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**OVERDEPENDENCE OF NIGERIAN ECONOMY ON CRUDE
OIL, THE IMPLICATIONS AND THE SOLUTIONS.**

Master's thesis

MBA

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ABSTRACT

Crude oil price is characterised with much volatility and unfortunately, have some severe effects on many macroeconomic variables. Few of the economic variables are gross domestic product, inflation, economic growth, interest rate, exchange rates, unemployment level and money supply. This thesis conducted an investigation on how crude oil shock affects the above-mentioned economic variables. An empirical analysis was adopted in conducting the investigation by using ordinary least square approach to test the annual data such as GDP, inflation rate, crude oil price and government revenue among other variables, all from 1986 to 2016.

The model was observed to be statistically significant, with some of the variables exhibiting the expected results. The study showed that a slight shock in oil price in the world market given the current period brings about a long run effects on the gross domestic product and the economic growth of Nigeria. Similarly, some of the immediate or medium term effects are mostly felt in goods market and money market as oil shock leads to shortage of major foreign currencies in Nigeria which in turn, results in inflation. It was discovered that oil shock leads to unemployment as it affects many businesses. The study also recommended diversification as a tool for government and policy maker to broadened the revenue base of the country using tourism, agriculture, service and technology to safeguard the nation from further devastating effects of oil shock and enhance a path to everlasting prosperity.

Keywords: Resource-based growth, comparative advantage, new institutional economics, OLS, crude oil, GDP, Nigeria.

INTRODUCTION

Nigeria is the biggest country among the 54 African nations, with arguably the most extensive economy also in the continent. However, the nation runs a mono-economy which has hindered the country progress both in terms of economic growth and development. Nigeria, a nation with a population of close to 200 million people, it is often surprising to see that the government focuses so much on crude oil, despite the availability of many other resources such as Coal, Iron Ore, Lead/Zinc, Gold, Cocoa, Timber, Limestone, Uranium, Soda Ash & Tintomite, etc. (National Bureau of Statistic).

Nigeria is located on a land area of 923, 768 km² in which land comprises 910, 768 km² and water accounts for 13, 000 km². Talking of comparison, the space occupied by Nigeria is slightly more than twice the size of the state of California in the United States of America and almost twice that of Georgia (The World Fact Book, CIA). Despite the fertility of the land in the country, the agricultural activities in the country are far below what is needed to take care of the country's population. Consequently, the Nigerian state is left with the option of importing almost everything that is consumed in the country. Surprisingly, the country was doing so well before the discovery of crude oil, with agriculture as the most significant sector of the economy and a significant source of revenue for the government.

With continuous, unpredictable downfall of oil prices and being a major source of government's foreign earning, the call for economic diversification has been long overdue. Food production and raw material are the topics of discussion among some concerned citizens and experts, with the major argument that Nigeria should at least, be able to feed herself from local food production rather than importing rice, grains, sugar, etc. from abroad. Local food production would also ease the daily demand of foreign currency required to import food items from abroad and thereby reducing the huge and unsustainable pressure on the local currency.

Tourism, among other things such as fishing, mining etc. are other available means through which government can diversify the economy that this paper will look at and see how it could be

considered as one great source of economic diversification like many other countries where tourism contributes significant amount to government revenue and GDP, such as Kenya, Egypt, Spain, etc.

The importance of economic diversification has been a topic of discussion for many decades, most importantly among many mono -economies, and oil-producing states. While many questions have been raised, not many papers have been able to carefully discuss the ways out of mono-economy in Nigeria in particular. While there are abundant resources in Nigeria, the focus of government has always been on oil crude oil revenue. It is, therefore, crucial to analyse these other resources.

Similarly, many journals, articles, and research papers have been written on agriculture, but not many have addressed the issues with developing agriculture sector and establish comparisons on how many other countries have achieved success in becoming self-sufficient in foods and other agriculture produce. This paper, however, tries to dig further on these issues and also proposes possible solutions on how the problems in the agriculture sector and other sectors could be tackled while they also contribute significantly to the Nigerian economy. The major aim of this thesis is investigate the impacts of oil shock on Nigerian economic growth and further impacts of oil revenue, a function of oil price on the economy as a whole.

The research questions set out to be answered by this papers are as follows:

How significant is crude oil revenue to Nigerian Economy?

What are the effects of oil price falls on the Economy?

How can Nigerian economy be diversified to ensure all sectors of the economy contribute significantly, by making efficient use of many available resources in the country?

The research hypothesis is formalised as follows:

H0: oil price is significant to Nigerian economy.

H1: oil price is not significant to Nigerian economy.

This paper is structured into three parts, the first chapter focus on the background study of Nigeria economy. The second chapter discusses the lessons to be learned from those countries who used to run, more or less, mono-economies and have successfully diversified their economies and how they did it. In the same chapter, the alternative resources in Nigeria were analysed with their

potential contributions to the whole economy. While the third chapter focuses on the research methods adopted, analysis and the conclusions.

1. THEORETICAL BACKGROUND

In attempts to understand the effects of how dependent Nigerian economy and perhaps, the economic growth jointly are on crude oil price, it is vital to also rely on much previously researched works too with respects to the available opportunities to switch away from such dependence while taking the advantages of the available resources. Many economic theories, policies and their applications have embarked upon in many developed countries, and many are still found in this practice. Some of these economic theories such as comparative advantage, new institutions economics and resource base growth are revisited in the following sub-chapters.

1.1. New institutional economics

New Institutional Economics is very multidisciplinary and broad; it revolves around many disciplines such as economics, history, sociology, political science, law, business organisation, and anthropology. These various fields of study are therefore used to establish an in-depth understanding of socio-political institutions and commercial life. Despite taking adopting multidisciplinary fields of studies, its focuses are predominantly on the economy. As explained by Peter Klein, the primary objective of new institutional economics is to define what institutions stand for, how they are formed, what are their purposes, what brings changes into institutions, and how institutions should be restructured wherever and whenever such need arises. (Peter G. Klein, 1988).

In the past, “Institutional Economics” often referred to the writings of Thorstein Veblen, Wesley C. Mitchell, John R. Commons, Clarence Ayres, and their followers. Despite being a diverse group of different individual, their work shows many similar themes, and particularly, criticizing the traditional economics: (1) attention to collective actions against individual; (2) the acceptance of an “evolutionary” over the mechanistic approach to the economy; and (3) more elaboration on empirical observation over deductive reasoning(Peter G. Klein, 1988).

New Institutional Economics was a term originated by Oliver Williamson (1975).

New institutional economics emerged and began to develop through a self-conscious movement back in the 1970s. Its origin could be traced to Coase's analysis of the firm in 1937, Hayek's writings on knowledge, and Chandler's history of industrial enterprise in 1962, as well as Simon's contributions in 1947, Arrow's contributions in 1963, among many others such as Davis and North in 1971, Alchian and Demsetz in 1972, Williamson during 1971, 1975, and 1985, Macneil in 1978, Holmström in 1979, and many others. (Peter G. Klein, 1988).

