is no evidence of cointegration among the variables despite evidence of non-stationarity in the data. Also, VAR estimates of these reduced form models showed evidence of high R^2 . These VAR estimates are shown in Tables B23, 26, 29, 32 and 35 of the Appendix. The evidence of high R^2 suggests evidence of multicollinearity in the specified models. As such, these latter specifications could not be further estimated or applied. For example, a different specification of a three variable model was estimated but yet there was evidence of multicollinearity, which is caused by intercorrelations between the explanatory variables (Asteriou and Hall 2011). The evidence of intercorrelations among the variables was shown above and which may be the cause of the multicollinearity problem.

The evidence of multicollinearity in the reduced form specifications resulted in the use of the two model specifications as shown in panels A and B of Table 6.5, which shows evidence of long-run comovement between the variables. The estimates from the two VEC models present low R^2 as shown in Tables B8 and B16 respectively. These models contained both economic and institutional variables, with the first having eight and the second seven. The first model showed evidence of cointegration from both Trace test and Maximum Eigenvalue test. While the second model only showed evidence of cointegration from the Trace test.

Results from Granger Causality Tests Obtained from the VEC Model

After discussing the long-run and short-run dynamics, the next task is to examine the direction of causality between these variables. The results of the causality tests based on the VECM model are reported in Table 6.6 below. It shows the VEC Granger Causality/Block Exogeneity Wald Tests and show results for each equation in the VEC model. Since a five variable VEC model is used, five panels are also produced from the software output, with one for each dependent variable in the VEC system. However, for clarity and objective purposes, only two panels will be shown where manufacturing and agriculture are the dependent variables respectively. The results expectedly show no evidence of a lead-lag interaction between the variables separately or jointly.

All of the results show indication of non-causality. From the probability limit values in all panels, it is evident that, at a 95% significance level, there is no case for which we can reject the null hypothesis when probability value is (< 0.05). The null hypothesis, which means a variable **x** does not Granger Cause **Y**; in all cases it is accepted, which mean no variable is causing another or jointly causing another. For example, from panel 1 it is clear that the probability value from oil is 19.76% which is more than 5%. This shows that oil is not causing manufacturing. Moreover, the joint variable causality effect in the equation where manufacturing is the dependent variable have a probability limit value of 32.88%, which is also more than 5%. Impliedly, this is clear that jointly, the variables are not having an impact on the manufacturing sector.

For statistical robustness purpose, the VEC model is specified in reduced form due to the high correlation observed in the variables as discussed above. As such, Table 6.6 also present additional panel from different model specification to check whether there is a difference in the results. From this reduced form model where oil is excluded in the analysis it is clear that there is no significant difference in the results from those obtained previously. The difference is only seen in the equation where agriculture is the dependent variable. From these results, it is observed that the joint probability value is 3.24%, which is less than 5%. This implies that there is a joint causality from the variables observed on the agricultural sector.

Table 6.6 VEC Granger Causality/Block Exogeneity Wald Tests

Variable	Chi-square	Degrees of Freedom	Probability
<i>Dependent variable: $\Delta(\text{Manufacturing})$</i>			
ΔOil	1.660348	1	0.1976
$\Delta\text{Capital Expend.}$	1.622221	1	0.2028
$\Delta\text{Recurrent Expend.}$	0.128698	1	0.7198
$\Delta\text{Agriculture}$	1.745788	1	0.1864
All	4.618056	4	0.3288
<i>Dependent variable: $\Delta(\text{Agriculture})$</i>			
ΔOil	0.110038	1	0.7401
$\Delta\text{Capital Expend.}$	4.734881	1	0.0296
$\Delta\text{Recurrent Expend.}$	0.630368	1	0.4272
All	7.756622	4	0.1009
<i>Dependent variable: $\Delta(\text{Manufacturing})$</i>			
$\Delta\text{Agriculture}$	0.242087	1	0.6227
$\Delta\text{Capital Expend.}$	1.945391	1	0.1631
$\Delta\text{Recurrent Expend.}$	0.223523	1	0.6364
All	2.389038	3	0.4957
<i>Dependent variable: $\Delta(\text{Agriculture})$</i>			
$\Delta\text{Capital Expend.}$	4.415305	1	0.0356
$\Delta\text{Capital Expend.}$	0.450375	1	0.5022
$\Delta\text{Manufacturing}$	2.932981	1	0.0868
All	8.774250	3	0.0324

Source: Created by author based on data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

Note: (1). $\Delta(\text{LCAPEXP})$ is change in capital expenditure, $\Delta(\text{LRECEXP})$ is change recurrent expenditure, $\Delta(\text{MAN})$ is change in manufacturing output and $\Delta(\text{AGRIC})$ is change in agricultural output

(2). Dummies capturing institutional changes are included in model specification, but are not reported in the Granger Causality Test.

The results from the Granger causality tests can generally be concluded to support Hypothesis 1. From the Granger causality tests there appears to be no

connection between oil, capital expenditure, recurrent expenditure, manufacturing and agriculture except the joint effect that is seen in the last section of the second panel of Table 6.6. The Granger Causality Test results might be interpreted as suggesting that there is no linkage between government spending which comprises of capital and recurrent expenditure and the economic variables of manufacturing and agriculture or between the oil sector and manufacturing and agriculture

In addition, the results of no evidence of causality between the sectors support Hypothesis 1 and also in line with studies that found lack of connection between oil and economic performance. For example, Akinlo (2012) found no evidence of causality between oil and agriculture in Nigeria. The lack of causality can reflect some of the suggestions made by studies in the political economy literature. These studies also recognise the importance of other economic assumptions such as the Dutch Disease effect, oil price volatility, linkage and declining terms of trade. But according to them, these explanations alone could not explain the lack of growth without looking at social factors such as ethnic and regional differences that could influence politics and institutions responsible for enforcing law and order, accountability and transparency and sound governance which could provide a sustainable atmosphere for economic enhancement. The literature has recognised the importance of effective institutions which some authors linked to the capacity of the state to have strong institutions that are essential for promoting economic growth in resource rich countries.⁵⁹

From the analysis in Chapters 3 and 4, it is evident that the lack of causality between the employed variables is not surprising as there is observed weak performance in economic variables such as non-oil trade balance, agriculture, GDP per capita, exports of manufactures and commercial bank loans to small scale enterprises in the midst of rising government expenditure and population. All these outcomes are observed as changes in the political, social and economic landscapes continue to occur in the form of political instability, ethnic and religious violence, nationalisation of oil production and single political party dominance after the return to democratic rule.

⁵⁹ See, for example, Gylfason et al. (1999), Isham et al. (2005), Melhun (2006) and Robinson et al. (2006) for more explanation.

6.4.2 Discussion of Results Based On Hypotheses 2, 3 & 4

The estimates of the individual VEC equations using the Least Squares method are presented below. This is done so as to estimate and examine the effects of each dummy variable employed in the analysis and their effects on the economic sectors of interest. The effects are important because they help to depict or account for institutional factors concerned with politics and economics used in constructing Hypotheses 2 to 4.

The tables below present the various equations in the VEC models. In these, the economic sectors of oil, manufacturing and agriculture each takes turn in becoming the dependant variable while others are independent or explanatory variables. In all the models as shown in the tables below, unstable political regimes, OPEC membership/nationalisation, the establishment of the state oil company (NNPC) and oil sector reforms are also taken as the independent variables. Moreover, the variables of political instability, OPEC membership/nationalisation/establishment of the NNPC and democracy which saw the establishment of many reforms are most vital in this section in order to identify the effects of the development of the Nigerian political economy on the three economic sectors examined in this study.

This section will only focus on explaining the results from institutional factors and their meaning, as those of the economic sectors have been explained and discussed above. The main aim of this study is to examine the impact of the oil sector on key economic sectors such as manufacturing and agriculture. However, because the oil sector has been targeted with some reforms in order to make it more efficient and to provide linkage to other sectors of the Nigerian economy, it is also necessary to examine the oil sector in addition to others. The analysis of the oil sector is presented first, followed by the manufacturing sector and finally the agricultural sector.

The subsequent section examines the specific impact of institutional variables on economic performance variables. Before conducting the analysis a redundant variable test is employed. This is due to the high coefficients observed in the correlation analysis above, which led to the various specifications of the model in Tables 6.3 and 6.5 above. The aim of conducting a redundancy variable test is to

check whether the using the full specified model is more effective than the reduced specified models. From the analyses presented in Tables 6.3 and 6.5 it is clear that the full specified model, which contains oil shows higher evidence of statically significant relationships, especially in Table 6.3. In Table 6.5, there is no difference in the power of explanatory variables whether in full or reduced specification. In all models, two variables (capital expenditure and manufacturing) have statistically significant values.

However, despite the clear evidence or no difference between the fully specified models and the reduced models, a redundancy test on oil sector variable is conducted in order to know which model specification to adopt in examining the specific impact of institutional variables on economic performance variables. This is shown in Panels A and B of Table 6.7 below.

Table 6.7 Redundant Variable Test Results

Panel A

Redundant Variables: LOIL

	Value	Probability
t-statistic	6.798061	0.0000
F-statistic	46.21363	0.0000
Likelihood ratio	37.10459	0.0000

Test Equation:

Dependent Variable: Manufacturing

Method: Least Squares

Included observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.960122	0.283520	-3.386440	0.0015
Capital Expenditure	0.135824	0.081380	1.669020	0.1024
Recurrent Expenditure	-0.139863	0.103042	-1.357333	0.1818
Agriculture	0.862309	0.061756	13.96315	0.0000
Political Instability	0.009927	0.129456	0.076683	0.9392
Nationalisation	0.808472	0.156095	5.179369	0.0000
Democracy/Reforms	-0.324540	0.258092	-1.257459	0.2154
R-squared	0.984204	Mean dependent var		8.268852
Adjusted R-squared	0.982000	S.D. dependent var		1.877589
S.E. of regression	0.251907	Akaike info criterion		0.209663
Sum squared resid	2.728654	Schwarz criterion		0.477346

Log likelihood	1.758436	Hannan-Quinn criter.	0.311598
F-statistic	446.5305	Durbin-Watson stat	0.915360
Prob(F-statistic)	0.000000		

Panel B

Redundant Variables: Oil

	Value	Probability
t-statistic	0.073206	0.9420
F-statistic	0.005359	0.9420
Likelihood ratio	0.006379	0.9363

Test Equation:
 Dependent Variable: LAGRIC
 Method: Least Squares
 Included observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.469130	0.248992	5.900315	0.0000
Capital Expenditure	-0.149357	0.085153	-1.753984	0.0866
Recurrent Expenditure	0.285689	0.101500	2.814672	0.0073
Manufacturing	0.950128	0.068045	13.96315	0.0000
Political instability	0.125623	0.134540	0.933724	0.3557
Nationalisation	-0.727862	0.176848	-4.115759	0.0002
Democracy/Reforms	-0.068554	0.275653	-0.248697	0.8048
R-squared	0.984088	Mean dependent var		10.14704
Adjusted R-squared	0.981868	S.D. dependent var		1.963707
S.E. of regression	0.264423	Akaike info criterion		0.306645
Sum squared resid	3.006544	Schwarz criterion		0.574329
Log likelihood	-0.666133	Hannan-Quinn criter.		0.408581
F-statistic	443.2342	Durbin-Watson stat		1.034552
Prob(F-statistic)	0.000000			

Panel C

Redundant Variables: Agriculture

	Value	df	Probability
t-statistic	0.073206	42	0.9420
F-statistic	0.005359	(1, 42)	0.9420
Likelihood ratio	0.006379	1	0.9363

Test Equation:
 Dependent Variable: LOIL
 Method: Least Squares
 Included observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.021416	0.300448	-6.728004	0.0000
Capital Expenditure	0.028537	0.102751	0.277728	0.7826

Recurrent Expenditure	-0.044396	0.122476	-0.362487	0.7188
Manufacturing	1.315597	0.082108	16.02283	0.0000
Political instability	-0.751433	0.162344	-4.628652	0.0000
Nationalisation	1.070384	0.213395	5.015983	0.0000
Democracy/Reforms	0.573199	0.332620	1.723286	0.0920
<hr/>				
R-squared	0.989314	Mean dependent var	9.386480	
Adjusted R-squared	0.987822	S.D. dependent var	2.891365	
S.E. of regression	0.319069	Akaike info criterion	0.682356	
Sum squared resid	4.377605	Schwarz criterion	0.950039	
Log likelihood	-10.05889	Hannan-Quinn criter.	0.784291	
F-statistic	663.4628	Durbin-Watson stat	1.070476	
Prob(F-statistic)	0.000000			

Source of Table: Dimitrios and Hall (2011)

Source of data: Created by author based on data from CBN Statistical Bulletin (2010) and constructed dummy variables using Eviews Statistical Software.

From Panel A of Table 6.7 above, the results give an F-statistic of 46.214, in comparison with the F-critical value of 6.798. As F-statistic is greater than the F-critical value, the null hypothesis is rejected. Impliedly, it means that the coefficient of the variable oil is not zero, and therefore oil is not redundant; that is, it has a significant effect in determining manufacturing. However, from Panel B, F-statistic is less than the F-critical value, the null hypothesis is accepted. Impliedly, it means that the coefficient of the variable oil is zero, and therefore oil is redundant; that is, it has no significant effect in determining agricultural output.

From the above analyses, the examination of the effects of institutional variables on economic performance will adopt the fully specified model, which has manufacturing as the dependent variable, while the agricultural model will adopt the reduced form model that excludes oil in the analysis. These examinations are shown below in Tables 6.8 to 6.9.

Similarly, as this analysis also examines the impact of institutional variables on the oil sector, which was also examined in Chapter 3 and 4, the redundancy test is also carried out for the oil model. From Panel C of Table 6.7, F-statistic is less than the F-critical value, the null hypothesis is accepted. Impliedly, this indicates that the coefficient of the variable agricultural variable is zero, and therefore agriculture is redundant; that is, it has no significant effect in determining oil output. The reduced form model is shown in Table 6.10 below.

6.4.2.1 Discussion of Results Based On Hypothesis 2

The results from the VEC model capture the impact of political instability on the economic performance variables and these are shown on Tables 6.8, 6.9 and 6.10 below. From Tables 6.8 and 6.9, political instability reveals statistically significant positive relationships at the 1% level on the manufacturing and agricultural sectors respectively. Also from the analysis between political instability and the oil sector as shown in table 6.10, the result indicates no impact and the results are statistically insignificant. These outcomes did not support Hypothesis 2, which states that Political instability instigated by a lack of national unity and oil rental income should have a negative impact on economic performance in Nigeria. The positive findings are in contrast to those of Gyimah-Brempong and Traynor (1996, 1999), Chen and Feng (1996), Alesina et al., (1996) and Aisen and Veiga (2013), who argue that political instability, have a negative effect on economic growth. For example, Aisen and Veiga (2013) examined the effects of political instability on economic growth from 1960-2004 in 169 countries and found that higher degrees of political instability are connected to lower growth rates of GDP per capita. Also, an earlier study by Alesina et al., (1996) argue that in countries and time periods with a high tendency of government collapse, economic growth is considerably lower than otherwise.

Table 6.8 Results for Economic and Institutional Variables of Regression Analysis Examining the Impact of Changes in the Manufacturing Sector

Dependent Variable: Manufacturing

Variables	Coefficient	Standard Error	t-Statistic	Probability
Δ Oil	-0.269***	0.146	-1.840	0.074
Δ Capital Expenditure	1.151	0.101	1.493	0.144
Δ Recurrent Expenditure	0.033	0.135	-0.249	0.805
Δ Agriculture	-0.098	0.181	-0.543	0.591
Political Instability	0.558*	0.142	3.925	0.000
Nationalisation	-0.123	0.144	-0.858	0.396
Democracy/Reforms	-0.661*	0.182	-3.633	0.000
R^2	0.396			
Log likelihood	-10.414			
F-statistic	2.766			

Source: Created by author based on data from CBN Statistical Bulletin (2010) and constructed dummy variables using Eviews Statistical Software.

Note: (1). Δ Oil is change in oil, Δ Capital Expenditure is change in capital expenditure, Δ Recurrent Expenditure is change in recurrent expenditure, Δ Agriculture is change in agriculture

*(2). *Significance at 1% level, **Significance at 5% level, ***Significance at 10% level*

Table 6.9 Results for Economic and Institutional Variables of Regression Analysis Examining the Impact on Changes in the Agricultural Sector

Dependent Variable: Agriculture

variable	Coefficient	Standard Error	t-Statistic	Probability
Δ Capital Expenditure	0.286*	0.136	2.101	0.042
Δ Recurrent Expenditure	0.121	0.179	0.671	0.506
Δ Manufacturing	0.560***	0.327	1.713	0.095
Political Instability	0.454*	0.158	2.873	0.006
Nationalisation	0.234***	0.136	1.721	0.093
Democracy/Reforms	-0.428*	0.196	-2.182	0.035
R^2	0.381			
Log likelihood	-5.417			
F-statistic	3.003			

Source: Created by author based on data from CBN Statistical Bulletin (2010) and constructed dummy variables using Eviews Statistical Software.

*Note: (1). Δ Oil is change in oil, Δ Capital Expenditure is change in capital expenditure, Δ Recurrent Expenditure is change in recurrent expenditure, Δ Agriculture is change in agriculture
(2). *Significance at 1% level, **Significance at 5% level, ***Significance at 10% level*

Table 6.10 Results for Economic and Institutional Variables Regression Analysis Examining the Impact on Changes in the Oil Sector

Dependent Variable: Oil

Variable	Coefficient	Standard Error	t-Statistic	Probability
Δ Capital Expenditure	0.281	0.207	1.368	0.179
Δ Recurrent Expenditure	0.351	0.274	1.287	0.206
Δ Manufacturing	0.599	0.482	1.241	0.223
Political Instability	0.293	0.302	0.968	0.339
Nationalisation	-0.060	0.283	-0.214	0.832
Democracy/Reforms	-0.355	0.393	-0.903	0.372
R^2	0.292			
Log likelihood	-24.141			
F-statistic	2.010			

Source: Created by author based on data from CBN Statistical Bulletin (2010) and constructed dummy variables using Eviews Statistical Software.

Note: (1). Δ Oil is change in oil, Δ Capital Expenditure is change in capital expenditure, Δ Recurrent Expenditure is change in recurrent expenditure, Δ Agriculture is change in agriculture

6.4.2.2. Discussion of Results Based on Hypothesis 3

Hypothesis 3 reflects the nationalisation of the oil industry after Nigeria joined OPEC in 1971 and the further empowerment of the Nigerian National Oil Company by its transformation into the Nigerian National Petroleum Corporation in 1977 in order to give the Nigerian government a greater stake in, and more control of, the oil industry. The results from the VEC model which represents oil nationalisation and Nigeria`s OPEC membership as illustrated in Tables 6.8 to 6.10 reveal mixed findings.

For example in Table 6.9, which examine the impact of period of nationalisation on the agricultural sector reveal a statistically significant effect at the 10% level. The result indicates that nationalisation of the oil industry is positively related to agriculture and this did not support hypothesis 3. Also, the positive effect is in contrast with findings empirical evidence, which suggest that ownership

structure does matter in the relationship between natural resource wealth and economic growth. This perspective proposes that private ownership structure is more effective than state ownership structure (Ross 2001 and Luong and Weithal 2010). Also, a study by McPherson (2003) argued that political factors such as nationalism and corruption have weakened the efficiency and effectiveness of national oil companies (NOCs) in many oil producing countries and disrupted programmes of national oil company reform.