While Coase's core idea or question of interest was more about transaction costs that he considered to be pervasive and determine organisational structure, North, on the other hand, considered state as a firm with claims on a monopoly of force which in turn dictates the legal rule. According to North, what makes the difference between the firms and states is just the monopolistic nature of environment states and firms exist as he considered states as being like other human organisation except that the states have a defector and of course, are political in nature. (John Nye Mercatus Center Professor of Economics). The market is not costless, despite market forces being everywhere, market does not exist everywhere which leads firms to arrive at either make or buy decision.

Institutions are defined as the sets of constraints that are devised by human to shape their actions (North 1990, 3). Institution, therefore, conceptualise new institutional economics to be more pragmatic in its practical and social approach. In the words of Coase, "Modern institutional economics should study man as he is acting within the constraints imposed by real institutions" (Coase 1984, 231).

According to Dani Rodrik, developing world needs to be more concerned with getting institutions right, rather than focusing on getting the price right. It should, therefore, be noted that market efficiency may not be attained if the rules governing economic activities or the market are not consistent and are not legitimate. Reforms in governance are now characterised by joke and lack of commitment, just the same way words such as privatisation, liberalisation, and stabilisation were used in the 80s (Dani Rodrik, 2011).

The real question then is; what sort of reforms should the stakeholders pursue? Listing the responsibilities of good institutions is slightly easier than stating what the good institutions should look like, Institutions should be sound enough to provide property rights, security of property rights, establish contracts, enhance entrepreneurship, promote economic integration, guarantee

macroeconomic stability. Good institutions should also ensure adequate management of risk-taking by financial intermediaries, provide social insurance and safety nets, and establish voice and accountability. The several institutional forms in the modern society suggest (Richard Freeman 2000; Peter Hall, David Soskice, 2001), there could be several ways with which each of these ends mentioned above could be achieved (Dani Rodrik, 2011).

In addition, due to more specific situations in the developing nations, with tougher challenges that are different from those of developed nations with less institutional constraints. These challenges may also require different institutions that are entirely different from those of developed nations. So the prevailing institutions in developed countries may fail woefully in developing nation or vice versa. As argued by Daron Acemoglu, Philippe Aghion, and Fabrizio (2006), developing nation with more significant challenge in enhancing investment rather than innovation, may be distant from the world leading technological nations, but it doesn't mean that such distant nations could be a beneficiary of technological innovations from the world leading technological nations through institutional settings that benefit existing organisation over the entrants due to the rents generated from financing the relative investments.

The success recorded by China was attributed to Chinese adoption of different transitional and heterodox institutions. These institutions generated significant gains while also ensuring due gains for politically powerful institutions, Yingyi Qian (2003). Avinash Dixit (2004), in his view, claimed that self-enforcing governance could be more efficient than formal institutions during the initial stages of economic development. In the view of Simeon Djankov *et al.* (2003), presented institutions as the engine room of both private and public organisations, and that the suitable choice is a subject of an initial societal state.

Nigeria could be seen as perfect of example of a state with weak public institutions, where the will for self-enforcing governance is practically impossible or often comprised. The lack institutional development has seen the country going from bad to worse, with many state corporations such as Nigeria Airways, Skyway Aviation Handling Company Limited (SAHCOL), Nigerian Railway Corporation (NRC), etc. grossly mismanaged and ended up being sold off, moribund or fold up. The Nigeria Airways, perhaps, offers a great example. The Nigeria Airways, which ceased in 2003, used to be one of the best airline operators and the largest airline in Africa as at 1980. With the airline able to carry over 2 million passengers in its entire network in 1982, with significant global market shares of over 200 thousand international passengers. In 1984, there was an increase of

domestic traffic from 1,568,152 to 2,089,510, which represent 80% increase of the previous year. (Femi Ogunleye, WT 040 Nigeria Airways' flight of problems, 217).

During April 1977, Nigeria Airways was operating above 200 flights weekly, operating across Lagos (Nigeria), Abidjan (Ivory Coast), Banjul (Gambia), Freetown (Sierra Leone), Accra (Ghana), etc., in West Africa region. While it also operated in Lagos (Nigeria), Kano (Nigeria), Rome (Italy), and London (United Kingdom) on the Europe route, as well as Lagos (Nigeria), Abidjan (Ivory Coast), Robertsfield (Liberia) and New York (United States) on the American route. By October of the same year, more commercial flights were inaugurated to connect Libreville in Gabon and Kinshasa in Congo. There was a total of 24 airline fleet during this period, comprising eight F.27, seven F.28, two B.727, three B.737, two B.707 and two DC10. (Femi Ogunleye, WT 040 Nigeria Airways' flight of problems, 217).

The failure of the airline was attributed to mismanagement, corruption and overstaffing which led the Nigeria Airways to shut down operation and ceased from existence officially in 2003, with debts of \$60,000,000, lack of proper safety records and with just one aircraft operating in the domestic routes and two leased aircraft in the international network. (Nigerian News Agency report, Eric Teniola, How Nigerian Airways and Other Federal Concerns Were Killed, Premium Times-July 23, 2017).

1.2. Resource-based growth

While Sachs and Warner in mid-1990s were able to present some points about nations with abundant resources being the poorest and that natural resources endowed nations cannot be proven to be automatically wealthy just because of the presence of these natural resources, which they both termed as "resource curse." Their claims have, however, been supported by some data analyses in with many countries being used as examples. In numbers of occasions, there have been established negative correlations between the yardstick for economic performance such as growth rate, human capital and investment, and resource intensity (Van Der Ploeg, 2011).

However, the new dimension of research has shown that though, there may be resource curse as claimed by both Sachs and Warner, it is not to mean that the resource curse cannot be eliminated, thereby digging deep to see what resource base economies could bring to the table in turning the

resource curse to resource blessing. This new dimension of research became interesting to many policymakers in both regional and global institutions such as World Bank who have been much concerned as to why many resource-rich nations like Latin American countries and a number of oil-dependent economies are still less developed (De Ferranti et al., 2002).

While presenting a broader view of how resource curse may become resource blessing, the resource-based economies have seen significant economic development opportunity in having abundant natural resources. Therefore, the resource-based growth presented the Britain the opportunity to switch from an organic – charcoal, animal power to a mineral based energy economy during 18th century to resource-oriented industries such as iron and steel production and engineering due to the high presence of low cost coal and iron ore (Pollard, 1982; Wrigley, 1988; Landes, 2003; Clark, Jacks, 2007).

Nevertheless, implicitly, it was believed that the economic transformation also led to a relative loss of resource industries to be supplanted by services and manufacturing. In the same development, staple theory and vent for surplus views, which focussed on the notion of resource-rich economies progressing via commodity export-oriented development, were more concerned with the initial national development with the efficient use of untapped resources and frontier expansion (Barbier, 2011, 12-13).

With the view of American industrialisation compared to that of Great Britain in the earlier century, Wright (1990) presented another perspective. His notion was that there was a correlation between the economic modernisation of the United States and the expansion of resource of the early 20th century. In the jointly written article by Wright and Paul David, (David and Wright, 1997), they claimed that a nation's abundance resource had nothing to do with the natural climate. America's ability to claim the top position in the production of several minerals during the end of 19th century and early 20th century was not just because of the excellent presence of these minerals, but because the brilliance of the American society to be aware of these minerals' presence and exploit such opportunity, compared to many other nations. (Wright, 1990).