In relation to the analyses of the impact of nationalisation on the manufacturing and oil sectors, the results are not statistically significant. However, the analysis on the manufacturing sector shows negative effect of nationalisation. This evidence support Hypothesis 3 and is similar to the findings in the literature cited above. Also, it can be argued that policies established to indigenise the oil sector so as to create a multiplier effect on the economy, especially on the oil sector and others such as manufacturing and agriculture are not showing any impact. By implication, there is a lack of a relationship between nationalisation and other key sectors of the Nigerian economy. This could also indicate there are other factors such as a lack of national unity limiting the expected positive outcomes of indigenisation policy of nationalisation and further control of the oil sector by the establishment of NNPC with more powers in both the upstream and downstream activities of the industry.

6.4.2.3 Discussion of Results Based On Hypothesis 4

Results from the VEC model as depicted in Tables 6.8 to 6.10 above show that the economic reforms which coincided with a return to democratic rule and the dominance by the People's Democratic Party (PDP) have mixed effects on economic performance variables. As Table 6.8 reports, there is a statistically significant negative relationship on the manufacturing sector at the 1% level. However, there is a positive significant relationship for Tables 6.9, which analyses the impact of democracy on agriculture. In relation to Table 6.10, there is no evidence of a statistically significant effect to support the hypothesis 4 that there is a negative relationship between democracy/period of economic reforms and the oil sector performance. However, the coefficient is negative, which means that the result have the expected sign. The results from the VEC models that capture democratic period and economic reforms geared to various sectors

of the Nigerian economy, especially oil, support Hypothesis 4 in the manufacturing model and oil. This reveals the expected sign of a negative effect that supports the hypothesis, which states that Reforms targeted to escape the resource curse that coincided with stable democracy and one ruling party should have a negative impact on economic performance due to an inherent lack of national unity.

The statistically significant/insignificant and positive/negative relationships between a return to democracy/reforms and the economic sectors of oil, manufacturing and agriculture reflect the theoretical literature on economic growth and democracy. According to findings by some studies in this strand of the literature, there appears to be mixed evidence (see, for example, Przeworski et al., 2000; Brown and Mobarak, 2009; Aisen and Veiga, 2013). Przeworski et al. (2000) find no long-run differences in economic growth between the effect of democratic and autocratic political regimes. Implicitly this means that it is not confirmed whether democracy hinders or promotes economic growth. For example, Rachdi and Saidi (2014) stated that Brunetti (1997) analysed 17 studies focusing on the relationship between democracy and economic growth and found 9 studies reported no relationship, 1 study showed a positive impact, another study revealed a negative effect, 3 studies confirmed a weak negative association and 3 studies revealed a weak positive relationship. Rachdi and Saidi (2014) challenge this consensus of mixed conclusions on the link between democracy and economic growth and stated that economic growth requires "developmental democracy" as stated by Sklar (1987) in which legal and electoral limits on arbitrary power offer individuals the security to plan their economic futures.

Sklar's argument reflects Nigeria's situation where there was a lack of developmental democracy that ensures legal and electoral limits, especially in 2003 and 2011 elections as discussed in Chapter 4. Evidence of electoral manipulation and violence after electoral results prevailed. For example, the election that took place in 2011 was seen as corrupt as violence erupted in some parts of the country (The Economist 2014).

On the other hand, the positive impact of democracy on agriculture shown in Table 6.9 supports some of the findings in the literature. Papaioannou and Siourounis (2008a) examine the within impact of democratisation in countries

that abandoned authoritarianism and consolidated representative institutions. The results imply that on average democratisations are accompanied by an increase in annual GDP per capita growth.

In summarising the results obtained from the three models depicting institutional factors it can be seen that economic ideas such as the Dutch Disease, oil price volatility and declining terms of trade, as shown by some studies in the literature are not sufficient to fully explain the lack of growth in Nigeria despite significant oil revenues and a return to democracy. Other ideas in the literature such as cognitive, societal and state-centered political economy perspectives may help give further explanations of the lack of growth.⁶⁰ Such concepts could give additional explanation of the problem because they can underpin their arguments with assumptions such as the irrational behaviour of the political elite, the power of diverse social classes, strong institutions and economies that obtain regular and significant amounts of income from natural resource production. For example, Sala-i-Martin and Subramanian (2008, p. 2) argued that “waste and corruption from oil rather than Dutch Disease has been responsible for the poor long run economic performance” in Nigeria. According to them, natural resources like oil exert a negative and asymmetric effect on economic growth through their damaging impact on institutional quality.

This later explanation depicts the Nigerian situation where a lack of a national unity due to diverse ethnic groups and regional differences coupled with a significant amount of oil rental income could lead to the establishment and promotion of policies by political leaders that will not benefit the wider population. For example in the case of Nigeria, the reforms initiated by the PDP from 1999, especially in terms of institutions established to curtail money laundering such as Economic and Financial Crimes Commission (EFCC) and Independent Corrupt Practices Commission (ICPC) are seen as the means for any government in power to weaken its opponents because not all past government officials were investigated. Also the power of diverse social classes exists in Nigeria due to varied regional origin which has affected politics from the time of independence and this has influenced government administration and in turn the institutional quality concerned with politics, economics and legal

⁶⁰ See, for example, Karl 1997, Ross (1999), Stiglz (2007), Isham et al. (2005) and Sala-i-Martin and Subramanian (2008)

institutions in Nigeria. For example, the three largest ethnic groups in Nigeria have more political power and influence than other minority tribes.

Similarly, Nigeria obtained a significant amount of income from natural resource production and according to the literature such an economy becomes a rentier state. This source of income that does not come from the wider population and is not earned by them could give political leaders the power and freedom to do as they wish by creating an environment that may only promote a struggle to gain oil rental income by the strongest and most politically influential tribe. This outcome may adversely affect economic growth and development in the long-run. This may also weaken institutions established to provide an enabling environment for both public and private businesses to operate efficiently as regulations that deals with issues such as transparency and accountability are in place.

Also, the literature on democracy and economic growth can explain why economic growth in Nigeria is still not sustainable after its return to democracy in 1999. The conclusions from the studies are mixed and yet some argued that a developmental democracy in which there are legal and electoral limits is important in promoting economic growth. In line with this idea, Collier and Hoeffler (2007) also argued that resource rich countries need a different form of democracy with particularly strong checks and balances. According to them, this is uncommon since checks and balances are public goods and so are likely to be underprovided in new democracies. Also, over time they become eroded by the influence of natural resource rental income.

These various issues could have contributed to the results obtained above which largely showed no relationship between the economic sectors and the institutions responsible for enhancing economic growth in Nigeria. As such other factors such as a lack of checks and balances, transparency and accountability that cannot be captured by the models above could have contributed to the results obtained. However, as this study's argument proposed a lack of a national unity as an inherent problem that impedes the working of various institutions in Nigeria due to regional power struggles, it is assumed that this captured many reasons behind institutional weakness and the deteriorating economic outcomes despite an abundance in oil. Power struggles due to a lack of national unity can create an uncertain environment and the consequences for major political,

economic and legal institutions, which are important in enhancing economic development.

6.5 CONCLUSION

The results presented in the above analysis show that in some instances the hypotheses informed by Chapters 3 and 4, which try to verify the main argument of this study were confirmed by the econometric analysis. In general, Hypothesis 1 was confirmed; to recap, this states that a lack of national unity has hindered the associated oil benefits from trickling down to other key sectors of manufacturing and agriculture in the Nigerian economy.

The analysis of Hypothesis 2 shows that political instability has positive significant effect on the economic sectors of manufacturing and agriculture and an insignificant positive effect on the oil sector. This did not support the hypothesis. Furthermore, the results from the three models that captured Hypothesis 3, which depicts the impact of OPEC membership/nationalisation on economic performance, partly support the main argument discussed in Chapters 3 and 4. It shows evidence of a statistically positive relationship between nationalisation and the agricultural sector and an insignificant negative relationship for the manufacturing and oil sectors. Finally, the econometric analysis of Hypothesis 4 from the three models, reflecting the period of economic reforms that coincided with a return to democratic rule and political party dominance, show mixed findings. This result is also consistent with some studies in the literature on economic growth and democracy as stated above.

However, reasons that could lead to a lack of full support for the hypotheses by some of the models may be due to differences in statistical techniques or the type of data employed in the analysis. From the literature review, there is mixed evidence from studies in relation to the hypotheses examined as shown in the studies on the relationship between economic growth and democracy, political instability and oil in general. Most of these differences as seen from the literature review may be due to different economic, political and social systems that affect institutional quality and government policies in the countries examined.

In addition, other statistical issues such as high correlation among the variables as shown above in Table 6.1 and evidence of serial correlation and heteroskedasticity as shown in sections A to C in the Appendix. The presence of heteroskedasticity in the specified models indicates violating one of the assumptions of the classical linear regression model. This assumption states that the disturbances should have a constant or equal variance independent of any observation. However, it is common in regression analysis for this assumption to be violated (Dimitrios and Hall 2011). For example, in Tables A9 and A10 in section A of the Appendix, which represent the OLS estimate of the fully specified model where manufacturing is the dependent variable, reveal the presence of serial correlation and heteroscedasticity respectively. In addition, subsequent OLS estimates of the reduced form models also show presence of serial correlation and heteroskedasticity. These evidences can be seen in the models where agriculture is the dependent variables as shown in Tables B12 and B13 in section B of the Appendix.

CHAPTER 7

CONCLUSION

7.1 INTRODUCTION

The lack of sustainable economic development in Nigeria despite significant revenues received from oil production and exports largely motivated this study. Since the discovery of oil in just one region of Nigeria in 1956 and the commencement of oil exports in 1958 followed by the attainment of political independence in 1960, economic development has followed a downward trajectory, particularly from the 1970s. The conceivable causes of this outcome could be traced to some factors such as the inherent lack of national unity that has characterised the path of politics and the behaviour of politicians in office and the neglect of agriculture that is practiced widely across the different regions, especially in rural areas where most of the population reside. Also, the concentration of public infrastructure in urban areas is seen as a major influence on economic outcomes because rural agricultural products could not be delivered to the urban areas at low cost, so affecting consumer prices. Another factor is the growing and continued dependence on oil when economic performance in terms of GDP and GDP per capita follows the upward or downward trajectory of oil prices that are determined exogenously.

Moreover, there is also a theoretical rationale to this study. It is possible to examine the lack of economic development in Nigeria despite an abundance of oil wealth using an economic perspective that is largely contingent on theories of the Dutch Disease and the volatility of commodity prices. However, the gap identified by subsequent research in the inability of economic theories to capture the political process that also characterise the trajectory of economic performance has motivated the need to examine Nigeria under the influence of both economic and political factors. In addition, it is important to examine the situation in Nigeria in isolation and the impact of its economic and political transition on economic performance in relation to the oil sector. This is because

Nigeria has undergone changes economically and politically, especially after the discovery of oil and the achievement of independence in 1960.

7.2 SUMMARY OF MAIN FINDINGS

The significance of this research study comprises of an examination of the complex relationship between oil and economic growth in Nigeria. It attempts to present a broader picture of oil and the Nigerian economy using an analytical historical approach. The coming together of separate regions under the British colonial administration to form Nigeria in 1914 and the subsequent discovery and reliance on oil, coupled with the sudden attainment of political independence, all affected economic performance. The sectors of manufacturing and agriculture over the period 1960 – 2010 were analysed. The study showed that the major sectors of the economy behaved differently over time in response to the gradual development of the economic and political landscapes. The oil sector is seen to assume greater importance than manufacturing and agriculture, especially in terms of export income and revenue generation for the government.

In general, the results presented from the analysis in Chapter 6 show that in some instances the hypotheses informed by Chapters 3 and 4, which attempts to verify the main argument of this study, were confirmed by the econometric analysis. In general, Hypothesis 1 was partly confirmed; to recap, this states that a lack of national unity has hindered the associated oil benefits from trickling down to other key sectors of manufacturing and agriculture in the Nigerian economy.

For example, in the model where manufacturing is the dependent variable, there is evidence of a significant negative relationship both in the short-run and long-run relationships. It is also obvious that the oil sector have a significant negative short-run relationship with the manufacturing sector. However, capital expenditure, which is largely financed by oil revenues, has an insignificant but positive short-run relationship with manufacturing in the fully specified model, which subsequently became positive and significant in the reduced form model of manufacturing. Moreover, there is no significant long-run relationship in the model where agriculture is the dependent variable. However, the long-run

relationships have the negative expected sign, which supports Hypothesis 1. Also in the short-run oil has a negative but insignificant impact on the agricultural sector.

Similarly, the results from the Granger Causality Tests show a lack of interaction between the variables of oil, capital expenditure, recurrent expenditure, manufacturing and agriculture. The results might be interpreted as suggesting that there is no linkage between government spending largely financed by the oil sector from oil rental income and the two sectors of manufacturing and agriculture.

The analysis of Hypothesis 2 shows that political instability has a mixed impact on the economic sectors of manufacturing and agriculture. For example, there is significant negative effect on the manufacturing sector and significant and insignificant effects on the agricultural and oil sectors. These findings partly support the hypothesis. Furthermore, the results from the three models that captured Hypothesis 3, which depicts the impact of OPEC membership/nationalisation on economic performance, largely support the main argument discussed in Chapters 3 and 4 because it shows that there is a negative relationship although not significant between OPEC membership/nationalisation and the performance of the economic variables except for the agricultural sector where a significant positive relationship is observed.

Finally, the econometric analysis of Hypothesis 4 from the three models (oil, manufacturing and agriculture), covering the period of reforms that coincided with a return to democratic rule and political party dominance, shows mixed findings. For example, there is a significant and insignificant negative effect on manufacturing and oil respectively. However, the relationship is positive and significant on the agricultural sector. As such, the presence of a significant negative effect and the lack of a relationship has helped to highlight the fact that the previous economic and political developments in Nigeria have shaped the current democratic period with negative consequences for economic growth in the country.

Therefore, the evidence of negative and insignificant relationships obtained from the analysis in most instances has helped to further justify the narrative of the descriptive approach used in Chapters 3 and 4. This highlights the main

argument of the study and describes the importance of oil and politics to the path of economic growth in Nigeria during the past periods of unstable democracy and the consequences in the current period of stable democracy.

7.3 THE THEORETICAL CONTRIBUTION OF THE RESEARCH

In order to present a theoretical orientation to guide the examination of the relationship between oil and economic growth in Nigeria, this study reviewed the theoretical literature with respect to the adverse effects of natural resource wealth on economic performance and proposed a classification of resource curse theories according to each school of thought. The classification divided the resource curse concept into two main groups. These include explanations that are contingent on economic theories and those from a political point of view that attempt to employ a broader framework covering the role of political factors in addition to economic issues.

The empirical analysis section of this study relied largely on the political economy approach, which captures the two-way interplay between political factors and oil. There exists some theoretical implications that can be inferred from the above empirical evidence with respect to this approach.

First, it can be concluded that Hypothesis 1 is confirmed. This states that the lack of national unity due to the amalgamation of the North and South regions in Nigeria and the gradual importance of the oil sector had hindered the benefits from a positive multiplier effect associated with oil wealth on the key sectors of manufacturing and agriculture. This outcome complies with the economic explanation of the Dutch Disease concept and also with the political models that attempt to look at the role of social factors such as ethnicity and religion as well as political factors. The latter includes the capability of the nature of political regimes and the quality of public institutions to promote transparency and accountability.

Secondly, it can be concluded that Hypothesis 2 is partly confirmed. This states that political instability instigated by a lack of national unity and the presence of oil rental income should have a negative impact on economic performance in Nigeria. Political instability, which may have been triggered by social factors such as ethnic and regional rivalry, coupled with the presence of oil rental

income, has a negative effect on the manufacturing sector. The explanation of the relationship between natural resource wealth and political regimes is largely based on whether natural resources promote unstable political regimes or hinder democratic transition. However, there is a strand of literature focusing on the effects of political instability and economic growth and evidence is found in the studies of Alesina and Perotti (1996), Feng (2001) and Aisen and Veiga (2006, 2008 and 2013). However, most of these analyse a sample comprising of several countries. For example, Aisen and Veiga (2013) examined a sample of 169 countries. In contrast to such studies on natural resource wealth and economic growth and in line with those of Feng (2001), this analysis attempts to further investigate whether unstable political regimes triggered by natural resource wealth impede economic outcomes in Nigeria.

Thirdly, Hypothesis 3 states that the nationalisation of the Nigerian oil sector, which coincided with OPEC membership should lead to weak economic performance due to an inherent lack of national unity. This is somehow confirmed because the empirical analysis shows that there is an insignificant negative relationship between OPEC membership/nationalisation of the oil sector and most of the variables observed, which are expected to respond positively to the policy action of oil nationalisation by creating a multiplier effect in the economy. Also, this analysis confirms the theoretical explanation contingent on the ownership structure of the resource sector offered by Ross (1999) and Luong and Weithal (2010). This proposed that a private ownership structure is more effective than a state ownership structure in building superior governance institutions because domestic and foreign investors largely prefer governance institutions that are sound and transparent and help to support accountability in order to provide a conducive environment for business.

In addition, McPherson (2003) argued that political factors such as nationalism and corruption have weakened the efficiency and effectiveness of national oil companies (NOCs) in many oil producing countries and disrupted programmes of national oil company reform. This is also the case in Nigeria, where the establishment of a national oil company (NNPC) did not correspond with positive outcomes due to problems such as a lack of transparency and accountability by NNPC and a lack of sufficient refined oil products.

Fourthly, Hypothesis 4 states that reforms targeted to escape the resource curse, which coincided with stable democracy and a single ruling party should have a negative impact on economic performance due to an inherent lack of national unity. The evidence of a significant negative relationship on the manufacturing sector and the lack of a significant relationship on the oil sector support the arguments offered by some researchers that countries rich in natural resources often depend on a system that is based on patronage and do not support a democratic system based on electoral competition and transparency (Collier and Hoeffler, 2005 and Collier, 2010). Also, this depicts the literature on the effects of democracy on economic growth. The lack of a relationship between economic performance and a period of stable democratic rule reflect findings in the literature by, for example, Przeworski and Limongi (1997) and Robinson (2006). In addition, Collier and Hoeffler (2009) suggest that in developing economies, the combination of natural resource rental income and democracy has been considerably growth-retarding.

The examination of changes in economic and institutional factors in previous periods and their impact on current or subsequent years, which witnessed a democratic transition with one ruling political party, can also be considered as a theoretical contribution. In addition, a negative or lack of impact on economic performance can also be considered as a theoretical contribution to the study of the relationship between oil wealth and economic growth in Nigeria and, in contrast, on the relationship between democracy and economic growth.

7.4 THE EMPIRICAL CONTRIBUTION OF THE STUDY

To add an additional layer of analysis to this study an empirical method has been employed so as to provide a wider and deeper understanding of the time trend effects of oil production and exports on economic performance in Nigeria. As such, this study contributes to the empirical literature in a number of ways and they are summarised below:

1. The initial empirical analysis in Chapters 3 and 4 help to reveal the interaction between the political system and the oil sector and the

response of other economic performance indicators to this interaction over time.