The success recorded by the American society in her resource based economy must be attributed to her urge to establish new knowledge and her ability to carry significant parts of the society and economy along in the development and application of these tremendous and newly created knowledge and technologies. Noticeable links were built between geological expertise and

universities by mining industries. There was also a concerted effort between mining industries and engineering firms in building machinery and technology to foster outputs in the mines. As a result of the new knowledge and technological investments, there were incentives for more revenues from the extraction of lower grade ore. There was commodity markets' efficiency due to the new infrastructural improvement for distributions and transportations of minerals, while there were commendable supports from financial institutions towards large-scale investments required to develop the resource-based industries. (Olav Wicken, Simon Ville, 2012, 5).

There are also joint historical studies, and innovation system approach (Smith, 2007; Fagerberg et al., 2009), involving both Norway and Australia. These studies shared the notion that these two countries were prosperous in the areas of economic growths due to the stability in the resource-based sectors of their respective economies. In support of these joint studies, there are other important articles which presented the same view of Norway's developmental strides as being natural resource-based economy within the context of political institutions (Cappelen, Mjøset, 2009) and geographical perspective (Saether et al., 2011). They also presented further that the critical point of innovation in resource-based sectors is a subject of the cooperativeness and linkages between other parts of the economy.

Smith (2007) presented three principal turning points that were vital to successful resource-based economies: (one) continuous development via knowledge upgrading and strategic investments in resource-based industries (two) developmental progress resulting from leveraging of resource bases into downstream industries, and (three) The establishment of knowledge through knowledge institutions. There is, however, a needed linkage between resources based organisations and other sectors of the economy strategically to create development blocks (Olav Wicken, Simon Ville, 2012)

The concept that economic development is a subject of outstanding connections between sectoral parts of the economy could be traced to Hirschman (1958). He presented in evident manners, the effect backward linkages and he pointed out that there were fewer backward linkages resulting from resource-based industries than manufacturing. Which laid more emphases on why many resource-rich nations are have had little to show for their resources regarding economic development.

Australian development, provided some avenue for Pol et al. (2002) to develop similar connections between segments in the economy that could be used to analyse tendency of resource-based economies. As such, the economy is broken down into two parts, enabling part and recipient part. The enabling part is responsible for the creation of innovative efficiency enhancing products needed to carry out further activities in other parts of the economy while the recipient part represents the buyers of the outputs from the enabling part. To further contextualise this concept, there is a transfer of knowledge, the products from the enabling part, between sectors, which could lead to the creation of innovation in other sectors. (Olav Wicken, Simon Ville, 2012, 5).

From the all the articles mentioned above, it could be established that resource curse may be mitigated to become resource blessings in many oil-rich nations such as Nigeria, who literarily runs a mono-economy. However, to achieve such milestones, there must be concerted efforts between different sectors of the economy. Similarly, there are needed institutions such knowledge infrastructures, financial institutions, and cooperation among all other agents of economic development. Most importantly, knowledge institutions which are required to establish continuous and upgraded knowledge, research and development, innovations as well as financial institutions to support the investments in the development of resource-based industries.

1.3. Comparative advantage

(Findlay, 1987a, 514), as explained by Findlay, the principle of comparative advantage is believed to have proffered some of the best solutions to many economic challenges in the past, and it has since continued to. Similarly, it answered most mathematical challenges in naming proposition within the field of social science without any ambiguity as it has been tested by many and proven to be true (Paul Samuelson 1969, 9). There is a consensus among many authors with regards to the benefits of specialisation about comparative advantage and to establish theories from its sources. According to Ricardian model, comparative advantage is often viewed from the supply dichotomy among nations, with respects to their technological level or nations' factors endowments, according to Heckscher-Ohlin theory. Though there have been practical challenges with Heckscher-Ohlin theory, as it is believed failed to stand the style of trade after the second world war, and having been challenged by new trade theory for the past some decades. Many economics textbooks such as the above mentioned still believe that Heckscher-Ohlin theory is still relevant in the modern days' economy.

The concept of comparative advantage, with respects to factor proportion theory is for countries to take the enormous advantage in focusing on the productions of goods which are in abundant presence in such country. Contrary to classical theory, comparative advantage theory is of the assumption that same technology would be consumed the same goods in all countries, so the level of technological consumption is constant (Heckscher, 1949; Ohlin, 1933). While classical economic theory believed that trade between nations is a subject of the differences that exist between production efficiency which are the results of labour productivity and technological discrepancies (Ricardo, 1981).

According to Investment Data Climate of 2000-2004, while many developing countries which are predominantly, exporters of primary goods have raised their exports of manufacturing goods in the past decades, 60% of their exports in 2002 were manufactured goods. There has also been relative rising in the exports of technology content in many developing nations in Asia, which has led to the emergence of continuous improvement in their regional trading channels (Benn Eifert, Alan Gleb, Vijaya Ramachandran, Business Environment and Comparative Advantage in Africa: Evidence from the Investment Climate Data, 195).

Sadly, Sub-Saharan Africa has not done so well in this direction with respects to economic diversification; except for few African countries such as South Africa and Mauritius, there has been steady improvement in manufacturing and processing capacity. The reason is not farfetched, slow pace of technological progress, slow growth in the development of private sector, low incomes and development outcomes have been the dominant progressive obstacles (Benn Eifert, Alan Gleb, Vijaya Ramachandran, Business Environment and Comparative Advantage in Africa: Evidence from the Investment Climate Data, 195).

There is a cordial relationship between change in structure and development. The pursuit of growth requires the innovation and introduction of fresh, higher value-added activities and outputs, compared to the increased expansion of the existing ones. At the early stages, this may entail the reduction of low-output in the agriculture sector and raise the share of industry accordingly. The total change in industry chains from the kick-off state, down to the point of optimisation, which leads to aggregate growth in the industrial sector. The grasp of the required knowledge vital in economic structure as well as structural change is derived from trade theory. Trade theory is vital to core knowledge of growth (Chenery, Syrquin, 1975).

Keeping capital as a fixed input, in the long run, skill or technical know-how about capital together with the land as resources per capita are proven to be vital in relation with the compositions of exports, when the factors endowment in Africa was put head to head with other regions. There are more exports of manufactured goods in nations with significant technical know-how and land spectrum than countries with fewer skills, with the significant amount of their manufacturers advanced in technology (Wood, Berge, 1997; Wood, Mayer, 2001).

This inability of African nations to breakthrough in the exportation of primarily manufactured goods, despite the abundant presence of many resources also explains why Nigeria is a major importer most finished goods such as petroleum products, despite being an oil exporting country. Similarly, the country is also a major importer of rice despite the having favourable climate. Cocoa is the largest agricultural export in Nigeria, representing second largest export of the country behind petroleum. Nigeria has a high comparative advantage both in cocoa and petroleum, as well as many other solid minerals and agriculture (Nigerian Bureau of Statics, 2013). This because of the abundant presence of several solid minerals (Appendix), more than 8 States of the country are blessed with crude oil and the excellent climate to plant many agriculture produce. Despite land area of 923,768 km², with a population of over 180million (World Bank Data), the country is trailing behind Ivory Coast, Ghana, and Indonesia. While Nigeria could take comparative advantage of the vast land mass and cultivate more land to produce more cocoa as well as other agricultural produce and diversify her economy, thereby enjoy the incentives from revenue agriculture earnings, as stated by Ricardian and Heckscher-Ohlin model, this is not the case.

2. THE NIGERIAN ECONOMY AND ITS REACTIONS TO CHANGES IN OIL PRICES

Oil was discovered in Nigeria in 1956, and its exportation began in 1958, shortly before Nigeria secured independence from her former colonial master. Right after independence, Oil became the dominant factor in terms of revenue generation in Nigeria over 50 years, representing more than 30 percent of Nigerian GDP, more than 90 percent of the export and 80% of government revenue (Ogbonna, Appah, 2012; Charles *et al.* 2009). Interestingly, the country was believed to be doing well before the discovery of crude oil with just cocoa, and other farm produce being the only sources of government revenue. However, less attention was paid to agriculture shortly after the oil was discovered in Nigeria due to the huge gains from oil production.

This over-reliance on crude oil revenue has been the practice among all tiers of government in Nigeria for several years while many other available resources in Nigeria have been so far neglected as well as the potential revenue they can generate. The consequential effect of this overdependence of oil revenue as a major source of earnings for the government has plunged Nigeria into financial crises on quite a few occasion. This paper will briefly look at the relationship between the past few financial crises in Nigeria and oil price shock, in the following chapter. Interestingly, Nigeria was an agrarian economy before the discovery of crude oil. The country was exporting different types of cash crops such as cocoa, coffee, groundnut, oil palm, cassava, maize, cotton, rubber, soya beans, kola nut, cashew, timber, etc. (National Bureau of Statistic).

Despite Nigeria being an amazingly resource-endowed country, also with around 34 various minerals, including gold, iron ore, coal, and limestone. It has about 37.2 billion barrels of proven oil reserves, 187 trillion cubic feet of proven natural gas (African Economic Outlook, 2013). Moreover, Nigeria produced about 2.3 million barrels of oil daily between 2010 and 2015. The 2.3 million productions was however truncated by the operations of the militant group from Niger Delta area of the country known as the Niger Delta Avengers. The Nigerian economy is designed majorly towards the production of two primary products: agricultural products at subsistence level and crude oil. Since 2015 the Nigerian economy has been slowed down due to a fall in oil prices

in 2014 with the GDP falling from over 500 billion dollars in 2014 to about 480 and 405 billion dollars in 2015 and 2016 respectively, representing falls of about continuous 15% in both years (World Bank Data).

Shortly after the discovery of crude oil in Nigeria, crude oil has remained the major source of revenue and foreign earnings for the government. With crude oil revenue representing above 80% of the annual earnings the government (Ogbonna, Appah, 2012; Charles *et al.* 2009), the other sectors have suffered the needed attention from the government as the government continues to focus on oil. Consequently, the needed and expected development has been hindered. The revenue from oil has never been enough to run the affairs government at all levels while other tiers of government, both the state and local governments have become unbelievably dependent on revenue from the sales of crude oil. However, whenever there is a major or even a slight drop in petroleum prices, the entire nation is unimaginably exposed to financial turbulence.

2.1. Historical trends of oil prices shock

With the discovery of crude oil in 1956, followed by its exportation two years later, Nigeria has heavily dependent on crude oil revenue Nigeria rose to the 4th position amongst OPEC producing countries in 2007. Going by many historical occurrences, Nigeria has continuously been prone to oil shocks due to the mono-economy it operates. This is an occurrence that has subjected the country to consistent and severe financial crisis whenever there are fluctuations in the international oil prices, as it depletes government revenues and expenditures. While many developed nations have done pretty well in the real sectors of their economies through income generation from other avenues such as income tax and borrowing from the public, the reverse is the case in Nigeria. Government spending in Nigeria is a factor of oil proceeds. As a result, any instability in crude oil prices in the global market directly affects government budgets as well as budget implementations (Ogbonna, Appah, 2012; Charles *et al.* 2009).

Between 1970 to 2017, there have been a recorded six major adverse oil shocks. 1973 to 1974 recorded oil shock which could be mainly attributed to an embargo placement by OPEC during that period. Barely four later, another oil shock was recorded, the 1978 to 1979 oil shock. This also was due to OPEC's action in reducing Nigeria's production quota in her cartel policy to global production of oil which in turned, which as expected in economics, resulted in increased global oil

prices following by the Iraq and Iran war during the early period of 1980s which also pushed the global oil prices further. The increased global prices of oil were however countered by the increased production of oil by Saudi Arabia during mid-80s. The Iraqi invasion of Kuwait during 1990 and 1991 also recorded another global oil price shock (Aremo *et al.* 2012).

Similar to 1978 and 1979 OPEC's action on Nigeria's oil production, the period of 1999-2000 also experienced OPEC placing some limit to its world production of oil, an action that expectedly led to another global oil price shock. The next was oil price shock that kicked off in 2003 and continuously skyrocketed to reach a historical high of \$137 per barrel in July 2008. However, the resulting decline shortly after that was also historical as global oil prices went down from \$137 per barrel in 2008 to a record low of \$48/pbl in 2009, just a year later with a record decline of about 65%. The last shock in the global price of oil started in June 2014 and ended in 2015 when the price also went to a record low of \$28/pbl. Which according to World Bank, could be attributed to many factors such as many years of rising surprises in the production of unconventional oil; falling global demand; a significant shift in OPEC policy; unwinding of some geopolitical risks; and an appreciation of the U.S. dollar (Aremo *et al.* 2012).

According to a World Bank report, 2014 to 2015 fall in oil price was the third highest within last 30 years after the 1930 great recession, the era during which oil began trading in futures exchanges, and with “perfect storm” as a driven factor of conditions that exerted intense downward pressure on prices. It was also observed that changes in supply and demand expectations contributed to the downfall in oil prices, these contributions were neither peculiar nor unusually large. However, there was an established coincidence with three other major developments: a significant shift in OPEC’s policy objectives, less-than-expected spillovers from geopolitical risks, and a significant appreciation of the U.S. dollar. Empirical estimates further suggest that supply (much more than demand) factors have accounted for the lion’s share of the latest plunge in oil prices.