2. To avoid generalisation and to depict evidence from the literature on economic development in general, the study examines these effects of interaction between the oil sector and the Nigerian political system on economic performance in two periods of 1960 – 1999 and 1999 – 2010.
3. To retain comparability with related literature, the research further investigates the impact of oil and institutions (political and economic) on sectors, especially on manufacturing and agriculture due to their level of contribution in GDP using an econometric model. This empirical analysis helps to examine the four hypotheses developed in a single model in order to see the impact of the interaction between oil and the political system on major economic sectors. This method of empirical analysis is in contrast to other studies, especially those focusing on Nigeria, which largely observed the interaction between economic factors such as oil price change and economic growth, oil price change and exchange rates and oil price and inflation rates.
4. The empirical analysis has helped to show the impact of specific political developments in Nigeria, such as political instability, nationalisation of oil production and a return to democracy in 1999, which coincided with institutional reforms on the economic sectors of manufacturing and agriculture. For example, from the argument of this study as documented in Chapter 3, which states that the amalgamation of different socially and politically oriented regions in the period from 1914 to the discovery of oil in 1956 in just one part of the Southern region were not sufficient conditions to create an independent nation in 1960. The timing may not have allowed a sufficient period for the different regions to integrate, develop and achieve sustainable development. As such this has led to a lack of national unity due to ethnic, religion and regional differences and to the impact of the political landscape, which has been characterised by instability from 1966 until 1998. In particular, this study finds that the interaction between oil and agriculture is negative and oil and manufacturing is not significant in the long-run, suggesting that the

presence of oil wealth in Nigeria does not necessarily mean improved economic performance. However, from the argument of this study, it can be empirically inferred that the association between oil and economic performance is non-linear and depends on the structure and development of the social, political and economic systems.

5. Another empirical contribution of this study is the examination of non-linear channels of the effects of oil on economic growth. For example, from the analysis in Chapters 3 and 4, this study finds that the existing social conditions had influenced the political and economic institutions in Nigeria. This resulted in outcomes such as political instability, civil war and other conflicts between ethnic tribes or religious groups. From the empirical analysis of the hypotheses developed in Chapter 6, in some instances the study finds that the relationships between political instability and economic performance, nationalisation of oil production and economic performance and democracy and economic performance are negative. These findings suggest that existing social conditions also played a role in limiting the benefits of oil on economic performance.

6. In addition, another empirical contribution of this research is that the mixed findings obtained on the relationship between political and economic institutions on economic performance either supports or is in contrast to the findings in the literature. For example, some panel data studies on the relationship between political instability and economic growth such as those by Feng (1996), Cheng and Feng (1996), Alesina et al. (1996), Devereux and Wen (1998) and Aisen and Veiga (2006, 2008) suggest a negative association. Devereux and Wen (1998), for example, claim that political instability leads to higher shares of government spending in GDP, which might imply a misallocation of resources and a slowdown in productivity growth. It is also suggested that political instability results in a high reliance on seigniorage revenues and leads to higher inflation particularly in developing, less democratic and socially-polarized states (Aisen and Veiga (2006, 2008). However, De Mesquita and Root (2000), claim that the likelihood of government change or political instability creates competition over policy ideas, which results in

improved government policies and will enhance economic performance (Jong-A-Pin 2009). Also in some instances, Jong-A-Pin (2009) finds that the four political instability measurements, which he employed have different effects on long run economic growth. For example, he suggests that only instability in the political regime and civil protests are associated with a lower real per capita growth rate in the long-run.

7.5 THE PRACTICAL RELEVANCE AND POLICY IMPLICATIONS OF THE RESEARCH

The empirical results of this study can be used to evaluate the effectiveness of the development plans and economic reforms initiated by the Nigerian government in the various political regimes after independence and to indicate the directions for future enhancement. This study provides some important recommendations for policy makers in Nigeria.

Firstly, as there is a lack of a positive relationship between oil wealth and economic growth despite various development plans established to move the Nigerian economy forward since independence, it can be concluded that oil revenue distribution in Nigeria largely through government expenditure on various sectors may not be basically a process that leads to economic development. Economic reforms, especially those carried out in the democratic period from 1999, should be directed toward social and political issues of the country that could determine the level of transparency, accountability, security and justice, with the aim of equalising and promoting economic development across the different regions in Nigeria.

In this study, various categories of government expenditure from independence in 1960 to 2010 have been used to describe and examine the influence of social and political factors on the behaviour of public spending largely financed by oil revenues. Also, social and political events in the preceding periods have helped to characterise the trajectory of the subsequent period and the consequences in economic sectors.

It can be inferred from the descriptive approach employed in Chapters 3 and 4 and the empirical analysis conducted in Chapter 6 that the cause of a lack of economic development in Nigeria, despite significant revenues received from oil

exports and rising government expenditure, may be linked to a range of factors. For example, the lack of national unity, which may have resulted from the amalgamation of separate regions to create Nigeria, may have contributed to the shape of the trajectory of economic and political outcomes in the country.

Also the discovery of oil in just one region of Nigeria and the continued dependence of various governments on its revenues despite an inherent lack of national unity presented in the form of ethnic and regional rivalry, especially by coups and during political elections, could also have caused the lack of economic growth.

Also, it can be inferred that the weak record of economic development in Nigeria is a direct influence of a lack of continuity of infrastructural investment due to societal issues such as ethnic, religion and regional rivalry, which helps to create an unstable political environment; for example, there has been political instability from 1966 to 1999.

According to the empirical estimates of the variables for the output of the oil, manufacturing and agricultural sectors in the descriptive and econometric analysis, this study would propose the following policy recommendations to the Nigerian government.

1. Use government institutions in existence to create awareness among Nigerian citizens of the need for national unity and its implication for economic outcomes. This could be undertaken either through organisations such as the National Orientation Agency (NOA) that has offices across the 36 states in Nigeria or by the use of academic and social institutions that have close contact with the younger generation.
2. Increase capital expenditure, which has over time appeared to be below current expenditure from the depiction and description in Chapters 3 and 4, especially in the recent decade that has witnessed a stable democratic period and a volatile oil price. Also, the analysis in Chapter 6 shows that capital expenditure has a positive effect on all economic sectors examined. Increased capital expenditure should be largely allocated to rural areas where most agricultural activities are carried out in the form of the building of infrastructural facilities such as roads, bridges, dams and electricity. This will enhance agricultural activity that could reduce rising

consumer prices and promote food manufacturing activities due to the close proximity of inputs, which could in turn provide further employment. A consequence of this recommendation will be multiplier effects that will reduce dependence on the oil sector income of, which is largely determined exogenously.

3. Consider the future of Nigeria's OPEC membership as this is not having a positive impact on economic performance. However, this may not be easy as membership may be purely political considering the history that led to the formation of OPEC and the period when Nigeria joined. Also, nationalisation of the oil sector and further empowerment of NNPC needs to be re-examined due to a lack of refined oil products and issues of inadequate accountability and transparency in the oil sector.
4. Enhance existing public institutions such as judicial, legislative and political (i.e., electoral) established to promote justice, governance, transparency and accountability, especially during political elections and when government officials are found guilty of the abuse of public funds. For instance, the lack of capable electoral and legal institutions that promote a greater quality of elections may have resulted in the dominance of one political party from 1999 -2015 despite protest from the public.
5. Enhance the military and police forces in charge of security of life and property. The weakness of such institutions could have resulted in the rise of terrorist activities in Nigeria, especially in the oil producing region and the North-East, which has witnessed a significant increase in a period of stable democracy and political party dominance despite a rise in government spending on the legislative arm of government as shown graphically in Chapter 5. This also coincided with a significant drop in spending on internal security, particularly in 2008 and 2009 and in contrast a rising trend in spending in 2007 and 2008 on the national assembly, which consists of the Senate and the House of Representatives.

7.6 LIMITATIONS OF THE STUDY AND DIRECTIONS FOR FURTHER RESEARCH

This study contributes to the theoretical and empirical literature on the relationship between natural resource wealth and economic development. For example, the argument proposed in this study, which states that the lack of national unity due to the amalgamation of the North and South regions in Nigeria and the gradual importance of the oil sector had hindered the benefits associated with oil wealth on economic performance is a theoretical contribution. In addition, the use of numerical data to examine the argument is also a contribution to the existing literature. However it is limited by time, data and funding constraints among others. Yet, it provides some indicators for further research. The issues identified for future study are as follows.

1. To study the relationship between oil and economic growth in Nigeria using regional data if available as there are claims of regional imbalances in terms of economic development.

In examining the relationship between oil and economic performance in Nigeria this study used the aggregate output of the key economic sectors of oil, manufacturing and agriculture to empirically test the hypotheses established. Also, aggregate data such as that of GDP, GDP per capita and other social indicators such as poverty have been employed. However, it is possible to study the relationship between oil and economic growth using disaggregated data based on regional performance in Nigeria since the aggregate data could have been the summation of different regional data across the 36 states in Nigeria. This approach could help provide an in-depth analysis in relation to economic differences between the different regions and serve as a pointer for policy making.

2. It would also be interesting to study the relationship between oil and economic development in Nigeria using qualitative methods in addition to the quantitative techniques used in this research.

This study employed a quantitative approach due to time, funding and political elections constraints. The last political election, which saw the end of dominance by one political party dominance occurred in March, 2015. As such, the analysis

of the return to democratic rule, which coincided with political party dominance in relation to oil wealth and economic performance may result in biased responses from interviewers because of the opposition to the governing party shown by the majority of Nigerian citizens. For example, that period saw the rise of terrorist activities and election violence in Nigeria.

3. To study more carefully the relationship between government spending behaviour and internal security.

Another direction for further study emanates from the deteriorating state of internal security in Nigeria despite increases in government spending on issues of security and defence and also on the legislative arm of government that comprises of representatives from the 36 states in the country. It is necessary to examine this relationship in more detail and to find ways that can enhance security in order to safeguard life and property, which will in turn promote private consumption and investment expenditure.

4. To consider other social factors in studying the relationship between oil and economic growth in Nigeria.

This study only considers social factors such as ethnic and regional rivalry and their impact on politics in Nigeria. However, other social factors observed in the literature such as literacy levels could help identify more causes of Nigeria's failure to escape the resource curse

5. To examine the efficiency of government agencies established to manage economic reforms, particularly in the oil sector, after the return to democratic rule.

Also, the lack of relationship shown between the economic reform period and democratic period from 1999 to 2010 and the performance of key economic sectors employed in this research is another important issue in Nigeria. As discussed in Chapter 4 some public agencies were established to help improve transparency and accountability and the pricing and delivery of refined oil products to the domestic economy. The inferior functioning of such offices could help deter the intended and anticipated government efforts in creating a multiplier effect from the oil sector to the rest of the economy. However, this research did not particularly examine the efficiency of these agencies established to manage economic reforms.

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APPENDIX I

Econometric Analysis

The appendix presents the estimates of the Vector Error Correction (VEC) model used in the econometric techniques to provide an additional layer of analysis as shown in Chapters 5 and 6. Also, the diagnostic tests for the estimated models are included. The VEC model estimates show the basis for the source of the results obtained in Chapter 6. Sections A to C below gives the VEC model estimates of the outputs of manufacturing, agriculture and oil as the dependent variables respectively.

Each of the section presents the raw output obtained from the statistical software used in analysing the various models specified. Moreover, each section starts by presenting the analysis of the fully specified models and subsequently presents the reduced form models with their diagnostic tests.

Section A. VEC estimates and Diagnostic Tests for the Models where Manufacturing is the Dependent Variable

Table A1. VAR Lag Order Selection Criteria for Eight Variables Specified Model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-210.5561	NA	0.012504	9.806785	10.40308	10.03016
1	18.78080	378.9044*	1.76e-06*	0.922574*	2.512697*	1.518244*
2	35.26842	23.65615	2.71e-06	1.292678	3.876627	2.260641
3	64.77944	35.92647	2.57e-06	1.096546	4.674323	2.436802
4	93.60643	28.82698	2.86e-06	0.930155	5.501759	2.642705

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

VAR Lag Order Selection Criteria

Endogenous variables: LMAN LOIL LCAPEXP LRECEXP LAGRIC

Exogenous variables: POLREG OPECM DEMOC

Source: Created by author based on data from CBN Statistical Bulletin (2010) and constructed dummy variables using Eviews Statistical Software

Table A2. Cointegration Tests for Eight Variables Specified Model

Trend assumption: Linear deterministic trend
 Series: LMAN LOIL LCAPEXP LRECEXP LAGRIC
 Exogenous series: POLREG OPECM DEMOC
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.520030	80.69037	69.81889	0.0053
At most 1	0.348759	45.45689	47.85613	0.0826
At most 2	0.290124	24.87088	29.79707	0.1661
At most 3	0.158849	8.422994	15.49471	0.4213
At most 4	0.002492	0.119747	3.841466	0.7293

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.520030	35.23349	33.87687	0.0343
At most 1	0.348759	20.58601	27.58434	0.3020
At most 2	0.290124	16.44788	21.13162	0.1998
At most 3	0.158849	8.303247	14.26460	0.3487
At most 4	0.002492	0.119747	3.841466	0.7293

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Created by author based on data from CBN Statistical Bulletin (2010) and constructed dummy variables using Eviews Statistical Software

Table A3. VEC Estimates for Eight Variables Specified Model

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1				
LMAN(-1)	1.000000				
LOIL(-1)	-0.769064 (0.12593) [-6.10685]				
LCAPEXP(-1)	0.406960 (0.11229) [3.62433]				
LRECEXP(-1)	-0.563474 (0.12530) [-4.49714]				
LAGRIC(-1)	0.228634 (0.15990) [1.42985]				
C	-1.675242				
Error Correction:	D(LMAN)	D(LOIL)	D(LCAPEXP)	D(LRECEXP)	D(LAGRIC)
CointEq1	-0.292132 (0.12659) [-2.30778]	0.035807 (0.25866) [0.13843]	-0.611666 (0.18094) [-3.38042]	0.134681 (0.16349) [0.82380]	-0.018814 (0.17533) [-0.10731]
D(LMAN(-1))	0.445306 (0.24292) [1.83311]	0.865973 (0.49638) [1.74458]	0.298534 (0.34724) [0.85974]	-0.207401 (0.31374) [-0.66106]	0.759584 (0.33647) [2.25753]
D(LOIL(-1))	-0.268683 (0.14600) [-1.84025]	-0.283304 (0.29834) [-0.94961]	0.022280 (0.20870) [0.10676]	0.093552 (0.18857) [0.49612]	-0.146981 (0.20223) [-0.72682]
D(LCAPEXP(-1))	0.151371 (0.10141) [1.49264]	0.280017 (0.20722) [1.35131]	-0.111545 (0.14496) [-0.76950]	0.062880 (0.13097) [0.48010]	0.269941 (0.14046) [1.92181]
D(LRECEXP(-1))	-0.033530 (0.13474) [-0.24885]	0.313156 (0.27532) [1.13742]	-0.319946 (0.19260) [-1.66120]	-0.156210 (0.17402) [-0.89766]	0.172126 (0.18662) [0.92231]
D(LAGRIC(-1))	-0.098333 (0.18119) [-0.54271]	-0.309534 (0.37023) [-0.83605]	-0.252788 (0.25899) [-0.97604]	0.117635 (0.23401) [0.50269]	-0.379812 (0.25096) [-1.51344]
C	0.155266 (0.13628)	0.090173 (0.27847)	0.561229 (0.19480)	0.219685 (0.17601)	-0.206543 (0.18876)

	[1.13931]	[0.32382]	[2.88102]	[1.24815]	[-1.09422]
POLREG	0.558278 (0.14224) [3.92496]	0.401388 (0.29064) [1.38104]	0.273875 (0.20332) [1.34703]	-0.187590 (0.18370) [-1.02116]	0.432160 (0.19701) [2.19360]
OPECM	-0.123399 (0.14377) [-0.85830]	-0.095630 (0.29378) [-0.32552]	-0.271593 (0.20551) [-1.32157]	0.012040 (0.18568) [0.06484]	0.174936 (0.19913) [0.87849]
DEMOC	-0.661375 (0.18203) [-3.63333]	-0.491322 (0.37195) [-1.32093]	-0.641450 (0.26020) [-2.46525]	0.271861 (0.23509) [1.15639]	-0.401057 (0.25212) [-1.59071]
R-squared	0.395804	0.299407	0.384880	0.081738	0.386237
Adj. R-squared	0.252704	0.133477	0.239194	-0.135745	0.240872
Sum sq. resids	1.821022	7.603338	3.720774	3.037501	3.493495
S.E. equation	0.218910	0.447312	0.312914	0.282726	0.303206
F-statistic	2.765939	1.804418	2.641846	0.375838	2.657018
Log likelihood	10.41422	-23.88632	-6.734589	-1.865068	-5.221892
Akaike AIC	-0.017259	1.411930	0.697275	0.494378	0.634245
Schwarz SC	0.372574	1.801764	1.087108	0.884211	1.024079
Mean dependent	0.112415	0.174006	0.198673	0.213764	0.110092
S.D. dependent	0.253233	0.480530	0.358747	0.265293	0.348001
Determinant resid covariance (dof adj.)		7.73E-07			
Determinant resid covariance		2.40E-07			
Log likelihood		25.24852			
Akaike information criterion		1.239645			
Schwarz criterion		3.383729			

Source: Created by author based on data from CBN Statistical Bulletin (2010) and constructed dummy variables using Eviews Statistical Software

Figure A1. Residuals Graphs for the Five Economic Variables Employed

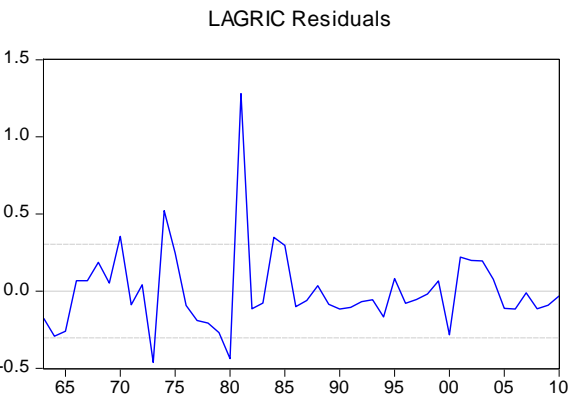
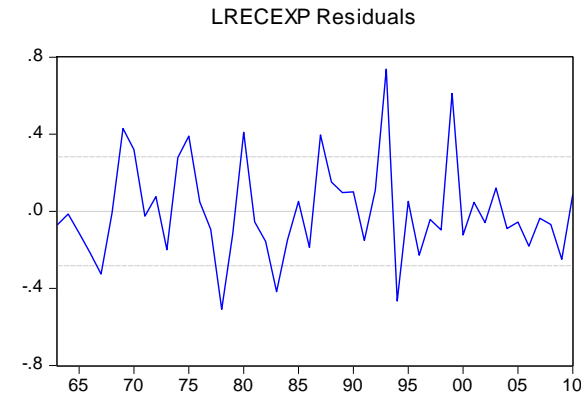
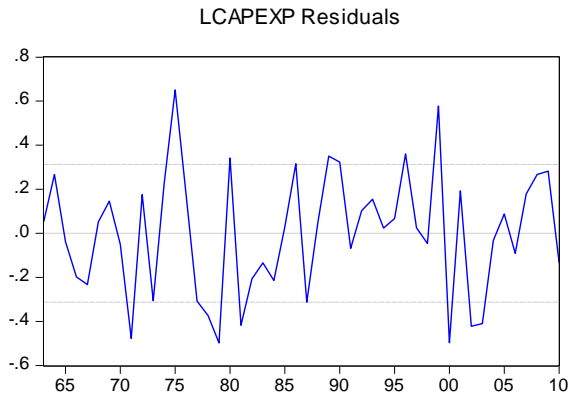
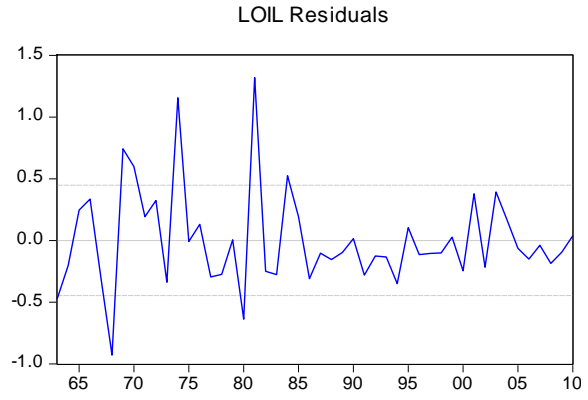
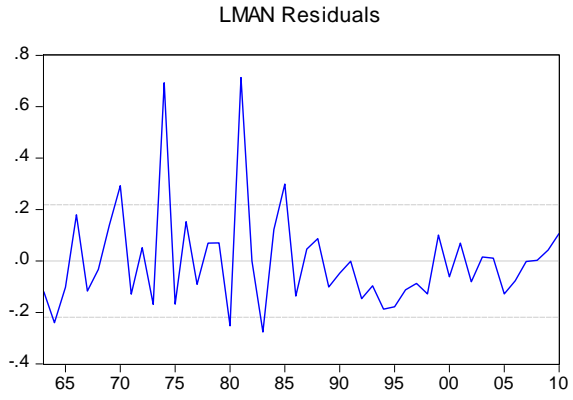