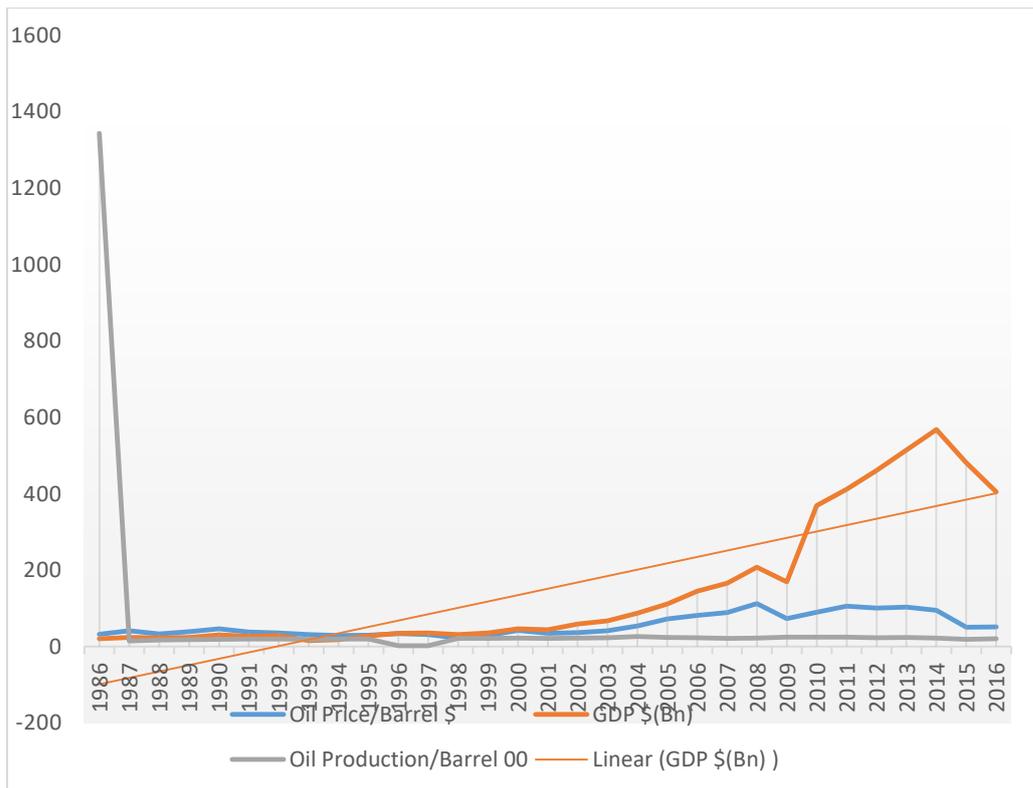


Figure 1. Graphical movements of oil prices(\$), annual production (00) and GDP(\$ Billion) of Nigeria
 Source: WorldBank Data, OPEC, author’s graph

The figure 1 above shows the movement of Nigerian gross domestic product(GDP) between 1986 and 2016. As seen in the graph, the period between 2009 and 2010 witnessed some increase in the price of crude oil, after the enormous financial crises of 2008. The trend continued with a further increase in oil price between 2010 and 2014, with some record high in some months. This continuous increase in crude oil prices during this period also led to a relative increase in the GDP of Nigeria until the end of 2014 when oil price experienced some drops, which equally led to a drastic drop in the GDP of Nigeria in 2015 and 2016. It should be noted that the daily volume of oil production and exports increased significantly between 2010 to 2015 and dropped heavily at the beginning of 2016 (Central Bank of Nigeria report, 2016).

2.2. Historical financial crises in Nigeria from of oil shock

It is general knowledge that fluctuations characterise oil prices as a result of volatile nature of crude oil. These fluctuations are of significant concerns for the economies of many oil producing countries such as Nigeria. Many studies have established the connections between the oil prices

volatility and the macroeconomic variables and how oil price fluctuations grossly affect these economic variables. While the many oil importing economies benefited from oil prices downfall, and the consumers benefit by saving more or spending more others goods due to cheaper petroleum products. On the other hand, the oil exporting countries with their consumers are always at the receiving end of any crash in the oil price.

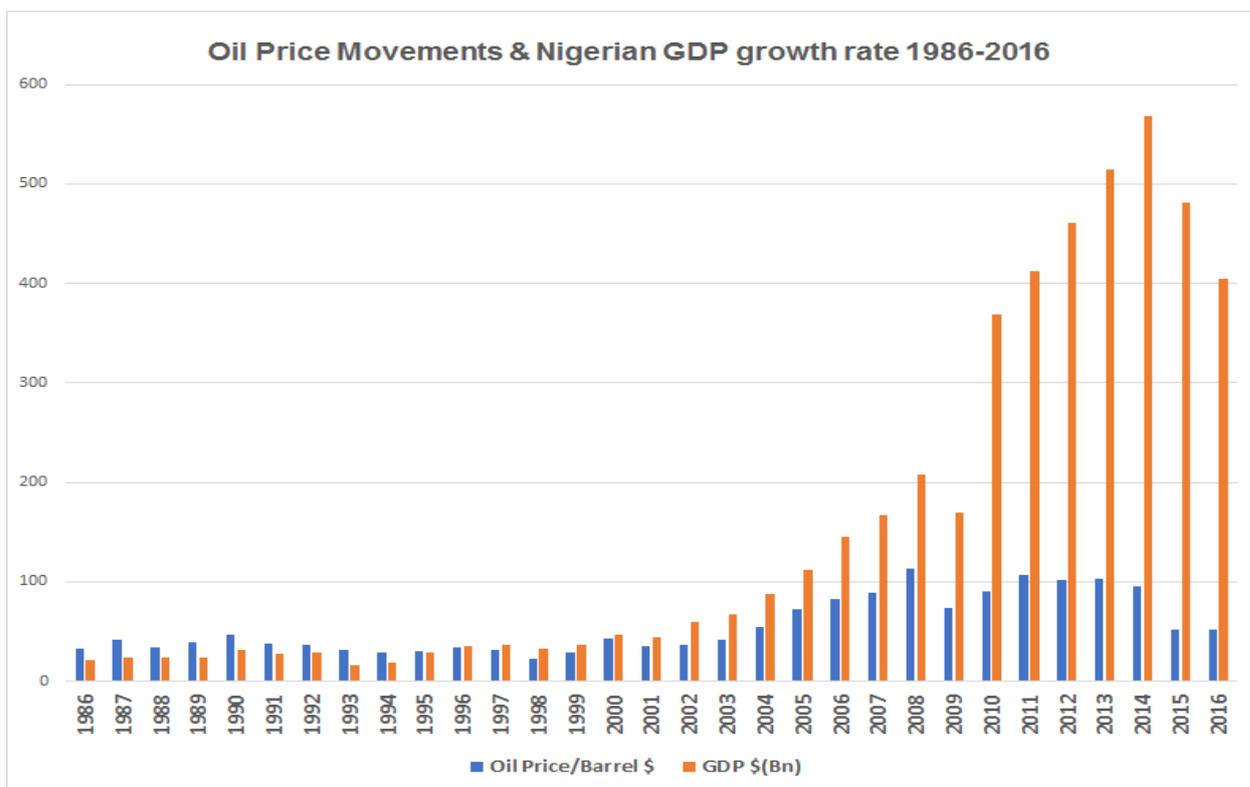


Figure 2. Graphical movements of oil prices(\$) and GDP(\$ Billion) of Nigeria
Source: WorldBank Data, OPEC, author’s graph

The figure 2. above is the graphical presentation of oil prices and the GDP growth rate of Nigeria between January 1986 to December 2016. While the monthly/daily sale prices per barrel varied, the average annual prices were calculated for each year. It would be interesting to note that some days within the years recorded meagre (historical lowest) prices.

From the graphical illustration, it can be seen that some years recorded meagre oil prices or drops in oil prices due to reasons explained by the author of this paper in the previous sub-chapter. For every year where there were noticeable falls in oil prices, there was a corresponding fall in the GDP both in the current year and sometimes, the subsequent year. Hence, establishes a directly proportional relationship between oil prices and the GDP of Nigeria. Accordingly, there is a

corresponding budget deficit as government struggled to adjust to the fall in oil prices- no other major economic contributor as crude oil and government spending reduced with government's inability to embark on capital projects both the current year and part of the subsequent years' budgets are benchmarked on forecasted annual oil price per barrel. Any lower oil price than the benchmark means the whole country is in trouble. Similarly, whenever there is a drop in oil production either due to some external forces such as a production quota from OPEC or internal forces such as militancy activities, the country is also in trouble financing her budget.

2.3. The effects of oil-shock on the foreign exchange market, interest rate and goods markets

Similar to 1970s and 1980s crises, the recent financial crisis that started in 2015 had many severe effects as they all have same root problem, crude oil.

2.3.1. Foreign exchange market

While the oil price had experienced another boom of a record high which started in 2012, the aftermath was an oil price shock with another record fall of all time. Shortly after the drop in oil price, the Nigerian economy was in shambles. In an oil-dependent economy, where virtually everything such as food items like rice from Thailand, Brazil, etc., raw materials and other semi-finished industrial goods are imported from abroad. In fact, many petroleum products as petrol, diesel, and kerosene are also imported from abroad despite being an oil producing nation. Since the significant revenue of the government is derived from crude oil sales, at the same time, the only way or perhaps, the highest contributor of foreign currency earnings for the government. As oil price went down, the foreign currency earnings went down drastically. As expected, the United States dollars supply by the government could not match the local demand for US dollars. In the simple economics of demand and supply, when the demand is higher the supply, the price goes up. Interestingly, with the aid of Nigerian factors, the price of all major currencies such as EURO, GBP, and USD all skyrocketed.

With government's failure and inability to adopt and apply some effective policies to counter the shortage of foreign exchange supply, the foreign exchange market became polarised into different segments namely, the "Black Market," the "Official Market," "BDC (Bureau De Change) and the Parallel Market." Each market had its customers since the official market with cheapest rates was

not accessible by the majority of the population. Consequently, the black market operators took advantage of the inability of many Nigerians to access the official rates to make excess gains. Consequently, many businesses that ran their operations majorly in foreign currencies or import raw materials from abroad collapsed due to high operational costs or a total shortage of foreign currencies. Some other reduced their operations by cutting production by a massive amount of units, while some relocated to other neighbouring countries such as Ghana.

The segmentation of foreign exchange market also chased many potential investors due to lack clarity and transparency in the market and foreign direct investment shrank. Many transferred their funds away from Nigeria, and some businesses such as airline stopped or reduced their operations. United Airline, an American Airways and Iberia, a Spanish Airline were among many other businesses that suspended their operations in Nigeria as a result of the difficulty in repatriating their sales revenues to their respective countries due to the scarcity of foreign currencies in Nigeria.

The problem loomed further as the economy suffered. As many manufacturing companies reduced their production activities, while other firms and businesses suspended their operations, labour market responded by laying off a massive amount of employees. Accordingly, the unemployment rate increased drastically. The economy shrank and suffered a continuous setback as the backlog of foreign currency demand increased continuously, and the Naira was pegged at official rate 197 Naira to a Dollar, a policy that was widely condemned. As the pressure on Naira increased while oil price failed to pick up as expected, the International Monetary Funds (IMF) with many other experts both home and abroad called for Naira devaluation to ensure that the market is allowed to determine the exchange rates.

However, the government refused to yield to such advice, thereby making the market to be overcrowded with different rates. The pegging on Naira further worsen the situation as many investors became more worried about the future of Naira and the economy, and when the CBN finally allowed the Naira be floated, Naira depreciation deepened further as a lot of malpractices and irregularities already characterised the forex market. Hence, the economic recession was inevitable. Nigerian economy was officially declared to be in recession by the minister of finance in August 2016, (Kemi Adeosun, Finance minister, August 2016) a month after the economy was reported to be in technical recession.

The National Bureau of Statics officially confirmed the statement by the finance minister with GDP declined by -2.06% in the second quarter of 2016 while the annual inflation rate rose to 17.1 percent in July 2016 from the 16.5percent in June 2016, and the food inflation rose to 15.8% from 15.3%. The economy downturn remained until the oil price improved and Central Bank of Nigeria (CBN) continued to intervene by increasing the weekly supply of foreign currencies until the economy was officially reported to be out of recession in September 2016 by National Bureau of Statistics (Vanguard 2017). The GDP improved with the growth of 0.55% during the second quarter of 2017. According to the data from National Bureau of Statistics, the economic recovery was as a result of combined improved oil performance, non-oil sector and agriculture, manufacturing, and trade.

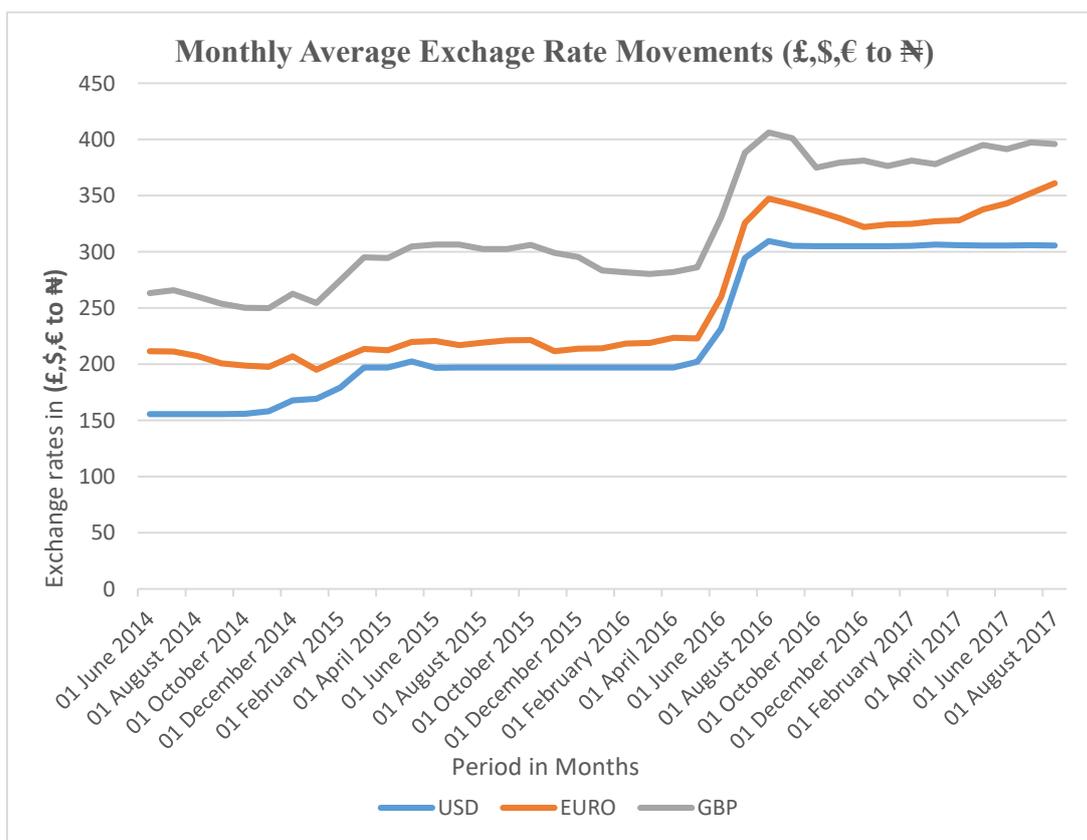


Figure 3. Graphical Representation of exchange movement from June 2014 to August 2017
 Source: Central Bank of Nigeria, author’s graph