Table A4. Residual Covariance Matrix

	LMAN	LOIL	LCAPEXP	LRECEXP	LAGRIC
LMAN	0.048	0.076	-0.009	0.012	0.050
LOIL	0.076	0.200	-0.011	0.031	0.097
LCAPEXP	-0.009	-0.011	0.098	0.036	-0.006
LRECEXP	0.012	0.031	0.036	0.079	0.016
LAGRIC	0.050	0.097	-0.006	0.016	0.092

Table A5. Residual Correlation Matrix

	LMAN	LOIL	LCAPEXP	LRECEXP	LAGRIC
LMAN	1.000	0.779	-0.128	0.196	0.754
LOIL	0.779	1.000	-0.076	0.248	0.7162
LCAPEXP	-0.129	-0.076	1.000	0.412	-0.059
LRECEXP	0.196	0.248	0.412	1.000	0.183
LAGRIC	0.754	0.716	-0.0589	0.183	1.000

Table A6. VEC Residual Portmanteau Tests for Autocorrelations

Null Hypothesis: no residual autocorrelations up to lag h

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	6.797	NA*	6.941	NA*	NA*
2	25.949	0.989	26.927	0.985	45

*The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

*df and Prob. may not be valid for models with exogenous variables

Table A7. VEC Residual Serial Correlation LM Tests*Null Hypothesis: no serial correlation at lag order h*

Lags	LM-Stat	Probability
1	26.13501	0.4004
2	18.89275	0.8022

Probability from chi-square with 25 degrees of freedom

Table A8. Dependent Variable: LMAN

$$\begin{aligned}
D(LMAN) = & C(1)*(LMAN(-1) - 0.769063784838*LOIL(-1) + 0.406960385488 \\
& *LCAPEXP(-1) - 0.563474439195*LRECEXP(-1) + 0.228633579107 \\
& *LAGRIC(-1) - 1.67524153049) + C(2)*D(LMAN(-1)) + C(3)*D(LOIL(-1)) \\
& + C(4)*D(LCAPEXP(-1)) + C(5)*D(LRECEXP(-1)) + C(6)*D(LAGRIC(-1)) \\
& + C(7) + C(8)*POLREG + C(9)*OPECM + C(10)*DEMOC
\end{aligned}$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.292132	0.126586	-2.307783	0.0266
C(2)	0.445306	0.242924	1.833112	0.0746
C(3)	-0.268683	0.146004	-1.840245	0.0736
C(4)	0.151371	0.101411	1.492643	0.1438
C(5)	-0.033530	0.134740	-0.248851	0.8048
C(6)	-0.098333	0.181189	-0.542707	0.5905
C(7)	0.155266	0.136281	1.139307	0.2617
C(8)	0.558278	0.142238	3.924964	0.0004
C(9)	-0.123399	0.143771	-0.858301	0.3961
C(10)	-0.661375	0.182030	-3.633332	0.0008
R-squared	0.395804	Mean dependent var		0.112415
Adjusted R-squared	0.252704	S.D. dependent var		0.253233
S.E. of regression	0.218910	Akaike info criterion		-0.017259
Sum squared resid	1.821022	Schwarz criterion		0.372574
Log likelihood	10.41422	Hannan-Quinn criter.		0.130059
F-statistic	2.765939	Durbin-Watson stat		2.454176
Prob(F-statistic)	0.013582			

Residual Diagnostic Tests

Table A9. Breusch-Godfrey Serial Correlation LM Test

F-statistic	4.776059	Prob. F(2,36)	0.0145
Obs*R-squared	10.06543	Prob. Chi-Square(2)	0.0065

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.046938	0.116627	0.402462	0.6897
C(2)	0.614473	0.303710	2.023225	0.0505
C(3)	0.057773	0.135203	0.427306	0.6717
C(4)	-0.081884	0.096724	-0.846578	0.4028
C(5)	0.124881	0.129614	0.963489	0.3417
C(6)	-0.080461	0.173381	-0.464069	0.6454
C(7)	-0.092831	0.128047	-0.724978	0.4732
C(8)	-0.186966	0.143359	-1.304179	0.2004
C(9)	0.038622	0.132019	0.292551	0.7715
C(10)	0.192404	0.178225	1.079556	0.2875
RESID(-1)	-0.895507	0.289748	-3.090644	0.0038
RESID(-2)	-0.048450	0.161778	-0.299484	0.7663
R-squared	0.209696	Mean dependent var	-2.69E-16	
Adjusted R-squared	-0.031785	S.D. dependent var	0.196838	
S.E. of regression	0.199942	Akaike info criterion	-0.169264	
Sum squared resid	1.439160	Schwarz criterion	0.298536	
Log likelihood	16.06234	Hannan-Quinn criter.	0.007518	
F-statistic	0.868374	Durbin-Watson stat	1.748347	
Prob(F-statistic)	0.577492			

Table A10. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.088624	Prob. F(13,34)	0.0426
Obs*R-squared	21.31245	Prob. Chi-Square(13)	0.0670
Scaled explained SS	44.29046	Prob. Chi-Square(13)	0.0000

Test Equation:

Dependent Variable: RESID²

Method: Least Squares

Included observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.387710	0.186026	2.084172	0.0447
LMAN(-1)	0.140696	0.105495	1.333672	0.1912
LOIL(-1)	-0.054762	0.061231	-0.894360	0.3774
LCAPEXP(-1)	0.008554	0.047108	0.181588	0.8570
LRECEXP(-1)	0.028984	0.055534	0.521917	0.6051
LAGRIC(-1)	-0.190604	0.078180	-2.438015	0.0201
LMAN(-2)	0.152775	0.131998	1.157397	0.2552
LOIL(-2)	-0.008941	0.060969	-0.146654	0.8843
LCAPEXP(-2)	-0.031198	0.046810	-0.666488	0.5096
LRECEXP(-2)	0.012214	0.055955	0.218277	0.8285
LAGRIC(-2)	-0.046385	0.085008	-0.545653	0.5889
POLREG	0.043728	0.066057	0.661967	0.5125
OPECM	0.030631	0.105275	0.290960	0.7728
DEMOC	0.011514	0.096249	0.119631	0.9055
R-squared	0.444009	Mean dependent var		0.037938
Adjusted R-squared	0.231425	S.D. dependent var		0.098732
S.E. of regression	0.086557	Akaike info criterion		-1.817545
Sum squared resid	0.254729	Schwarz criterion		-1.271778
Log likelihood	57.62107	Hannan-Quinn criter.		-1.611299
F-statistic	2.088624	Durbin-Watson stat		2.301333
Prob(F-statistic)	0.042565			

Table A11. VAR Lag Order Selection Criteria for the Reduced Form Model Containing Manufacturing, Capital and Recurrent Expenditures and Agriculture

Endogenous variables: LMAN LCAPEXP LRECEXP LAGRIC
 Exogenous variables: POLREG OPECM DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-191.2681	NA	0.081023	8.837744	9.314781	9.016445
1	6.663944	335.6239*	3.00e-05*	0.927655*	2.040741*	1.344623*
2	20.18572	20.57661	3.44e-05	1.035404	2.784539	1.690640
3	33.03368	17.31682	4.19e-05	1.172449	3.557633	2.065953
4	44.65998	13.64827	5.66e-05	1.362610	4.383843	2.494382

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Table A12. Cointegration Tests for the Reduced Form Model Containing Manufacturing, Capital and Recurrent Expenditures and Agriculture

Series: LMAN LCAPEXP LRECEXP LAGRIC
 Exogenous series: POLREG OPECM DEMOC
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.415993	53.07673	47.85613	0.0149
At most 1	0.323328	27.26033	29.79707	0.0954
At most 2	0.159275	8.513056	15.49471	0.4123
At most 3	0.003858	0.185525	3.841466	0.6667

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.415993	25.81640	27.58434	0.0827
At most 1	0.323328	18.74727	21.13162	0.1044
At most 2	0.159275	8.327530	14.26460	0.3464
At most 3	0.003858	0.185525	3.841466	0.6667

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

A13. VEC Estimates for Seven Variables Specified Model

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1			
LMAN(-1)	1.000000			
LCAPEXP(-1)	-1.749747 (0.63617) [-2.75043]			
LRECEXP(-1)	3.134345 (0.76414) [4.10179]			
LAGRIC(-1)	-3.182255 (0.55531) [-5.73059]			
C	10.04116			
Error Correction:	D(LMAN)	D(LCAPEXP)	D(LRECEXP)	D(LAGRIC)
CointEq1	0.056242 (0.02049) [2.74551]	0.089879 (0.03234) [2.77955]	-0.010769 (0.02706) [-0.39792]	0.016182 (0.02894) [0.55916]
D(LMAN(-1))	0.009112 (0.23153) [0.03935]	0.018302 (0.36547) [0.05008]	-0.105669 (0.30588) [-0.34546]	0.560176 (0.32709) [1.71259]
D(LCAPEXP(-1))	0.134530 (0.09645) [1.39477]	-0.240922 (0.15225) [-1.58240]	0.068205 (0.12742) [0.53527]	0.286322 (0.13626) [2.10126]
D(LRECEXP(-1))	-0.059779 (0.12644) [-0.47278]	-0.190147 (0.19959) [-0.95271]	-0.174318 (0.16704) [-1.04357]	0.119876 (0.17863) [0.67110]
D(LAGRIC(-1))	-0.082610	0.028774	0.147556	-0.410652

	(0.16790)	(0.26503)	(0.22181)	(0.23719)
	[-0.49202]	[0.10857]	[0.66524]	[-1.73130]
C	-0.079493	0.203305	0.323383	-0.250175
	(0.08966)	(0.14154)	(0.11846)	(0.12667)
	[-0.88655]	[1.43643]	[2.73000]	[-1.97499]
POLREG	0.430814	-0.105864	-0.110851	0.454612
	(0.11200)	(0.17680)	(0.14797)	(0.15823)
	[3.84644]	[-0.59879]	[-0.74917]	[2.87311]
OPECM	0.185955	0.224814	-0.110098	0.234288
	(0.09637)	(0.15211)	(0.12731)	(0.13614)
	[1.92969]	[1.47795]	[-0.86482]	[1.72097]
DEMOC	-0.526296	-0.277101	0.166794	-0.428367
	(0.13895)	(0.21932)	(0.18356)	(0.19629)
	[-3.78779]	[-1.26343]	[0.90867]	[-2.18230]
R-squared	0.414477	0.273069	0.068904	0.381221
Adj. R-squared	0.294369	0.123955	-0.122090	0.254292
Sum sq. resids	1.764742	4.397107	3.079956	3.522047
S.E. equation	0.212720	0.335777	0.281022	0.300514
F-statistic	3.450884	1.831277	0.360765	3.003419
Log likelihood	11.16766	-10.74295	-2.198191	-5.417241
Akaike AIC	-0.090319	0.822623	0.466591	0.600718
Schwarz SC	0.260531	1.173473	0.817441	0.951569
Mean dependent	0.112415	0.198673	0.213764	0.110092
S.D. dependent	0.253233	0.358747	0.265293	0.348001
Determinant resid covariance (dof adj.)		1.29E-05		
Determinant resid covariance		5.61E-06		
Log likelihood		17.74030		
Akaike information criterion		0.927487		
Schwarz criterion		2.486822		

Residual Tests

Table A14. VEC Residual Portmanteau Tests for Autocorrelations

Null Hypothesis: no residual autocorrelations up to lag h

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	Df
1	2.866100	NA*	2.927081	NA*	NA*
2	12.12537	0.9960	12.58893	0.9946	28
3	28.61116	0.9649	30.17377	0.9443	44
4	46.61022	0.8971	49.80911	0.8231	60
5	59.62465	0.9166	64.33684	0.8275	76
6	85.23746	0.6779	93.60863	0.4337	92
7	110.9735	0.4029	123.7386	0.1428	108
8	125.8477	0.4368	141.5877	0.1335	124
9	139.2607	0.5018	158.0959	0.1406	140
10	152.2267	0.5705	174.4740	0.1481	156
11	162.5926	0.6846	187.9218	0.1924	172
12	175.0351	0.7422	204.5118	0.1944	188

*The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

*df and Probability. may not be valid for models with exogenous variables

Table A15. VEC Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h

Lags	LM-Stat	Prob
1	14.30940	0.5757
2	9.075281	0.9103
3	16.34918	0.4289
4	16.71883	0.4040
5	12.83397	0.6849
6	26.19697	0.0513
7	28.73302	0.0258
8	15.85599	0.4631
9	13.30431	0.6504
10	13.83753	0.6108
11	11.65915	0.7671
12	12.82229	0.6857

Probs from chi-square with 16 df.

Table A16. Dependent Variable: D(LMAN)

Method: Least Squares

$$D(LMAN) = C(1)*(LMAN(-1) - 1.74974671666*LCAPEXP(-1) + 3.13434461966*LRECEXP(-1) - 3.18225535707*LAGRIC(-1) + 10.0411636695) + C(2)*D(LMAN(-1)) + C(3)*D(LCAPEXP(-1)) + C(4)*D(LRECEXP(-1)) + C(5)*D(LAGRIC(-1)) + C(6) + C(7)*POLREG + C(8)*OPECM + C(9)*DEMOC$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.056242	0.020485	2.745512	0.0091
C(2)	0.009112	0.231533	0.039353	0.9688
C(3)	0.134530	0.096453	1.394773	0.1710
C(4)	-0.059779	0.126441	-0.472782	0.6390
C(5)	-0.082610	0.167898	-0.492024	0.6255
C(6)	-0.079493	0.089665	-0.886553	0.3808
C(7)	0.430814	0.112003	3.846441	0.0004
C(8)	0.185955	0.096365	1.929691	0.0609
C(9)	-0.526296	0.138946	-3.787787	0.0005
R-squared	0.414477	Mean dependent var		0.112415
Adjusted R-squared	0.294369	S.D. dependent var		0.253233
S.E. of regression	0.212720	Akaike info criterion		-0.090319
Sum squared resid	1.764742	Schwarz criterion		0.260531
Log likelihood	11.16766	Hannan-Quinn criter.		0.042268
F-statistic	3.450884	Durbin-Watson stat		2.296910
Prob(F-statistic)	0.004263			

Residual Diagnostic Tests

Table A17. Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.441775	Prob. F(2,37)	0.1009
Obs*R-squared	5.596717	Prob. Chi-Square(2)	0.0609

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Included observations: 48

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.025260	0.023057	-1.095512	0.2804
C(2)	0.646597	0.394733	1.638059	0.1099
C(3)	-0.080886	0.100481	-0.804993	0.4260
C(4)	0.140757	0.137878	1.020884	0.3139
C(5)	-0.120874	0.178265	-0.678059	0.5020
C(6)	-0.028842	0.087566	-0.329376	0.7437
C(7)	-0.162920	0.132905	-1.225843	0.2280
C(8)	-0.041470	0.096434	-0.430032	0.6697
C(9)	0.207989	0.167987	1.238128	0.2235
RESID(-1)	-0.741650	0.344138	-2.155095	0.0377
RESID(-2)	-0.045480	0.167280	-0.271880	0.7872
R-squared	0.116598	Mean dependent var		3.91E-16
Adjusted R-squared	-0.122159	S.D. dependent var		0.193772
S.E. of regression	0.205267	Akaike info criterion		-0.130961
Sum squared resid	1.558976	Schwarz criterion		0.297856
Log likelihood	14.14307	Hannan-Quinn criter.		0.031089
F-statistic	0.488355	Durbin-Watson stat		1.775810
Prob(F-statistic)	0.886744			

Table A18. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.178238	Prob. F(11,36)	0.0042
Obs*R-squared	23.64846	Prob. Chi-Square(11)	0.0143
Scaled explained SS	46.65106	Prob. Chi-Square(11)	0.0000

Test Equation:
 Dependent Variable: RESID^2
 Method: Least Squares
 Included observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.445796	0.135063	3.300656	0.0022
LMAN(-1)	0.070340	0.080374	0.875162	0.3873
LCAPEXP(-1)	0.017065	0.038300	0.445556	0.6586
LRECEXP(-1)	0.030901	0.045604	0.677584	0.5024
LAGRIC(-1)	-0.184574	0.058928	-3.132203	0.0034
LMAN(-2)	0.120750	0.095170	1.268780	0.2127
LCAPEXP(-2)	-0.052388	0.037996	-1.378771	0.1765
LRECEXP(-2)	0.014907	0.046228	0.322479	0.7490
LAGRIC(-2)	-0.024041	0.066203	-0.363146	0.7186
POLREG	0.101060	0.040725	2.481529	0.0179
OPECM	-0.019481	0.063865	-0.305040	0.7621
DEMOC	-0.035142	0.073245	-0.479795	0.6343
R-squared	0.492676	Mean dependent var		0.036765
Adjusted R-squared	0.337661	S.D. dependent var		0.090831
S.E. of regression	0.073922	Akaike info criterion		-2.159298
Sum squared resid	0.196720	Schwarz criterion		-1.691498
Log likelihood	63.82316	Hannan-Quinn criter.		-1.982516
F-statistic	3.178238	Durbin-Watson stat		2.451488
Prob(F-statistic)	0.004242			

**Table A19. VAR Lag Order Selection Criteria for the Reduced Form Model
Containing Six Variables**

Endogenous variables: LMAN LCAPEXP LRECEXP
Exogenous variables: POLREG OPECM DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-185.0925	NA	0.928421	8.438805	8.796583	8.572831
1	-6.983198	309.7553*	0.000597*	1.086226*	1.801781*	1.354277*
2	-1.857716	8.245341	0.000715	1.254683	2.328016	1.656760
3	3.931827	8.558454	0.000840	1.394268	2.825379	1.930371
4	10.20690	8.457702	0.000981	1.512744	3.301632	2.182872

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

**Table A20. Cointegration Tests for the Reduced Form Model
Containing Six Variables**

Trend assumption: Linear deterministic trend
Series: LMAN LCAPEXP LRECEXP
Exogenous series: POLREG OPECM DEMOC
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.356513	28.39328	29.79707	0.0719
At most 1	0.135812	7.232276	15.49471	0.5508
At most 2	0.004697	0.225971	3.841466	0.6345

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.356513	21.16100	21.13162	0.0495
At most 1	0.135812	7.006305	14.26460	0.4884
At most 2	0.004697	0.225971	3.841466	0.6345

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

**Table A21. VEC Estimates for the Reduced Form Model
Containing Six Variables**

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1		
LMAN(-1)	1.000000		
LCAPEXP(-1)	0.979740 (0.38465) [2.54711]		
LRECEXP(-1)	-1.667740 (0.42575) [-3.91719]		
C	-1.310686		
Error Correction:	D(LMAN)	D(LCAPEXP)	D(LRECEXP)
CointEq1	-0.051519 (0.04114) [-1.25214]	-0.197134 (0.05698) [-3.45959]	0.054813 (0.04872) [1.12502]
D(LMAN(-1))	-0.014956 (0.14950) [-0.10004]	0.166201 (0.20704) [0.80275]	0.031777 (0.17703) [0.17950]
D(LCAPEXP(-1))	0.178641 (0.10467) [1.70663]	-0.218820 (0.14497) [-1.50946]	0.059338 (0.12395) [0.47872]
D(LRECEXP(-1))	-0.031027 (0.13766) [-0.22539]	-0.217593 (0.19065) [-1.14134]	-0.138696 (0.16301) [-0.85085]

C	-0.077129 (0.09806) [-0.78657]	0.140842 (0.13580) [1.03711]	0.326205 (0.11612) [2.80932]
POLREG	0.410831 (0.12560) [3.27104]	-0.040844 (0.17394) [-0.23482]	-0.137537 (0.14873) [-0.92477]
OPECM	0.161097 (0.11367) [1.41728]	0.347108 (0.15742) [2.20500]	-0.144040 (0.13460) [-1.07014]
DEMOC	-0.507807 (0.18243) [-2.78352]	-0.582378 (0.25265) [-2.30504]	0.288615 (0.21603) [1.33601]
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R-squared	0.274677	0.306826	0.073310
Adj. R-squared	0.147746	0.185520	-0.088861
Sum sq. resids	2.186092	4.192916	3.065381
S.E. equation	0.233778	0.323764	0.276829
F-statistic	2.163980	2.529366	0.452055
Log likelihood	6.029005	-9.601741	-2.084347
Akaike AIC	0.082125	0.733406	0.420181
Schwarz SC	0.393992	1.045273	0.732048
Mean dependent	0.112415	0.198673	0.213764
S.D. dependent	0.253233	0.358747	0.265293
<hr/>			
Determinant resid covariance (dof adj.)		0.000365	
Determinant resid covariance		0.000211	
Log likelihood		-1.214917	
Akaike information criterion		1.175622	
Schwarz criterion		2.228172	
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Residual Tests

Table A22. VEC Residual Portmanteau Tests for Autocorrelations

Null Hypothesis: no residual autocorrelations up to lag h

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	2.513065	NA*	2.566535	NA*	NA*
2	5.671809	0.9847	5.862615	0.9820	15
3	16.29478	0.8771	17.19378	0.8403	24
4	27.49495	0.7376	29.41215	0.6465	33
5	32.44727	0.8553	34.94032	0.7717	42
6	48.52945	0.5723	53.31996	0.3851	51
7	69.17342	0.1953	77.48851	0.0639	60
8	74.24761	0.3113	83.57753	0.1115	69
9	83.56313	0.3127	95.04279	0.0920	78
10	91.22092	0.3574	104.7158	0.0949	87
11	95.41041	0.4978	110.1508	0.1533	96
12	98.80182	0.6518	114.6727	0.2439	105

*The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

*df and Prob. may not be valid for models with exogenous variables

Table A23. VEC Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h
 Included observations: 48

Lags	LM-Stat	Prob
1	11.06497	0.2713
2	3.252106	0.9535
3	9.652863	0.3793
4	10.64455	0.3009
5	4.535148	0.8728
6	16.38521	0.0593
7	22.63736	0.0071
8	5.801635	0.7596
9	8.960840	0.4409
10	8.793110	0.4566
11	4.719959	0.8580
12	3.684438	0.9309

Probabilities from chi-square with 9 degrees of freedom.

Table A24. Dependent Variable: D(LMAN)

$$D(LMAN) = C(1)*(LMAN(-1) + 0.979740201681*LCAPEXP(-1) - 1.6677396815*LRECEXP(-1) - 1.31068649346) + C(2)*D(LMAN(-1)) + C(3)*D(LCAPEXP(-1)) + C(4)*D(LRECEXP(-1)) + C(5) + C(6)*POLREG + C(7)*OPECM + C(8)*DEMOC$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.051519	0.041145	-1.252138	0.2178
C(2)	-0.014956	0.149496	-0.100042	0.9208
C(3)	0.178641	0.104675	1.706629	0.0956
C(4)	-0.031027	0.137659	-0.225393	0.8228
C(5)	-0.077129	0.098058	-0.786567	0.4362
C(6)	0.410831	0.125596	3.271044	0.0022
C(7)	0.161097	0.113667	1.417276	0.1641
C(8)	-0.507807	0.182433	-2.783525	0.0082
R-squared	0.274677	Mean dependent var		0.112415
Adjusted R-squared	0.147746	S.D. dependent var		0.253233
S.E. of regression	0.233778	Akaike info criterion		0.082125
Sum squared resid	2.186092	Schwarz criterion		0.393992
Log likelihood	6.029005	Hannan-Quinn criter.		0.199980
F-statistic	2.163980	Durbin-Watson stat		2.098400
Prob(F-statistic)	0.058514			

Residual Diagnostics Tests

Table A25. Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.291647	Prob. F(2,38)	0.7487
Obs*R-squared	0.725654	Prob. Chi-Square(2)	0.6957

Test Equation:

Dependent Variable: RESID

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.004124	0.042275	0.097554	0.9228
C(2)	0.210095	0.317206	0.662329	0.5118
C(3)	-0.007381	0.107251	-0.068816	0.9455
C(4)	0.024229	0.143848	0.168436	0.8671
C(5)	-0.015722	0.102710	-0.153067	0.8792
C(6)	-0.042401	0.140237	-0.302353	0.7640
C(7)	-0.010899	0.117794	-0.092524	0.9268
C(8)	0.053786	0.199585	0.269487	0.7890
RESID(-1)	-0.263336	0.347266	-0.758311	0.4529
RESID(-2)	-0.026242	0.165578	-0.158485	0.8749
R-squared	0.015118	Mean dependent var		4.34E-18
Adjusted R-squared	-0.218144	S.D. dependent var		0.215668
S.E. of regression	0.238032	Akaike info criterion		0.150225
Sum squared resid	2.153043	Schwarz criterion		0.540058
Log likelihood	6.394602	Hannan-Quinn criter.		0.297544
F-statistic	0.064810	Durbin-Watson stat		1.897038
Prob(F-statistic)	0.999918			

Table A26. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.126837	Prob. F(9,38)	0.3684
Obs*R-squared	10.11172	Prob. Chi-Square(9)	0.3415
Scaled explained SS	27.66517	Prob. Chi-Square(9)	0.0011

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Included observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.146319	0.128687	1.137019	0.2626
LMAN(-1)	-0.052869	0.088464	-0.597632	0.5536
LCAPEXP(-1)	0.077162	0.063820	1.209046	0.2341
LRECEXP(-1)	-0.024824	0.077176	-0.321650	0.7495
LMAN(-2)	0.029041	0.084062	0.345477	0.7316
LCAPEXP(-2)	-0.055630	0.065152	-0.853850	0.3985
LRECEXP(-2)	8.49E-05	0.077265	0.001099	0.9991
POLREG	0.121878	0.070283	1.734102	0.0910
OPECM	0.131824	0.083754	1.573941	0.1238
DEMOC	-0.109933	0.124818	-0.880741	0.3840
R-squared	0.210661	Mean dependent var		0.045544
Adjusted R-squared	0.023712	S.D. dependent var		0.129196
S.E. of regression	0.127655	Akaike info criterion		-1.095917
Sum squared resid	0.619241	Schwarz criterion		-0.706084
Log likelihood	36.30202	Hannan-Quinn criter.		-0.948599
F-statistic	1.126837	Durbin-Watson stat		2.508856
Prob(F-statistic)	0.368373			

**Table A27. VAR Lag Order Selection Criteria for the Reduced Form Model
Containing Four Variables**

Endogenous variables: LMAN LCAPEXP
Exogenous variables: POLREG OPECM

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-176.4951	NA	8.775533	7.847612	8.006624	7.907179
1	-17.03152	291.1943*	0.010188	1.088327	1.406352*	1.207461*
2	-12.78076	7.392627	0.010099	1.077424	1.554461	1.256125
3	-7.217332	9.191750	0.009474*	1.009449*	1.645498	1.247717
4	-4.058690	4.943960	0.009896	1.046030	1.841091	1.343865

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

**Table A28. Cointegration Tests for the Reduced Form Model
Containing Four Variables**

Trend assumption: Linear deterministic trend
Series: LMAN LCAPEXP
Exogenous series: POLREG OPECM
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.231215	13.36825	15.49471	0.1020
At most 1	0.015441	0.746928	3.841466	0.3874

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.231215	12.62132	14.26460	0.0894
At most 1	0.015441	0.746928	3.841466	0.3874

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table A29. VAR Lag Order Selection Criteria for the Reduced Form Model Containing Three Variables

Endogenous variables: LMAN LCAPEXP
 Exogenous variables: POLREG

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-230.2473	NA	83.25999	10.09771	10.17721	10.12749
1	-19.45633	394.0875*	0.010373	1.106797	1.345315*	1.196147*
2	-14.70880	8.462981	0.010055	1.074296	1.471827	1.223213
3	-10.48036	7.169977	0.009985*	1.064363*	1.620906	1.272848
4	-8.147330	3.753128	0.010795	1.136840	1.852396	1.404892

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Table A30. Cointegration Tests for the Reduced Form Model Containing Four Variables

Trend assumption: Linear deterministic trend
 Series: LMAN LCAPEXP
 Exogenous series: POLREG
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.087247	5.214043	15.49471	0.7857
At most 1	0.017186	0.832120	3.841466	0.3617

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.087247	4.381923	14.26460	0.8170
At most 1	0.017186	0.832120	3.841466	0.3617

Max-eigenvalue test indicates no cointegration at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Table A31. VAR Lag Order Selection Criteria for the Reduced Form Model Containing Three Variables

Endogenous variables: LMAN LCAPEXP
 Exogenous variables: DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-220.2084	NA	53.81177	9.661233	9.740739	9.691016
1	-21.53204	371.4383*	0.011352*	1.197045*	1.435564*	1.286396*
2	-18.96087	4.583387	0.012096	1.259168	1.656699	1.408086
3	-16.93467	3.435736	0.013220	1.344986	1.901529	1.553470
4	-13.26840	5.897919	0.013487	1.359495	2.075051	1.627547

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Table A32. Cointegration Tests for the Reduced Form Model Containing Three Variables

Trend assumption: Linear deterministic trend
 Series: LMAN LCAPEXP
 Exogenous series: DEMOC
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.080819	4.405301	15.49471	0.8682
At most 1	0.007477	0.360222	3.841466	0.5484

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.080819	4.045078	14.26460	0.8546
At most 1	0.007477	0.360222	3.841466	0.5484

Max-eigenvalue test indicates no cointegration at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

**Section B. VEC estimates and Diagnostic Tests for the Models
where Agriculture is the Dependent Variable**

**Table B1 VAR Lag Order Selection Criteria for the Specified Model
Containing Eight Variables**

Endogenous variables: LAGRIC LOIL LCAPEXP LRECEXP LMAN

Exogenous variables: POLREG OPECM DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-210.5561	NA	0.012504	9.806785	10.40308	10.03016
1	18.78080	378.9044*	1.76e-06*	0.922574*	2.512697*	1.518244*
2	35.26842	23.65615	2.71e-06	1.292678	3.876627	2.260641
3	64.77944	35.92647	2.57e-06	1.096546	4.674323	2.436802
4	93.60643	28.82698	2.86e-06	0.930155	5.501759	2.642705

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

**Table B2. VAR Estimates for the Specified Model Containing Eight
Variables**

Standard errors in () & t-statistics in []

	LAGRIC	LOIL	LCAPEXP	LRECEXP	LMAN
LAGRIC(-1)	0.431970 (0.14535) [2.97194]	-0.587887 (0.20238) [-2.90490]	0.032774 (0.16896) [0.19397]	0.039466 (0.14102) [0.27987]	-0.214504 (0.11024) [-1.94583]
LOIL(-1)	-0.403046 (0.12140) [-3.31988]	0.239371 (0.16904) [1.41608]	0.139813 (0.14112) [0.99072]	-0.099094 (0.11779) [-0.84131]	-0.266028 (0.09208) [-2.88919]
LCAPEXP(-1)	-0.013369 (0.09467) [-0.14122]	0.003449 (0.13181) [0.02617]	0.687517 (0.11004) [6.24774]	0.078196 (0.09184) [0.85139]	-0.002128 (0.07180) [-0.02964]

LRECEXP(-1)	0.091473 (0.10932) [0.83673]	0.102147 (0.15222) [0.67107]	0.378732 (0.12708) [2.98029]	0.858044 (0.10606) [8.08988]	0.061743 (0.08291) [0.74466]
LMAN(-1)	1.037169 (0.26952) [3.84816]	1.413968 (0.37527) [3.76785]	-0.266535 (0.31330) [-0.85073]	0.155946 (0.26149) [0.59638]	1.457894 (0.20442) [7.13202]
POLREG	0.105162 (0.17380) [0.60506]	-0.144629 (0.24200) [-0.59765]	0.197489 (0.20203) [0.97751]	-0.218500 (0.16862) [-1.29579]	0.165662 (0.13182) [1.25675]
OPECM	0.363815 (0.23722) [1.53368]	0.757134 (0.33029) [2.29233]	0.111687 (0.27575) [0.40503]	0.084223 (0.23015) [0.36595]	0.499823 (0.17991) [2.77813]
DEMOC	-0.067110 (0.29072) [-0.23084]	0.052856 (0.40479) [0.13058]	-0.718498 (0.33794) [-2.12610]	0.427431 (0.28206) [1.51542]	-0.205020 (0.22049) [-0.92983]
R-squared	0.981612	0.982560	0.990621	0.993367	0.988097
Adj. R-squared	0.978472	0.979582	0.989019	0.992235	0.986065
Sum sq. resids	3.327493	6.450849	4.496198	3.132081	1.914041
S.E. equation	0.284883	0.396658	0.331155	0.276391	0.216065
F-statistic	312.6723	329.9788	618.6147	877.1800	486.2271
Log likelihood	-3.632764	-19.85158	-11.00758	-2.149980	9.915798
Akaike AIC	0.474807	1.136799	0.775820	0.414285	-0.078196
Schwarz SC	0.783675	1.445668	1.084688	0.723154	0.230673
Mean dependent	10.20415	9.513874	9.302230	9.707750	8.338647
S.D. dependent	1.941645	2.775930	3.160208	3.136479	1.830340
Determinant resid covariance (dof adj.)		6.71E-07			
Determinant resid covariance		2.75E-07			
Log likelihood		22.46817			
Akaike information criterion		0.715585			
Schwarz criterion		2.259928			

Table B3. VAR STABILITY TESTS

(1) Roots of Characteristic Polynomial

Endogenous variables: LAGRIC LOIL LCAPEXP LRECEXP LMAN

Exogenous variables: POLREG OPECM DEMOC

Lag specification: 1 1

Root	Modulus
0.993597	0.993597
0.907416	0.907416
0.783287	0.783287
0.553839	0.553839
0.436657	0.436657

No root lies outside the unit circle.
VAR satisfies the stability condition.

(2) Figure B1. Inverse Roots of AR Characteristic Polynomial

Inverse Roots of AR Characteristic Polynomial

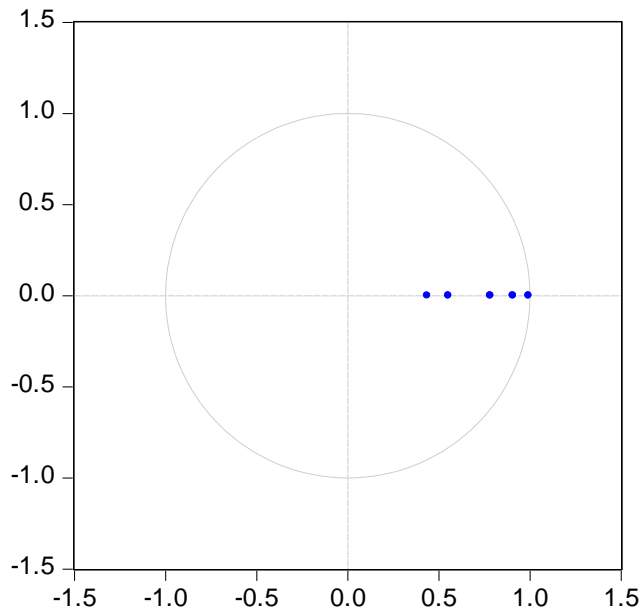


Table B4. VAR Residual Portmanteau Tests for Autocorrelations

Null Hypothesis: no residual autocorrelations up to lag h

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	22.04737	NA*	22.50669	NA*	NA*
2	45.20924	0.0079	46.65417	0.0054	25
3	74.30150	0.0145	77.64375	0.0074	50
4	102.2534	0.0200	108.0802	0.0074	75
5	125.3251	0.0441	133.7738	0.0136	100
6	176.8490	0.0016	192.4871	0.0001	125
7	209.5670	0.0010	230.6580	0.0000	150
8	231.1867	0.0028	256.4962	0.0001	175
9	249.4200	0.0100	278.8320	0.0002	200
10	271.8809	0.0177	307.0522	0.0002	225
11	285.5042	0.0608	324.6190	0.0010	250
12	316.2333	0.0441	365.3143	0.0002	275

*The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

*df and Prob. may not be valid for models with exogenous variables

Table B5. VAR Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h

Lags	LM-Stat	Prob
1	25.77584	0.4196
2	27.36273	0.3380
3	27.99451	0.3081
4	28.05238	0.3054
5	22.64034	0.5986
6	53.03289	0.0009
7	34.81545	0.0916
8	21.14165	0.6847
9	17.14192	0.8766
10	23.86579	0.5271
11	14.57096	0.9508
12	35.56642	0.0784

Probabilities from chi-square with 25 degrees of freedom.