2.3.2. Goods market

Good market in Nigeria is densely populated with foreign goods as most goods consumed locally are imported from overseas. The few locally made goods are made with imported raw material. The most demanded currency is the US dollars, as the supply of dollars decreased following by oil

price dropped, the demand for overrode the supply. Hence, the local production of consumer goods went down when local manufacturers had to pay double or sometimes, more than double to get dollars which increased the costs of production. Consumer goods became overly expensive. Similarly, the price of imported goods also went up as the importers struggled to purchase the needed dollars at a higher rate to import goods from abroad while many gradually went out of business. This made the cost of goods to be higher, leading to inflation and purchasing power of Naira further deepened over time.

2.3.3. Money market

The money market also had its share of the recent crisis. After the scarcity of major foreign currencies like US dollars, euro and the British pounds escalated to inflation, the central bank of Nigeria decided to increase the country's interest rate as a measure to curtail the increasing the inflation in the country. The policy was largely criticised by many experts and analysts. The central bank governor, however, believed that the policy would ensure further stability of falling Naira. Such policy may have been successful if the inflation in Nigeria during the period was traceable to excess money supply, the inflation was apparently due to the increased cost of importation and production, resulting from the scarcity of dollars and other major currencies. The policy failed to yield the needed result. Between 2013 and 2015, the annual inflation rate was 8.5% on the average, and rose to 15.6% by the end of 2016 and had risen to an average of 16.8% during 2017 (Economy-06 November 2017).

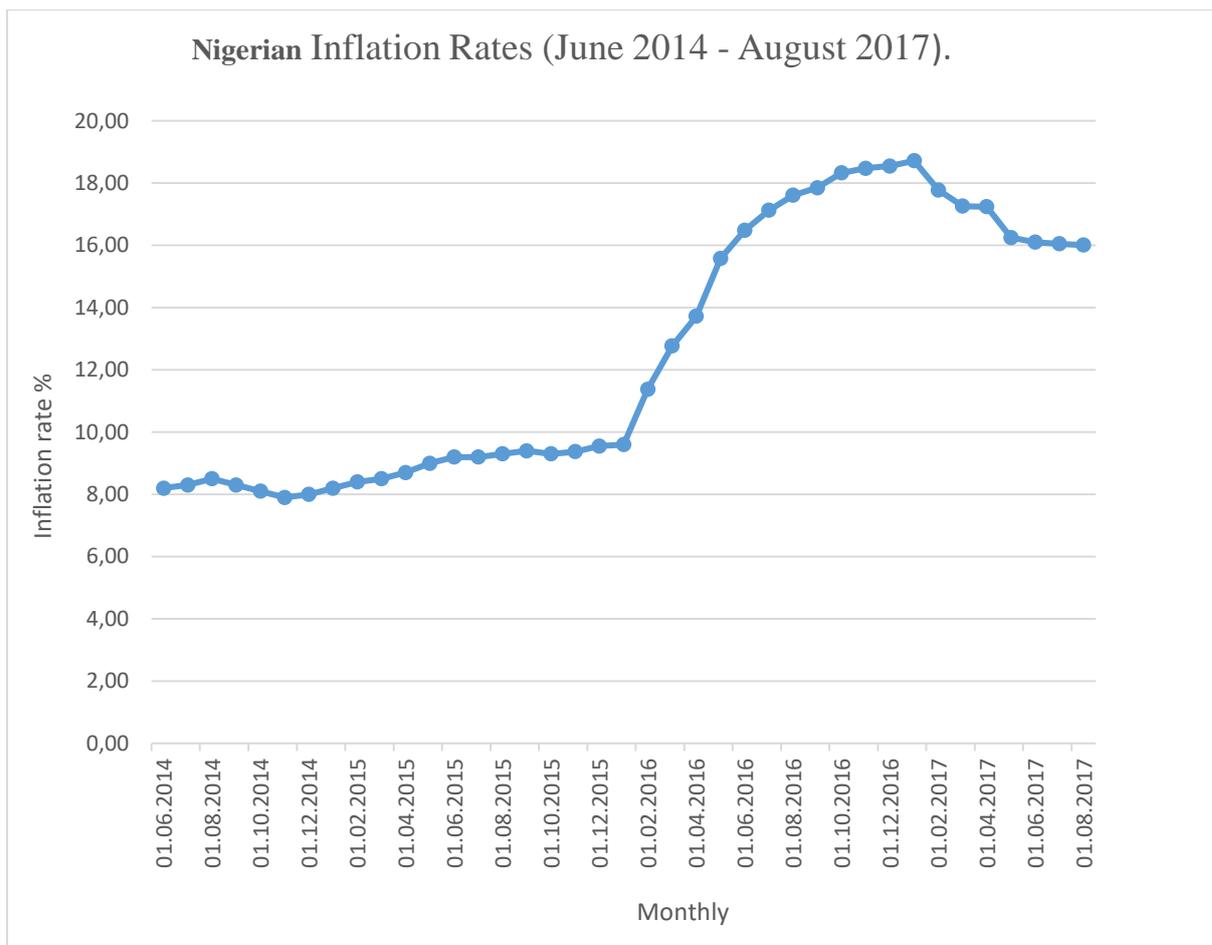


Figure 4. Inflation rate in Nigeria between June 2014 to August 2017. Graphical Representation
Source: Central Bank of Nigeria, author's graph.

2.3.4. Interest rate

Following the crisis in the money market, the interest rate in Nigeria also took the same direction as the policymakers believed that the only way to counter the inflation rates was to raise the interbank interest rates, and as a result, the lending, interbank and the interest rates rose significantly after the Central Bank of Nigeria raised the lending rate to a record high of 14% from 11% in six months (Bloomberg, October 17, 2017). There were huge lamentations from different groups on a daily basis, insisting that the interest rate in the country was too high at the time where the interest rates in Eurozone and America were at single figures and closed to historical lowest. The effects of the increased rates were felt in the entire economy, with government itself being a major borrower, and manufacturers all suffered from the credit market problem. Loans were not just unreasonably overpriced; there were huge bottlenecks in securing them. In Zenith Bank, one of the biggest banks in the country was more interested in granting loans to operators in the

Information and communication technology sector of the economy, with the loan interest rate of 23% per annum. Other banks such as WEMA Bank, with a smaller lending capacity, issued loan with a prime rate of 29%, which was incredibly high. Similarly, other smaller banks followed the same practice, leading to Fidelity Bank charging an interest rate of 36% from Information and communication technology operators (Economy- 06 November 2017).