Figure B2. Residual Graphs of the variables in the VAR model

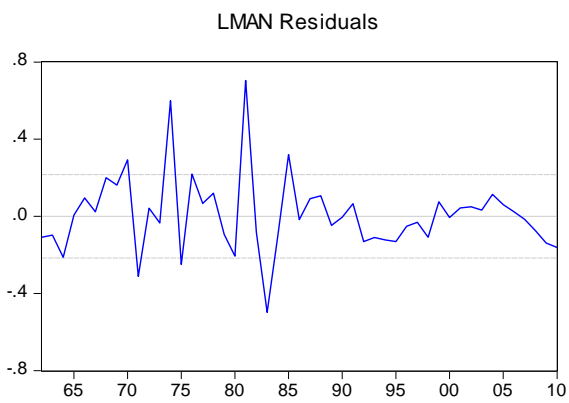
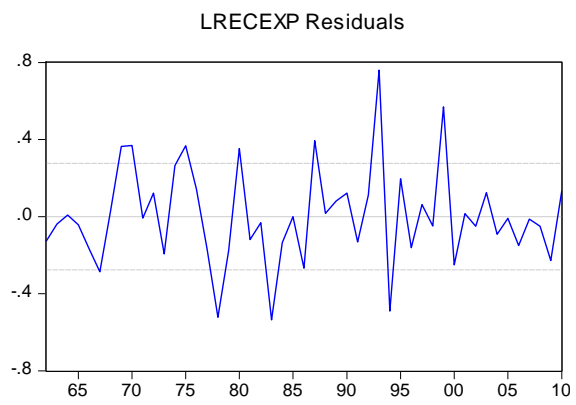
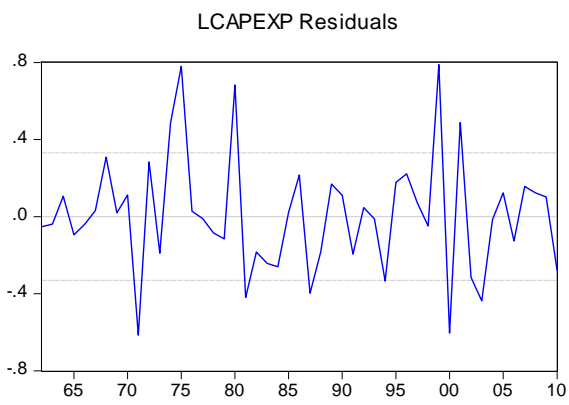
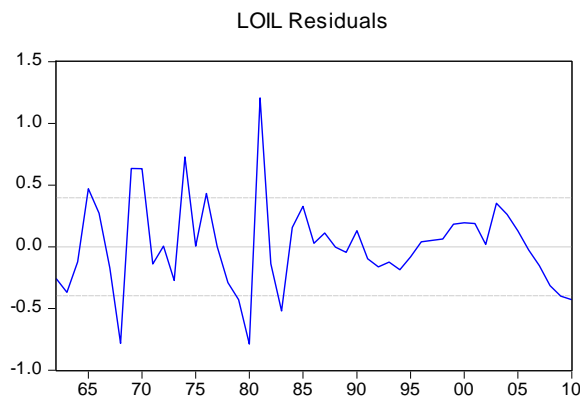
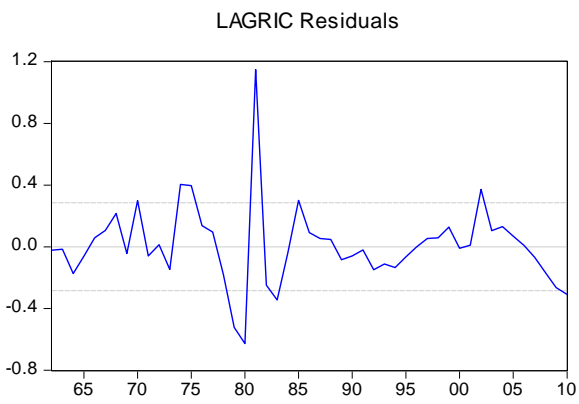


Table B6. Covariance Correlation Matrix for the Residuals of the Economic Variables

	LAGRIC	LOIL	LCAPEXP	LRECEXP	LMAN
LAGRIC	0.081158	0.081814	-0.000905	0.009752	0.045010
LOIL	0.081814	0.157338	-0.012647	0.024343	0.060681
LCAPEXP	-0.000905	-0.012647	0.109663	0.039393	0.003096
LRECEXP	0.009752	0.024343	0.039393	0.076392	0.009007
LMAN	0.045010	0.060681	0.003096	0.009007	0.046684

Source: Created by author based on economic performance data from CBN Statistical Bulletin (2010) using Eviews Statistical Software

Figure B3 Correlograms for Autocorrelations in the Residuals of the Estimated VAR Model

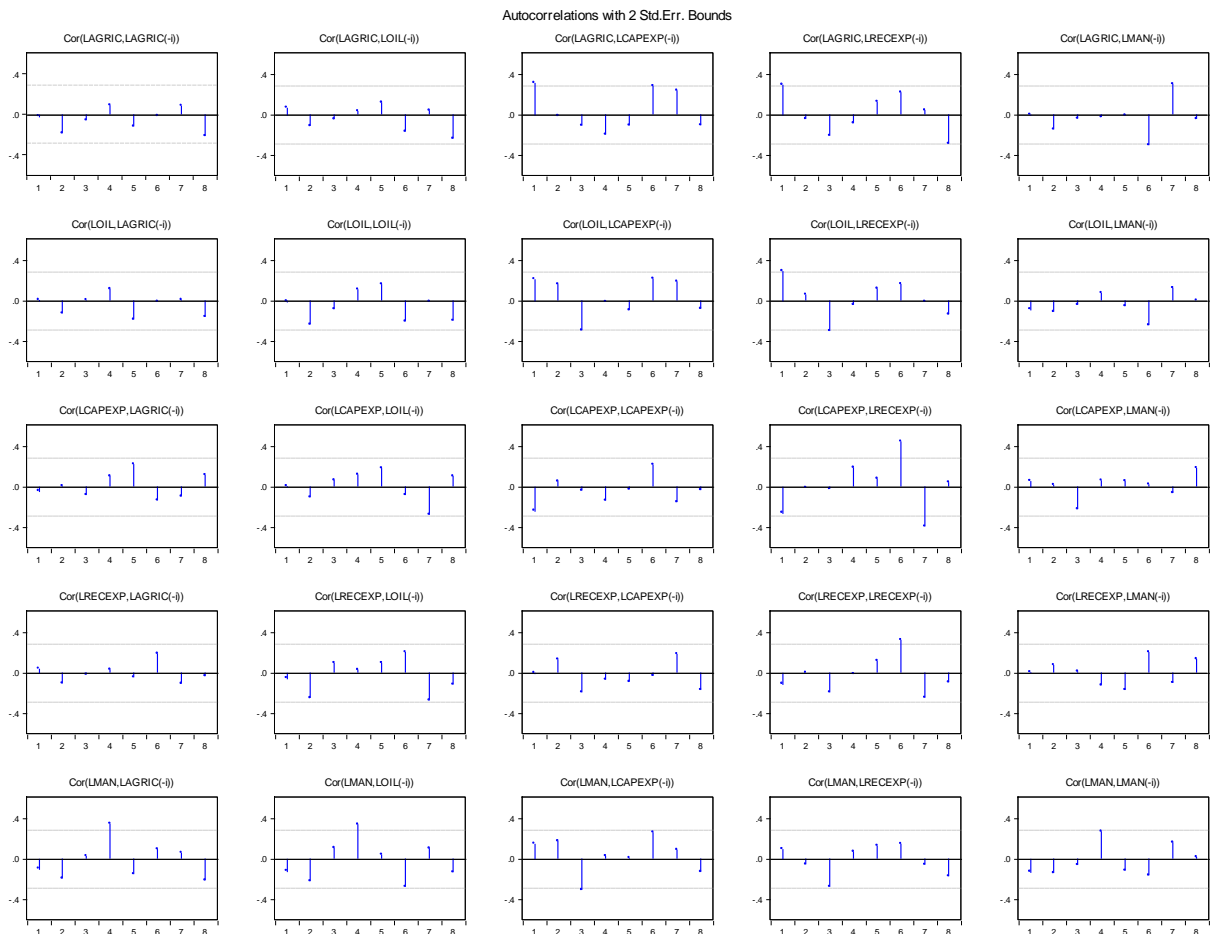


Table B7. Cointegration Tests for the Specified Model Containing Eight Variables

Trend assumption: Linear deterministic trend
 Series: LAGRIC LOIL LCAPEXP LRECEXP LMAN
 Exogenous series: POLREG OPECM DEMOC
 Warning: Critical values assume no exogenous series
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.520030	80.69037	69.81889	0.0053
At most 1	0.348759	45.45689	47.85613	0.0826
At most 2	0.290124	24.87088	29.79707	0.1661
At most 3	0.158849	8.422994	15.49471	0.4213
At most 4	0.002492	0.119747	3.841466	0.7293

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.520030	35.23349	33.87687	0.0343
At most 1	0.348759	20.58601	27.58434	0.3020
At most 2	0.290124	16.44788	21.13162	0.1998
At most 3	0.158849	8.303247	14.26460	0.3487
At most 4	0.002492	0.119747	3.841466	0.7293

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Created by author based on data from CBN Statistical Bulletin (2010) and constructed dummy variables using Eviews Statistical Software

Table B8. VEC Estimates for the Specified Model Containing Eight Variables

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1				
LAGRIC(-1)	1.000000				
LOIL(-1)	-3.363739 (0.85344) [-3.94140]				
LCAPEXP(-1)	1.779968 (0.45852) [3.88195]				
LRECEXP(-1)	-2.464531 (0.47134) [-5.22876]				
LMAN(-1)	4.373811 (1.09150) [4.00715]				
C	-7.327189				
Error Correction:	D(LAGRIC)	D(LOIL)	D(LCAPEXP)	D(LRECEXP)	D(LMAN)
CointEq1	-0.004302 (0.04009) [-0.10731]	0.008187 (0.05914) [0.13843]	-0.139847 (0.04137) [-3.38042]	0.030793 (0.03738) [0.82380]	-0.066791 (0.02894) [-2.30778]
D(LAGRIC(-1))	-0.379812 (0.25096) [-1.51344]	-0.309534 (0.37023) [-0.83605]	-0.252788 (0.25899) [-0.97604]	0.117635 (0.23401) [0.50269]	-0.098333 (0.18119) [-0.54271]
D(LOIL(-1))	-0.146981 (0.20223) [-0.72682]	-0.283304 (0.29834) [-0.94961]	0.022280 (0.20870) [0.10676]	0.093552 (0.18857) [0.49612]	-0.268683 (0.14600) [-1.84025]
D(LCAPEXP(-1))	0.269941 (0.14046) [1.92181]	0.280017 (0.20722) [1.35131]	-0.111545 (0.14496) [-0.76950]	0.062880 (0.13097) [0.48010]	0.151371 (0.10141) [1.49264]
D(LRECEXP(-1))	0.172126 (0.18662) [0.92231]	0.313156 (0.27532) [1.13742]	-0.319946 (0.19260) [-1.66120]	-0.156210 (0.17402) [-0.89766]	-0.033530 (0.13474) [-0.24885]
D(LMAN(-1))	0.759584 (0.33647) [2.25753]	0.865973 (0.49638) [1.74458]	0.298534 (0.34724) [0.85974]	-0.207401 (0.31374) [-0.66106]	0.445306 (0.24292) [1.83311]

C	-0.206543 (0.18876) [-1.09422]	0.090173 (0.27847) [0.32382]	0.561229 (0.19480) [2.88102]	0.219685 (0.17601) [1.24815]	0.155266 (0.13628) [1.13931]
POLREG	0.432160 (0.19701) [2.19360]	0.401388 (0.29064) [1.38104]	0.273875 (0.20332) [1.34703]	-0.187590 (0.18370) [-1.02116]	0.558278 (0.14224) [3.92496]
OPECM	0.174936 (0.19913) [0.87849]	-0.095630 (0.29378) [-0.32552]	-0.271593 (0.20551) [-1.32157]	0.012040 (0.18568) [0.06484]	-0.123399 (0.14377) [-0.85830]
DEMOC	-0.401057 (0.25212) [-1.59071]	-0.491322 (0.37195) [-1.32093]	-0.641450 (0.26020) [-2.46525]	0.271861 (0.23509) [1.15639]	-0.661375 (0.18203) [-3.63333]
R-squared	0.386237	0.299407	0.384880	0.081738	0.395804
Adj. R-squared	0.240872	0.133477	0.239194	-0.135745	0.252704
Sum sq. resids	3.493495	7.603338	3.720774	3.037501	1.821022
S.E. equation	0.303206	0.447312	0.312914	0.282726	0.218910
F-statistic	2.657018	1.804418	2.641846	0.375838	2.765939
Log likelihood	-5.221892	-23.88632	-6.734589	-1.865068	10.41422
Akaike AIC	0.634245	1.411930	0.697275	0.494378	-0.017259
Schwarz SC	1.024079	1.801764	1.087108	0.884211	0.372574
Mean dependent	0.110092	0.174006	0.198673	0.213764	0.112415
S.D. dependent	0.348001	0.480530	0.358747	0.265293	0.253233
Determinant resid covariance (dof adj.)		7.73E-07			
Determinant resid covariance		2.40E-07			
Log likelihood		25.24852			
Akaike information criterion		1.239645			
Schwarz criterion		3.383729			

Diagnostic Tests

Table B9. VEC Residual Portmanteau Tests for Autocorrelations

Null Hypothesis: no residual autocorrelations up to lag h

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	6.796564	NA*	6.941172	NA*	NA*
2	25.94972	0.9898	26.92707	0.9850	45
3	52.52506	0.9411	55.27410	0.9009	70
4	76.64355	0.9161	81.58519	0.8350	95
5	99.27215	0.9162	106.8450	0.7992	120
6	133.1710	0.7502	145.5866	0.4707	145
7	170.8380	0.4675	189.6846	0.1435	170
8	190.8538	0.5705	213.7034	0.1706	195
9	211.0637	0.6554	238.5772	0.1858	220
10	225.2059	0.8130	256.4411	0.2949	245
11	238.4368	0.9171	273.6054	0.4273	270
12	264.7392	0.8968	308.6753	0.2803	295

*The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

*df and Prob. may not be valid for models with exogenous variables

Table B10. VEC Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h

Lags	LM-Stat	Prob
1	26.13501	0.4004
2	18.89275	0.8022
3	26.07756	0.4035
4	22.40211	0.6124
5	21.70872	0.6525
6	33.66911	0.1152
7	44.06552	0.0107
8	26.38459	0.3873
9	20.51235	0.7195
10	15.30387	0.9340
11	14.92409	0.9431
12	27.85334	0.3146

Probabilities from chi-square with 25 degrees of freedom.

Table B11. Estimated Model where Agriculture is the Dependent

Variable

Dependent Variable: D(LAGRIC)

Method: Least Squares

$$D(LAGRIC) = C(1) * (LAGRIC(-1) - 3.36373942901 * LOIL(-1) + 1.779967698 * LCAPEXP(-1) - 2.46453054445 * LRECEXP(-1) + 4.37381072328 * LMAN(-1) - 7.32718937015) + C(2) * D(LAGRIC(-1)) + C(3) * D(LOIL(-1)) + C(4) * D(LCAPEXP(-1)) + C(5) * D(LRECEXP(-1)) + C(6) * D(LMAN(-1)) + C(7) + C(8) * POLREG + C(9) * OPECM + C(10) * DEMOC$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.004302	0.040086	-0.107306	0.9151
C(2)	-0.379812	0.250960	-1.513437	0.1384
C(3)	-0.146981	0.202226	-0.726817	0.4718
C(4)	0.269941	0.140462	1.921811	0.0622
C(5)	0.172126	0.186624	0.922315	0.3622
C(6)	0.759584	0.336467	2.257529	0.0298
C(7)	-0.206543	0.188759	-1.094218	0.2807
C(8)	0.432160	0.197010	2.193597	0.0345
C(9)	0.174936	0.199133	0.878490	0.3852
C(10)	-0.401057	0.252124	-1.590711	0.1200
R-squared	0.386237	Mean dependent var		0.110092
Adjusted R-squared	0.240872	S.D. dependent var		0.348001
S.E. of regression	0.303206	Akaike info criterion		0.634245
Sum squared resid	3.493495	Schwarz criterion		1.024079
Log likelihood	-5.221892	Hannan-Quinn criter.		0.781564
F-statistic	2.657018	Durbin-Watson stat		2.214855
Prob(F-statistic)	0.017003			

Diagnostic Tests

Table B12. Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.128964	Prob. F(2,36)	0.3345
Obs*R-squared	2.832892	Prob. Chi-Square(2)	0.2426

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.001153	0.040053	-0.028776	0.9772
C(2)	0.316495	0.333471	0.949091	0.3489
C(3)	-0.043706	0.204063	-0.214181	0.8316
C(4)	-0.028288	0.141796	-0.199500	0.8430
C(5)	0.072205	0.192107	0.375858	0.7092
C(6)	-0.019385	0.338558	-0.057257	0.9547
C(7)	0.025574	0.188900	0.135382	0.8931
C(8)	-0.114389	0.210602	-0.543155	0.5904
C(9)	-0.048770	0.202762	-0.240526	0.8113
C(10)	0.098801	0.259803	0.380293	0.7060
RESID(-1)	-0.395033	0.295118	-1.338560	0.1891
RESID(-2)	-0.146629	0.178211	-0.822781	0.4160
R-squared	0.059019	Mean dependent var		6.64E-17
Adjusted R-squared	-0.228504	S.D. dependent var		0.272635
S.E. of regression	0.302183	Akaike info criterion		0.656747
Sum squared resid	3.287314	Schwarz criterion		1.124547
Log likelihood	-3.761926	Hannan-Quinn criter.		0.833529
F-statistic	0.205266	Durbin-Watson stat		1.944812
Prob(F-statistic)	0.996151			

Table B13. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	4.885503	Prob. F(13,34)	0.0001
Obs*R-squared	31.26352	Prob. Chi-Square(13)	0.0031
Scaled explained SS	102.6581	Prob. Chi-Square(13)	0.0000

Test Equation:
 Dependent Variable: RESID^2
 Method: Least Squares
 Included observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.095353	0.355251	3.083319	0.0040
LAGRIC(-1)	-0.497139	0.149299	-3.329823	0.0021
LOIL(-1)	-0.066245	0.116931	-0.566527	0.5748
LCAPEXP(-1)	0.114634	0.089962	1.274258	0.2112
LRECEXP(-1)	0.121704	0.106053	1.147578	0.2592
LMAN(-1)	0.232776	0.201463	1.155428	0.2560
LAGRIC(-2)	-0.160898	0.162339	-0.991123	0.3286
LOIL(-2)	0.017106	0.116431	0.146919	0.8841
LCAPEXP(-2)	-0.185121	0.089393	-2.070879	0.0460
LRECEXP(-2)	-0.012615	0.106856	-0.118057	0.9067
LMAN(-2)	0.461430	0.252075	1.830525	0.0759
POLREG	0.333475	0.126148	2.643515	0.0123
OPECM	-0.165052	0.201042	-0.820980	0.4174
DEMOC	-0.093484	0.183805	-0.508603	0.6143
R-squared	0.651323	Mean dependent var		0.072781
Adjusted R-squared	0.518006	S.D. dependent var		0.238090
S.E. of regression	0.165296	Akaike info criterion		-0.523668
Sum squared resid	0.928972	Schwarz criterion		0.022099
Log likelihood	26.56803	Hannan-Quinn criter.		-0.317422
F-statistic	4.885503	Durbin-Watson stat		2.533360
Prob(F-statistic)	0.000098			

Table B14. VAR Lag Order Selection Criteria for the Reduced Form Model Containing Seven Variables

Endogenous variables: LAGRIC LCAPEXP LRECEXP LMAN

Exogenous variables: POLREG OPECM DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-191.2681	NA	0.081023	8.837744	9.314781	9.016445
1	6.663944	335.6239*	3.00e-05*	0.927655*	2.040741*	1.344623*
2	20.18572	20.57661	3.44e-05	1.035404	2.784539	1.690640
3	33.03368	17.31682	4.19e-05	1.172449	3.557633	2.065953
4	44.65998	13.64827	5.66e-05	1.362610	4.383843	2.494382

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table B15. Cointegration Tests for the Reduced Form Model Containing Seven Variables

Trend assumption: Linear deterministic trend

Series: LAGRIC LCAPEXP LRECEXP LMAN

Exogenous series: POLREG OPECM DEMOC

Warning: Critical values assume no exogenous series

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.415993	53.07673	47.85613	0.0149
At most 1	0.323328	27.26033	29.79707	0.0954
At most 2	0.159275	8.513056	15.49471	0.4123
At most 3	0.003858	0.185525	3.841466	0.6667

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.415993	25.81640	27.58434	0.0827
At most 1	0.323328	18.74727	21.13162	0.1044
At most 2	0.159275	8.327530	14.26460	0.3464
At most 3	0.003858	0.185525	3.841466	0.6667

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table B16. VEC Estimates for the Reduced Form Model Containing Seven Variables

Vector Error Correction Estimates
Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1			
LAGRIC(-1)	1.000000			
LCAPEXP(-1)	0.549845 (0.20966) [2.62250]			
LRECEXP(-1)	-0.984944 (0.22341) [-4.40876]			
LMAN(-1)	-0.314243 (0.17520) [-1.79361]			
C	-3.155361			
Error Correction:	D(LAGRIC)	D(LCAPEXP)	D(LRECEXP)	D(LMAN)
CointEq1	-0.051495 (0.09209) [-0.55916]	-0.286018 (0.10290) [-2.77955]	0.034269 (0.08612) [0.39792]	-0.178978 (0.06519) [-2.74551]
D(LAGRIC(-1))	-0.410652 (0.23719) [-1.73130]	0.028774 (0.26503) [0.10857]	0.147556 (0.22181) [0.66524]	-0.082610 (0.16790) [-0.49202]
D(LCAPEXP(-1))	0.286322 (0.13626) [2.10126]	-0.240922 (0.15225) [-1.58240]	0.068205 (0.12742) [0.53527]	0.134530 (0.09645) [1.39477]

D(LRECEXP(-1))	0.119876 (0.17863) [0.67110]	-0.190147 (0.19959) [-0.95271]	-0.174318 (0.16704) [-1.04357]	-0.059779 (0.12644) [-0.47278]
D(LMAN(-1))	0.560176 (0.32709) [1.71259]	0.018302 (0.36547) [0.05008]	-0.105669 (0.30588) [-0.34546]	0.009112 (0.23153) [0.03935]
C	-0.250175 (0.12667) [-1.97499]	0.203305 (0.14154) [1.43643]	0.323383 (0.11846) [2.73000]	-0.079493 (0.08966) [-0.88655]
POLREG	0.454612 (0.15823) [2.87311]	-0.105864 (0.17680) [-0.59879]	-0.110851 (0.14797) [-0.74917]	0.430814 (0.11200) [3.84644]
OPECM	0.234288 (0.13614) [1.72097]	0.224814 (0.15211) [1.47795]	-0.110098 (0.12731) [-0.86482]	0.185955 (0.09637) [1.92969]
DEMOC	-0.428367 (0.19629) [-2.18230]	-0.277101 (0.21932) [-1.26343]	0.166794 (0.18356) [0.90867]	-0.526296 (0.13895) [-3.78779]
R-squared	0.381221	0.273069	0.068904	0.414477
Adj. R-squared	0.254292	0.123955	-0.122090	0.294369
Sum sq. resids	3.522047	4.397107	3.079956	1.764742
S.E. equation	0.300514	0.335777	0.281022	0.212720
F-statistic	3.003419	1.831277	0.360765	3.450884
Log likelihood	-5.417241	-10.74295	-2.198191	11.16766
Akaike AIC	0.600718	0.822623	0.466591	-0.090319
Schwarz SC	0.951569	1.173473	0.817441	0.260531
Mean dependent	0.110092	0.198673	0.213764	0.112415
S.D. dependent	0.348001	0.358747	0.265293	0.253233
Determinant resid covariance (dof adj.)		1.29E-05		
Determinant resid covariance		5.61E-06		
Log likelihood		17.74030		
Akaike information criterion		0.927487		
Schwarz criterion		2.486822		

Diagnostic Tests

Table B17. VEC Residual Portmanteau Tests for Autocorrelations

Null Hypothesis: no residual autocorrelations up to lag h

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	2.866100	NA*	2.927081	NA*	NA*
2	12.12537	0.9960	12.58893	0.9946	28
3	28.61116	0.9649	30.17377	0.9443	44
4	46.61022	0.8971	49.80911	0.8231	60
5	59.62465	0.9166	64.33684	0.8275	76
6	85.23746	0.6779	93.60863	0.4337	92
7	110.9735	0.4029	123.7386	0.1428	108
8	125.8477	0.4368	141.5877	0.1335	124
9	139.2607	0.5018	158.0959	0.1406	140
10	152.2267	0.5705	174.4740	0.1481	156
11	162.5926	0.6846	187.9218	0.1924	172
12	175.0351	0.7422	204.5118	0.1944	188

*The test is valid only for lags larger than the VAR lag order.

df is degrees of freedom for (approximate) chi-square distribution

*df and Prob. may not be valid for models with exogenous variables

Table B18. VEC Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h

Lags	LM-Stat	Prob
1	14.30940	0.5757
2	9.075281	0.9103
3	16.34918	0.4289
4	16.71883	0.4040
5	12.83397	0.6849
6	26.19697	0.0513
7	28.73302	0.0258
8	15.85599	0.4631
9	13.30431	0.6504
10	13.83753	0.6108
11	11.65915	0.7671
12	12.82229	0.6857

Probabilities from chi-square with 16 degrees of freedom.

Table B19. Dependent Variable: D(LAGRIC)

$$D(LAGRIC) = C(1)*(LAGRIC(-1) + 0.549844849117*LCAPEXP(-1) - 0.984944408279*LRECEXP(-1) - 0.31424253801*LMAN(-1) - 3.15536075609) + C(2)*D(LAGRIC(-1)) + C(3)*D(LCAPEXP(-1)) + C(4)*D(LRECEXP(-1)) + C(5)*D(LMAN(-1)) + C(6) + C(7)*POLREG + C(8)*OPECM + C(9)*DEMOC$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.051495	0.092094	-0.559158	0.5793
C(2)	-0.410652	0.237193	-1.731296	0.0913
C(3)	0.286322	0.136262	2.101263	0.0421
C(4)	0.119876	0.178625	0.671100	0.5061
C(5)	0.560176	0.327092	1.712595	0.0947
C(6)	-0.250175	0.126672	-1.974988	0.0554
C(7)	0.454612	0.158230	2.873114	0.0065
C(8)	0.234288	0.136137	1.720967	0.0932
C(9)	-0.428367	0.196292	-2.182301	0.0352
R-squared	0.381221	Mean dependent var		0.110092
Adjusted R-squared	0.254292	S.D. dependent var		0.348001
S.E. of regression	0.300514	Akaike info criterion		0.600718
Sum squared resid	3.522047	Schwarz criterion		0.951569
Log likelihood	-5.417241	Hannan-Quinn criter.		0.733305
F-statistic	3.003419	Durbin-Watson stat		2.172938
Prob(F-statistic)	0.010059			

Diagnostic Tests

Table B20. Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.737782	Prob. F(2,37)	0.4851
Obs*R-squared	1.840832	Prob. Chi-Square(2)	0.3984

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Included observations: 48

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.037719	0.097784	0.385740	0.7019
C(2)	0.218605	0.306008	0.714376	0.4795
C(3)	-0.029100	0.139471	-0.208646	0.8359
C(4)	0.085682	0.193227	0.443426	0.6600
C(5)	0.001609	0.334948	0.004805	0.9962
C(6)	0.010788	0.127861	0.084373	0.9332
C(7)	-0.100947	0.179766	-0.561546	0.5778
C(8)	-0.045260	0.143891	-0.314545	0.7549
C(9)	0.117954	0.220772	0.534282	0.5963
RESID(-1)	-0.352329	0.312407	-1.127788	0.2667
RESID(-2)	-0.097495	0.178657	-0.545709	0.5885
R-squared	0.038351	Mean dependent var		-1.31E-16
Adjusted R-squared	-0.221555	S.D. dependent var		0.273747
S.E. of regression	0.302556	Akaike info criterion		0.644946
Sum squared resid	3.386974	Schwarz criterion		1.073763
Log likelihood	-4.478711	Hannan-Quinn criter.		0.806997
F-statistic	0.147556	Durbin-Watson stat		1.934482
Prob(F-statistic)	0.998593			

Table B21. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	6.405539	Prob. F(11,36)	0.0000
Obs*R-squared	31.76869	Prob. Chi-Square(11)	0.0008
Scaled explained SS	116.2527	Prob. Chi-Square(11)	0.0000

Test Equation:

Dependent Variable: RESID²

Method: Least Squares

Included observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.190026	0.299734	3.970270	0.0003
LAGRIC(-1)	-0.532184	0.130774	-4.069496	0.0002
LCAPEXP(-1)	0.136086	0.084995	1.601102	0.1181
LRECEXP(-1)	0.110042	0.101206	1.087309	0.2841
LMAN(-1)	0.157696	0.178367	0.884113	0.3825
LAGRIC(-2)	-0.139819	0.146918	-0.951680	0.3476
LCAPEXP(-2)	-0.222182	0.084322	-2.634909	0.0123
LRECEXP(-2)	0.012295	0.102589	0.119849	0.9053
LMAN(-2)	0.491737	0.211203	2.328271	0.0256
POLREG	0.404394	0.090378	4.474490	0.0001
OPECM	-0.216441	0.141730	-1.527140	0.1355
DEMOC	-0.145159	0.162546	-0.893030	0.3778
R-squared	0.661848	Mean dependent var		0.073376
Adjusted R-squared	0.558523	S.D. dependent var		0.246899
S.E. of regression	0.164049	Akaike info criterion		-0.564988
Sum squared resid	0.968832	Schwarz criterion		-0.097188
Log likelihood	25.55972	Hannan-Quinn criter.		-0.388206
F-statistic	6.405539	Durbin-Watson stat		2.568672
Prob(F-statistic)	0.000009			

Table B22. VAR Lag Order Selection Criteria for the Reduced Form Model Containing Six Variables

Endogenous variables: LAGRIC LCAPEXP LRECEXP

Exogenous variables: POLREG OPECM DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-195.1289	NA	1.436333	8.875168	9.232946	9.009194
1	-22.16117	300.8134*	0.001156*	1.746138*	2.461693*	2.014189*
2	-15.66936	10.44335	0.001303	1.855189	2.928522	2.257266
3	-11.59363	6.024979	0.001649	2.069288	3.500399	2.605391
4	-4.452620	9.624846	0.001856	2.150114	3.939002	2.820242

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table B23. VAR Estimates for the Reduced Form Model Containing Six Variables

Standard errors in () & t-statistics in []

	LAGRIC	LCAPEXP	LRECEXP
LAGRIC(-1)	0.922388 (0.05242) [17.5956]	-0.071121 (0.05281) [-1.34682]	0.089691 (0.04394) [2.04124]
LCAPEXP(-1)	0.028006 (0.09108) [0.30749]	0.701901 (0.09175) [7.65007]	0.057842 (0.07634) [0.75765]
LRECEXP(-1)	0.041635 (0.11675) [0.35662]	0.373583 (0.11761) [3.17655]	0.869625 (0.09786) [8.88656]
POLREG	0.445375 (0.15223) [2.92568]	0.071445 (0.15335) [0.46590]	-0.126327 (0.12760) [-0.99004]
OPECM	0.250537 (0.19827) [1.26363]	0.223428 (0.19972) [1.11869]	-0.020585 (0.16619) [-0.12387]

DEMOC	-0.598356 (0.28755) [-2.08087]	-0.553203 (0.28966) [-1.90982]	0.316990 (0.24102) [1.31518]
R-squared	0.974925	0.990395	0.993249
Adj. R-squared	0.972009	0.989278	0.992464
Sum sq. resids	4.537574	4.604457	3.187950
S.E. equation	0.324846	0.327231	0.272284
F-statistic	334.3696	886.7494	1265.235
Log likelihood	-11.23201	-11.59050	-2.583152
Akaike AIC	0.703347	0.717979	0.350333
Schwarz SC	0.934999	0.949631	0.581984
Mean dependent	10.20415	9.302230	9.707750
S.D. dependent	1.941645	3.160208	3.136479
Determinant resid covariance (dof adj.)		0.000668	
Determinant resid covariance		0.000452	
Log likelihood		-19.86808	
Akaike information criterion		1.545636	
Schwarz criterion		2.240590	

Table B24. Cointegration Tests for the Reduced Form Model Containing Six Variables

Trend assumption: Linear deterministic trend
Series: LAGRIC LCAPEXP LRECEXP
Exogenous series: POLREG OPECM DEMOC
Warning: Critical values assume no exogenous series
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.344712	23.65811	29.79707	0.2153
At most 1	0.064364	3.369487	15.49471	0.9476
At most 2	0.003662	0.176118	3.841466	0.6747

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.344712	20.28862	21.13162	0.0653
At most 1	0.064364	3.193369	14.26460	0.9330
At most 2	0.003662	0.176118	3.841466	0.6747

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

**Table B25. VAR Lag Order Selection Criteria for the Reduced Form Model
Containing Five Variables**

Endogenous variables: LAGRIC LCAPEXP LRECEXP

Exogenous variables: POLREG OPECM

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-222.1984	NA	4.088603	9.921670	10.16019	10.01102
1	-29.69875	343.1516*	0.001405*	1.943424*	2.539720*	2.166800*
2	-22.92619	11.18944	0.001561	2.040269	2.994343	2.397671
3	-18.72507	6.393016	0.001957	2.248916	3.560767	2.740343
4	-11.42569	10.15566	0.002174	2.322856	3.992485	2.948309

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table B26. VAR Estimates for the Reduced Form Model Containing Five Variables

Standard errors in () & t-statistics in []

	LAGRIC	LCAPEXP	LRECEXP
LAGRIC(-1)	1.011643 (0.03126) [32.3664]	0.011399 (0.03126) [0.36468]	0.042407 (0.02547) [1.66505]
LCAPEXP(-1)	0.075304 (0.09148) [0.82320]	0.745630 (0.09148) [8.15057]	0.032786 (0.07454) [0.43984]
LRECEXP(-1)	-0.114131 (0.09292) [-1.22826]	0.229571 (0.09293) [2.47046]	0.952145 (0.07572) [12.5752]
POLREG	0.242314 (0.12118) [1.99965]	-0.116292 (0.12118) [-0.95963]	-0.018752 (0.09874) [-0.18991]
OPECM	0.344307 (0.20025) [1.71937]	0.310122 (0.20026) [1.54858]	-0.070262 (0.16317) [-0.43060]
R-squared	0.972400	0.989580	0.992977
Adj. R-squared	0.969891	0.988633	0.992339
Sum sq. resid	4.994498	4.995022	3.316187
S.E. equation	0.336914	0.336932	0.274532
F-statistic	387.5490	1044.669	1555.317
Log likelihood	-13.58265	-13.58522	-3.549375
Akaike AIC	0.758475	0.758580	0.348954
Schwarz SC	0.951518	0.951623	0.541997
Mean dependent	10.20415	9.302230	9.707750
S.D. dependent	1.941645	3.160208	3.136479
Determinant resid covariance (dof adj.)		0.000863	
Determinant resid covariance		0.000625	
Log likelihood		-27.81840	
Akaike information criterion		1.747690	
Schwarz criterion		2.326818	

**Table B27. Cointegration Tests for the Reduced Form Model
Containing Five Variables**

Trend assumption: Linear deterministic trend
 Series: LAGRIC LCAPEXP LRECEXP
 Exogenous series: POLREG OPECM
 Warning: Critical values assume no exogenous series
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.207610	20.02662	29.79707	0.4211
At most 1	0.167666	8.856936	15.49471	0.3788
At most 2	0.000998	0.047927	3.841466	0.8267

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.207610	11.16968	21.13162	0.6303
At most 1	0.167666	8.809009	14.26460	0.3024
At most 2	0.000998	0.047927	3.841466	0.8267

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

**Table B28. VAR Lag Order Selection Criteria for the Reduced Form Model
Containing Three Variables**

Endogenous variables: LAGRIC LCAPEXP

Exogenous variables: POLREG

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-239.8979	NA	126.6670	10.51730	10.59681	10.54709
1	-34.28603	384.4049*	0.019766	1.751566	1.990085*	1.840917*
2	-29.45615	8.609780	0.019091*	1.715485*	2.113015	1.864402
3	-27.29012	3.672834	0.020738	1.795223	2.351766	2.003707
4	-24.67493	4.207039	0.022146	1.855432	2.570987	2.123483

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table B29. VAR Estimates for the Reduced Form Model Containing Three Variables

Standard errors in () & t-statistics in []

	LAGRIC	LCAPEXP
LAGRIC(-1)	0.992998 (0.02899) [34.2584]	0.044047 (0.02976) [1.47990]
LCAPEXP(-1)	0.012798 (0.03204) [0.39947]	0.978509 (0.03290) [29.7442]
POLREG	0.123167 (0.11026) [1.11707]	-0.160035 (0.11322) [-1.41351]
R-squared	0.969240	0.987756
Adj. R-squared	0.967902	0.987224
Sum sq. resids	5.566361	5.869237
S.E. equation	0.347862	0.357200
F-statistic	724.7172	1855.532
Log likelihood	-16.23856	-17.53664
Akaike AIC	0.785247	0.838230
Schwarz SC	0.901073	0.954056
Mean dependent	10.20415	9.302230
S.D. dependent	1.941645	3.160208
Determinant resid covariance (dof adj.)		0.015440
Determinant resid covariance		0.013607
Log likelihood		-33.77506
Akaike information criterion		1.623472
Schwarz criterion		1.855123

Table B30. Cointegration Tests for the Reduced Form Model Containing Three Variables

Trend assumption: Linear deterministic trend
 Series: LAGRIC LCAPEXP
 Exogenous series: POLREG
 Warning: Critical values assume no exogenous series
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.069397	3.640782	15.49471	0.9304
At most 1	0.003920	0.188510	3.841466	0.6642

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.069397	3.452272	14.26460	0.9121
At most 1	0.003920	0.188510	3.841466	0.6642

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table B31. VAR Lag Order Selection Criteria for the Reduced Form Model Containing Three Variables

Endogenous variables: LAGRIC LCAPEXP
 Exogenous variables: DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-234.0326	NA	98.15484	10.26229	10.34179	10.29207
1	-34.35395	373.3122*	0.019824*	1.754520*	1.993038*	1.843870*
2	-31.82271	4.512221	0.021160	1.818379	2.215909	1.967296
3	-28.73435	5.236774	0.022082	1.858015	2.414558	2.066500
4	-25.93662	4.500696	0.023395	1.910288	2.625843	2.178339

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table B32. VAR Estiamtes for the Reduced Form Model Containing Three Variables

Standard errors in () & t-statistics in []

	LAGRIC	LCAPEXP
LAGRIC(-1)	0.961342 (0.03587) [26.7980]	0.027190 (0.03728) [0.72938]
LCAPEXP(-1)	0.058592 (0.04184) [1.40055]	0.995559 (0.04347) [22.9008]
DEMOC	-0.206290 (0.16972) [-1.21546]	-0.184668 (0.17637) [-1.04707]
R-squared	0.969388	0.987522
Adj. R-squared	0.968057	0.986979
Sum sq. resids	5.539455	5.981601
S.E. equation	0.347020	0.360603
F-statistic	728.3490	1820.244
Log likelihood	-16.11985	-18.00125
Akaike AIC	0.780402	0.857194
Schwarz SC	0.896228	0.973020
Mean dependent	10.20415	9.302230
S.D. dependent	1.941645	3.160208
Determinant resid covariance (dof adj.)		0.015595
Determinant resid covariance		0.013744
Log likelihood		-34.02005
Akaike information criterion		1.633471
Schwarz criterion		1.865123

Table B33. Cointegration Tests for the Reduced Form Model Containing Three Variables

Trend assumption: Linear deterministic trend
 Series: LAGRIC LCAPEXP
 Exogenous series: DEMOC
 Warning: Critical values assume no exogenous series
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.100032	5.140852	15.49471	0.7937
At most 1	0.001703	0.081816	3.841466	0.7748

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.100032	5.059036	14.26460	0.7344
At most 1	0.001703	0.081816	3.841466	0.7748

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table B34. VAR Lag Order Selection Criteria for the Reduced Form Model Containing Three Variables

Endogenous variables: LAGRIC LCAPEXP
 Exogenous variables: OPECM

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-197.8080	NA	20.31913	8.687303	8.766809	8.717087
1	-33.66268	306.8803*	0.019237*	1.724464*	1.962983*	1.813815*
2	-30.78888	5.122871	0.020230	1.773429	2.170960	1.922347
3	-26.85477	6.670876	0.020350	1.776294	2.332837	1.984779
4	-23.21537	5.854681	0.020784	1.791973	2.507528	2.060024

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

**Table B35. VAR Estimates for the Reduced Form Model Containing
Three Variables**

Vector Autoregression Estimates
Standard errors in () & t-statistics in []

	LAGRIC	LCAPEXP
LAGRIC(-1)	0.986348 (0.02865) [34.4240]	0.048556 (0.02910) [1.66847]
LCAPEXP(-1)	0.007506 (0.03396) [0.22101]	0.938179 (0.03449) [27.1975]
OPECM	0.198011 (0.18179) [1.08923]	0.319622 (0.18464) [1.73107]
R-squared	0.969200	0.988006
Adj. R-squared	0.967861	0.987484
Sum sq. resids	5.573607	5.749615
S.E. equation	0.348088	0.353542
F-statistic	723.7451	1894.616
Log likelihood	-16.27043	-17.03215
Akaike AIC	0.786548	0.817639
Schwarz SC	0.902374	0.933464
Mean dependent	10.20415	9.302230
S.D. dependent	1.941645	3.160208
Determinant resid covariance (dof adj.)		0.015052
Determinant resid covariance		0.013266
Log likelihood		-33.15271
Akaike information criterion		1.598070
Schwarz criterion		1.829721

Table B36. Cointegration Tests for the Reduced Form Model Containing Three Variables

Trend assumption: Linear deterministic trend
 Series: LAGRIC LCAPEXP
 Exogenous series: OPECM
 Warning: Critical values assume no exogenous series
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.129348	9.001917	15.49471	0.3652
At most 1	0.047844	2.353269	3.841466	0.1250

Trace test indicates no cointegration at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.129348	6.648648	14.26460	0.5315
At most 1	0.047844	2.353269	3.841466	0.1250

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**Section C. VEC estimates and Diagnostic Tests for the Models
where Oil is the Dependent Variable**

**Table C1 VAR Lag Order Selection Criteria for the Specified Model
Containing Eight Variables**

Endogenous variables: LOIL LCAPEXP LRECEXP LMAN LAGRIC

Exogenous variables: POLREG OPECM DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-210.5561	NA	0.012504	9.806785	10.40308	10.03016
1	18.78080	378.9044*	1.76e-06*	0.922574*	2.512697*	1.518244*
2	35.26842	23.65615	2.71e-06	1.292678	3.876627	2.260641
3	64.77944	35.92647	2.57e-06	1.096546	4.674323	2.436802
4	93.60643	28.82698	2.86e-06	0.930155	5.501759	2.642705

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

**Table C2. Cointegration Tests for the reduced form Model
Containing Three Variables**

Trend assumption: Linear deterministic trend

Series: LOIL LCAPEXP LRECEXP LMAN LAGRIC

Exogenous series: POLREG OPECM DEMOC

Warning: Critical values assume no exogenous series

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.520030	80.69037	69.81889	0.0053
At most 1	0.348759	45.45689	47.85613	0.0826
At most 2	0.290124	24.87088	29.79707	0.1661
At most 3	0.158849	8.422994	15.49471	0.4213
At most 4	0.002492	0.119747	3.841466	0.7293

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.520030	35.23349	33.87687	0.0343
At most 1	0.348759	20.58601	27.58434	0.3020
At most 2	0.290124	16.44788	21.13162	0.1998
At most 3	0.158849	8.303247	14.26460	0.3487
At most 4	0.002492	0.119747	3.841466	0.7293

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table C3. VEC Estimates for Oil Model

Vector Error Correction Estimates

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1				
LOIL(-1)	1.000000				
LCAPEXP(-1)	-0.529163 (0.13547) [-3.90611]				
LRECEXP(-1)	0.732676 (0.15895) [4.60945]				
LMAN(-1)	-1.300282 (0.29615) [-4.39059]				
LAGRIC(-1)	-0.297288 (0.29401) [-1.01114]				
C	2.178287				
Error Correction:	D(LOIL)	D(LCAPEXP)	D(LRECEXP)	D(LMAN)	D(LAGRIC)
CointEq1	-0.027538 0.470410 -0.103579 0.224668 0.014469 (0.19893) (0.13916) (0.12573) (0.09735) (0.13484) [-0.13843] [3.38042] [-0.82380] [2.30778] [0.10731]				
D(LOIL(-1))	-0.283304 0.022280 0.093552 -0.268683 -0.146981 (0.29834) (0.20870) (0.18857) (0.14600) (0.20223) [-0.94961] [0.10676] [0.49612] [-1.84025] [-0.72682]				
D(LCAPEXP(-1))	0.280017 -0.111545 0.062880 0.151371 0.269941 (0.20722) (0.14496) (0.13097) (0.10141) (0.14046)				

	[1.35131]	[-0.76950]	[0.48010]	[1.49264]	[1.92181]
D(LRECEXP(-1))	0.313156 (0.27532) [1.13742]	-0.319946 (0.19260) [-1.66120]	-0.156210 (0.17402) [-0.89766]	-0.033530 (0.13474) [-0.24885]	0.172126 (0.18662) [0.92231]
D(LMAN(-1))	0.865973 (0.49638) [1.74458]	0.298534 (0.34724) [0.85974]	-0.207401 (0.31374) [-0.66106]	0.445306 (0.24292) [1.83311]	0.759584 (0.33647) [2.25753]
D(LAGRIC(-1))	-0.309534 (0.37023) [-0.83605]	-0.252788 (0.25899) [-0.97604]	0.117635 (0.23401) [0.50269]	-0.098333 (0.18119) [-0.54271]	-0.379812 (0.25096) [-1.51344]
C	0.090173 (0.27847) [0.32382]	0.561229 (0.19480) [2.88102]	0.219685 (0.17601) [1.24815]	0.155266 (0.13628) [1.13931]	-0.206543 (0.18876) [-1.09422]
POLREG	0.401388 (0.29064) [1.38104]	0.273875 (0.20332) [1.34703]	-0.187590 (0.18370) [-1.02116]	0.558278 (0.14224) [3.92496]	0.432160 (0.19701) [2.19360]
OPECM	-0.095630 (0.29378) [-0.32552]	-0.271593 (0.20551) [-1.32157]	0.012040 (0.18568) [0.06484]	-0.123399 (0.14377) [-0.85830]	0.174936 (0.19913) [0.87849]
DEMOC	-0.491322 (0.37195) [-1.32093]	-0.641450 (0.26020) [-2.46525]	0.271861 (0.23509) [1.15639]	-0.661375 (0.18203) [-3.63333]	-0.401057 (0.25212) [-1.59071]
R-squared	0.299407	0.384880	0.081738	0.395804	0.386237
Adj. R-squared	0.133477	0.239194	-0.135745	0.252704	0.240872
Sum sq. resids	7.603338	3.720774	3.037501	1.821022	3.493495
S.E. equation	0.447312	0.312914	0.282726	0.218910	0.303206
F-statistic	1.804418	2.641846	0.375838	2.765939	2.657018
Log likelihood	-23.88632	-6.734589	-1.865068	10.41422	-5.221892
Akaike AIC	1.411930	0.697275	0.494378	-0.017259	0.634245
Schwarz SC	1.801764	1.087108	0.884211	0.372574	1.024079
Mean dependent	0.174006	0.198673	0.213764	0.112415	0.110092
S.D. dependent	0.480530	0.358747	0.265293	0.253233	0.348001
Determinant resid covariance (dof adj.)		7.73E-07			
Determinant resid covariance		2.40E-07			
Log likelihood		25.24852			
Akaike information criterion		1.239645			
Schwarz criterion		3.383729			

Table C4. Dependent Variable: D(Oil)

$$\begin{aligned}
 D(\text{LOIL}) = & C(1) * (\text{LOIL}(-1) - 0.529163371766 * \text{LCAPEXP}(-1) + \\
 & 0.732675820008 * \text{LRECEXP}(-1) - 1.3002822649 * \text{LMAN}(-1) - \\
 & 0.297288188073 * \text{LAGRIC}(-1) + 2.17828685152) + C(2) * D(\text{LOIL}(-1)) + \\
 & C(3) * D(\text{LCAPEXP}(-1)) + C(4) * D(\text{LRECEXP}(-1)) + C(5) * D(\text{LMAN}(-1)) + \\
 & C(6) * D(\text{LAGRIC}(-1)) + C(7) + C(8) * \text{POLREG} + C(9) * \text{OPECM} + C(10) \\
 & * \text{DEMO}
 \end{aligned}$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.027538	0.198926	-0.138434	0.8906
C(2)	-0.283304	0.298338	-0.949607	0.3483
C(3)	0.280017	0.207219	1.351306	0.1846
C(4)	0.313156	0.275321	1.137419	0.2625
C(5)	0.865973	0.496380	1.744576	0.0891
C(6)	-0.309534	0.370234	-0.836050	0.4084
C(7)	0.090173	0.278471	0.323815	0.7479
C(8)	0.401388	0.290643	1.381035	0.1753
C(9)	-0.095630	0.293775	-0.325520	0.7466
C(10)	-0.491322	0.371952	-1.320928	0.1944
R-squared	0.299407	Mean dependent var		0.174006
Adjusted R-squared	0.133477	S.D. dependent var		0.480530
S.E. of regression	0.447312	Akaike info criterion		1.411930
Sum squared resid	7.603338	Schwarz criterion		1.801764
Log likelihood	-23.88632	Hannan-Quinn criter.		1.559249
F-statistic	1.804418	Durbin-Watson stat		2.359450
Prob(F-statistic)	0.099441			

Residual Diagnostic Tests

Table C5. Breusch-Godfrey Serial Correlation LM Test

F-statistic	4.993803	Prob. F(2,36)	0.0122
Obs*R-squared	10.42466	Prob. Chi-Square(2)	0.0054

Test Equation:
Dependent Variable: RESID

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.066037	0.183279	0.360310	0.7207
C(2)	0.877087	0.402960	2.176612	0.0361
C(3)	0.036809	0.191359	0.192358	0.8485
C(4)	0.099433	0.255127	0.389738	0.6990
C(5)	0.115364	0.458511	0.251607	0.8028
C(6)	-0.249047	0.360522	-0.690795	0.4941
C(7)	-0.241831	0.267506	-0.904022	0.3720
C(8)	-0.191983	0.271220	-0.707850	0.4836
C(9)	0.089937	0.269145	0.334158	0.7402
C(10)	0.274135	0.351618	0.779639	0.4407
RESID(-1)	-1.069206	0.344866	-3.100349	0.0037
RESID(-2)	-0.111903	0.164231	-0.681377	0.5000
R-squared	0.217180	Mean dependent var		8.43E-17
Adjusted R-squared	-0.022014	S.D. dependent var		0.402210
S.E. of regression	0.406613	Akaike info criterion		1.250410
Sum squared resid	5.952042	Schwarz criterion		1.718211
Log likelihood	-18.00985	Hannan-Quinn criter.		1.427193
F-statistic	0.907964	Durbin-Watson stat		1.841316
Prob(F-statistic)	0.542615			

Table C6. VAR Lag Order Selection Criteria

Endogenous Variables: LOIL LCAPEXP LRECEXP LMAN

Exogenous Variables: POLREG OPECM DEMOC

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-206.1738	NA	0.154904	9.485818	9.962855	9.664519
1	-3.101516	344.3400*	4.59e-05*	1.352240*	2.465326*	1.769209*
2	4.162751	11.05432	6.90e-05	1.732054	3.481190	2.387291
3	19.17423	20.23286	7.65e-05	1.775034	4.160218	2.668538
4	34.06322	17.47839	8.98e-05	1.823338	4.844572	2.955110

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table C7. Cointegration Tests

Trend assumption: Linear deterministic trend

Series: LOIL LCAPEXP LRECEXP LMAN

Exogenous series: POLREG OPECM DEMOC

Warning: Critical values assume no exogenous series

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.506374	53.95161	47.85613	0.0120
At most 1	0.236540	20.06467	29.79707	0.4185
At most 2	0.134692	7.109722	15.49471	0.5649
At most 3	0.003443	0.165554	3.841466	0.6841

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.506374	33.88694	27.58434	0.0068
At most 1	0.236540	12.95495	21.13162	0.4564
At most 2	0.134692	6.944168	14.26460	0.4958
At most 3	0.003443	0.165554	3.841466	0.6841

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table C8. Vector Error Correction Estimates

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1			
LOIL(-1)	1.000000			
LCAPEXP(-1)	-0.456214 (0.10869) [-4.19723]			
LRECEXP(-1)	0.601205 (0.11536) [5.21177]			
LMAN(-1)	-1.510059 (0.08804) [-17.1526]			
C	1.490428			
Error Correction:	D(LOIL)	D(LCAPEXP)	D(LRECEXP)	D(LMAN)
CointEq1	-0.124384 (0.22093) [-0.56300]	0.592264 (0.15679) [3.77753]	-0.160095 (0.13895) [-1.15220]	0.208626 (0.11229) [1.85794]
D(LOIL(-1))	-0.321923 (0.26712) [-1.20518]	-0.156490 (0.18956) [-0.82553]	0.171135 (0.16799) [1.01870]	-0.301134 (0.13576) [-2.21808]
D(LCAPEXP(-1))	0.281314 (0.20567) [1.36779]	-0.086596 (0.14596) [-0.59331]	0.054854 (0.12935) [0.42408]	0.159651 (0.10453) [1.52728]
D(LRECEXP(-1))	0.350713 (0.27251) [1.28697]	-0.321827 (0.19339) [-1.66414]	-0.148006 (0.17139) [-0.86358]	-0.011343 (0.13850) [-0.08190]
D(LMAN(-1))	0.598979 (0.48238) [1.24173]	0.336133 (0.34232) [0.98192]	-0.205191 (0.30337) [-0.67636]	0.412657 (0.24517) [1.68315]
C	0.062808 (0.26360) [0.23827]	0.684824 (0.18707) [3.66082]	0.157009 (0.16578) [0.94707]	0.148165 (0.13398) [1.10590]
POLREG	0.292694 (0.30225) [0.96840]	0.348569 (0.21449) [1.62510]	-0.225114 (0.19009) [-1.18427]	0.530713 (0.15362) [3.45478]

OPECM	-0.060321 (0.28246) [-0.21355]	-0.413091 (0.20045) [-2.06078]	0.081198 (0.17765) [0.45708]	-0.118699 (0.14356) [-0.82681]
DEMOC	-0.355435 (0.39347) [-0.90333]	-0.795870 (0.27923) [-2.85023]	0.343522 (0.24746) [1.38819]	-0.637565 (0.19998) [-3.18810]
R-squared	0.291972	0.360243	0.081195	0.341415
Adj. R-squared	0.146735	0.229011	-0.107278	0.206321
Sum sq. resids	7.684032	3.869805	3.039298	1.984946
S.E. equation	0.443877	0.315001	0.279161	0.225602
F-statistic	2.010317	2.745078	0.430805	2.527236
Log likelihood	-24.13969	-7.677122	-1.879266	8.345570
Akaike AIC	1.380820	0.694880	0.453303	0.027268
Schwarz SC	1.731671	1.045730	0.804153	0.378118
Mean dependent	0.174006	0.198673	0.213764	0.112415
S.D. dependent	0.480530	0.358747	0.265293	0.253233
Determinant resid covariance (dof adj.)		2.31E-05		
Determinant resid covariance		1.01E-05		
Log likelihood		3.704678		
Akaike information criterion		1.512305		
Schwarz criterion		3.071639		

Table C9. Dependent Variable: D(LOIL)

$$D(\text{LOIL}) = C(1) * (\text{LOIL}(-1) - 0.456214259785 * \text{LCAPEXP}(-1) + 0.601204873889 * \text{LRECEXP}(-1) - 1.51005909561 * \text{LMAN}(-1) + 1.49042750569) + C(2) * D(\text{LOIL}(-1)) + C(3) * D(\text{LCAPEXP}(-1)) + C(4) * D(\text{LRECEXP}(-1)) + C(5) * D(\text{LMAN}(-1)) + C(6) + C(7) * \text{POLREG} + C(8) * \text{OPECM} + C(9) * \text{DEMOC}$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.124384	0.220931	-0.563001	0.5767
C(2)	-0.321923	0.267117	-1.205175	0.2354
C(3)	0.281314	0.205670	1.367792	0.1792
C(4)	0.350713	0.272510	1.286974	0.2057
C(5)	0.598979	0.482376	1.241726	0.2218
C(6)	0.062808	0.263603	0.238266	0.8129
C(7)	0.292694	0.302245	0.968400	0.3388
C(8)	-0.060321	0.282464	-0.213552	0.8320
C(9)	-0.355435	0.393471	-0.903331	0.3719
R-squared	0.291972	Mean dependent var		0.174006
Adjusted R-squared	0.146735	S.D. dependent var		0.480530
S.E. of regression	0.443877	Akaike info criterion		1.380820
Sum squared resid	7.684032	Schwarz criterion		1.731671
Log likelihood	-24.13969	Hannan-Quinn criter.		1.513407
F-statistic	2.010317	Durbin-Watson stat		2.254897
Prob(F-statistic)	0.070740			

Table C10. Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.758102	Prob. F(2,37)	0.0765
Obs*R-squared	6.227691	Prob. Chi-Square(2)	0.0444

Test Equation:

Dependent Variable: RESID

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.178600	0.224855	0.794288	0.4321
C(2)	0.514674	0.350219	1.469580	0.1501
C(3)	0.137796	0.206395	0.667631	0.5085
C(4)	-0.030726	0.262858	-0.116893	0.9076
C(5)	0.146733	0.466268	0.314696	0.7548
C(6)	-0.068848	0.254546	-0.270474	0.7883
C(7)	-0.023623	0.289660	-0.081553	0.9354
C(8)	-0.071699	0.272605	-0.263013	0.7940
C(9)	0.032437	0.377865	0.085842	0.9321
RESID(-1)	-0.810920	0.360964	-2.246536	0.0307
RESID(-2)	-0.147847	0.164554	-0.898469	0.3747
R-squared	0.129744	Mean dependent var		5.20E-17
Adjusted R-squared	-0.105461	S.D. dependent var		0.404339
S.E. of regression	0.425126	Akaike info criterion		1.325186
Sum squared resid	6.687078	Schwarz criterion		1.754003
Log likelihood	-20.80447	Hannan-Quinn criter.		1.487237
F-statistic	0.551620	Durbin-Watson stat		1.912238
Prob(F-statistic)	0.841581			