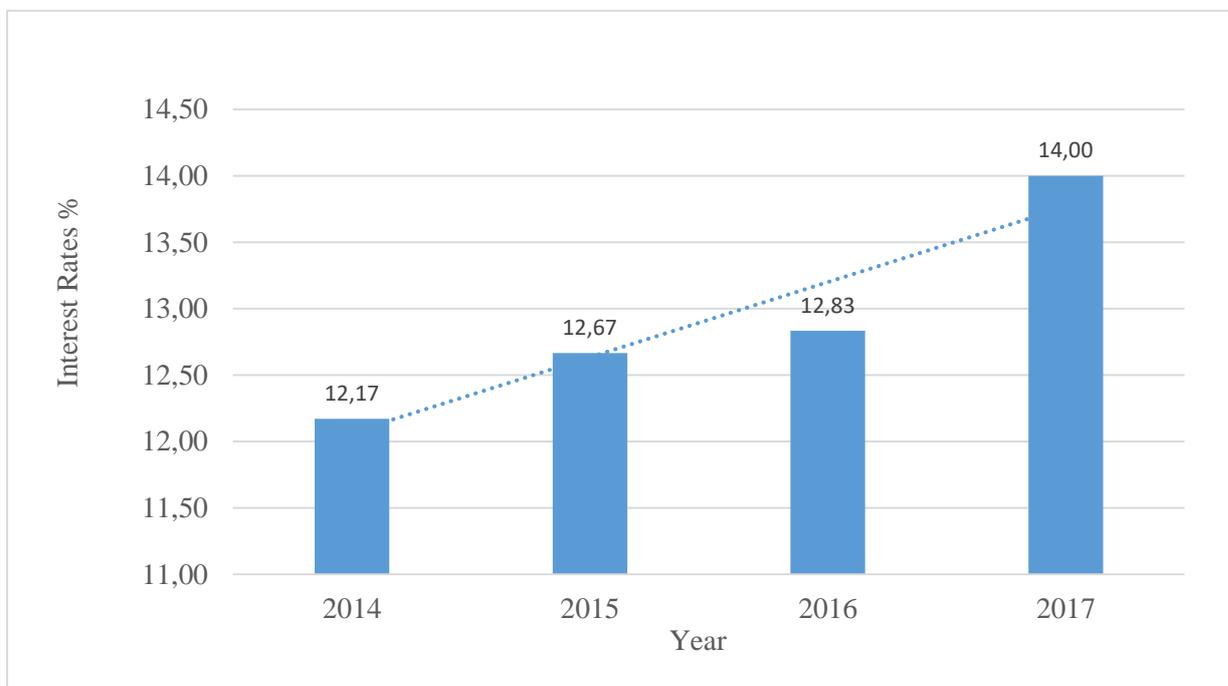


Figure 5. Interest rate movements in Nigerian 2014-2017

Source: Central Bank of Nigeria, author's graph.

Fig 5 above shows how the interest rate moved between 2014 to 2017, with a steady increase between 2014-2016, but a huge rise of 15%. The effects of the increase in the interest rates were significantly felt in all sectors of the economy, making it difficult for many businesses to access loans. Consequently, many business activities were disrupted while inflation roared.

2.4. The effects of oil-shock on the foreign exchange market, interest rate and goods markets

Economic diversification is a process of expanding the scope of economic activities both in the production and distribution of goods and services. Economic diversification does not necessarily have to translate to yields in outputs. However, it creates an adjustment for economies to have several revenue bases. The discourse of diversification has to be considered from the point of view

of sustainable development to create a robust and sufficient backbone for both short and long-run economic stability. Considering this point of view, it has the ability to on a fundamental level, reinforce an economy's versatile limit and defend its long-term prospects with a wave of economic fluctuations under the pressure of competition in globalisation ((M. C. Anyaehie, A. C. Areji, 2015).

Economic diversification possess the tendency to fulfil the vital requirement for sustainable development like meeting the poor's primary needs which begin with the provision of job, food, health, clothing, and shelter by opening different avenues of economic activity which accommodates different diverse of people. Diversification equally the widened of the societal capability to guarantee individuals' needs by enhancing technological improvement, socio-cultural organisation, the multitude of various parts of economic activity rather than over exploiting one segment of natural resources to a level point of non-existence. Such practice may lead to a severe environmental consequences by either harming the environment with pollution, degradation and harmful coexistence between human and nature. Again, it creates a broad-based economy that can secure equity both within and between generations (Le-Yin Zhang, 2003).

Economic diversification being a unit, though separated from, economic development, as economic development denotes, does not mean change in output lone, but in addition to change in output, it also involves a drastic and structural change in the technicality and institution involved in both the production and distributions of output (Herrick, Kindleburger, 1983).

Going by global experience, economic diversification from oil has proven to be very difficult. Both the success and the failure of economic diversification depend on the implementation of appropriate policies that are in place before any decline in oil revenues. Malaysia, Indonesia, Mexico and the UAE, most especially Dubai is a good example of a nation with a milestone in diversification as the country diversified its economy from oil, while Chile has had some success in diversification away from copper. Apart from creating a conducive economic and business environment, these countries focused on export diversification and quality upgrading by encouraging firms to develop export markets and by supporting workers in acquiring the relevant skills and education to boost productivity in relevant sectors. While many other oil-exporting countries such as Algeria, Congo, Ecuador, Gabon, Nigeria, Venezuela have not recorded much success in their quest for economic

diversification for reasons that vary from country to country. Many of those reasons have been government's commitment (for example, the Nigerian government has been talking about economic diversification for decades, but no measure or policy has been put in place by several government regimes). (Tim Callen et al. 2014).

The recent situation in Nigeria provides a perfect example of lack of government's drive for economic diversification when oil was selling above \$130 per barrel that the government should have increased the foreign reserve to boost foreign and local investors' confidence and channel part of the oil revenue towards developing the non-oil sectors like tourism, industrial production, etc. A strategy that would have been motivational for investors to get more involved with the further development of other sectors but the needed focus was lacking from the government. Another reason is the heavy reliance on oil price to develop other sectors of the economy. Due to oil price volatility, government is often found struggling whenever there is a drop oil price, and the effects are spread over a long time, and when the price of oil eventually goes up, government is still busy battling the effects of the previous drop in oil price while another drop in oil price sets in the process.

2.4.1. The successful diversification stories

With each country successfully applying its diversification technique, some common themes are evident in their achievements in economic diversification. Firstly, diversification took a long time and was being considered and practised whenever oil price crashed. For instance, Malaysia began her export-based pattern of growth during the beginning of 1970s and experienced rapid growth in export sophistication in the 1980s–90s. It took more than 20 years to reach a level of sophistication comparable to some advanced economies. Secondly, the success recorded by these countries was as a result of their focus on provision of incentives to encourage firms to develop export markets and to support workers with the relevant skills acquisition and the right education to secure jobs in the new business sectors of the economy (Mohammed B. Yusoff; Tim Callen *et al.* 2000).

Malaysia also succeeded in establishing a manufacturing sector of her economy that was basically export-oriented. This presented an excellent platform for both the rural and urban populace to raise their incomes and their living standard. There was a transition from agro-based economy to manufacturing, public sectors, and commerce, with some increase in the earnings for the majority of Malaysian households, bridging income distribution gaps in the country. (Bhalla, Kharas, 1992).

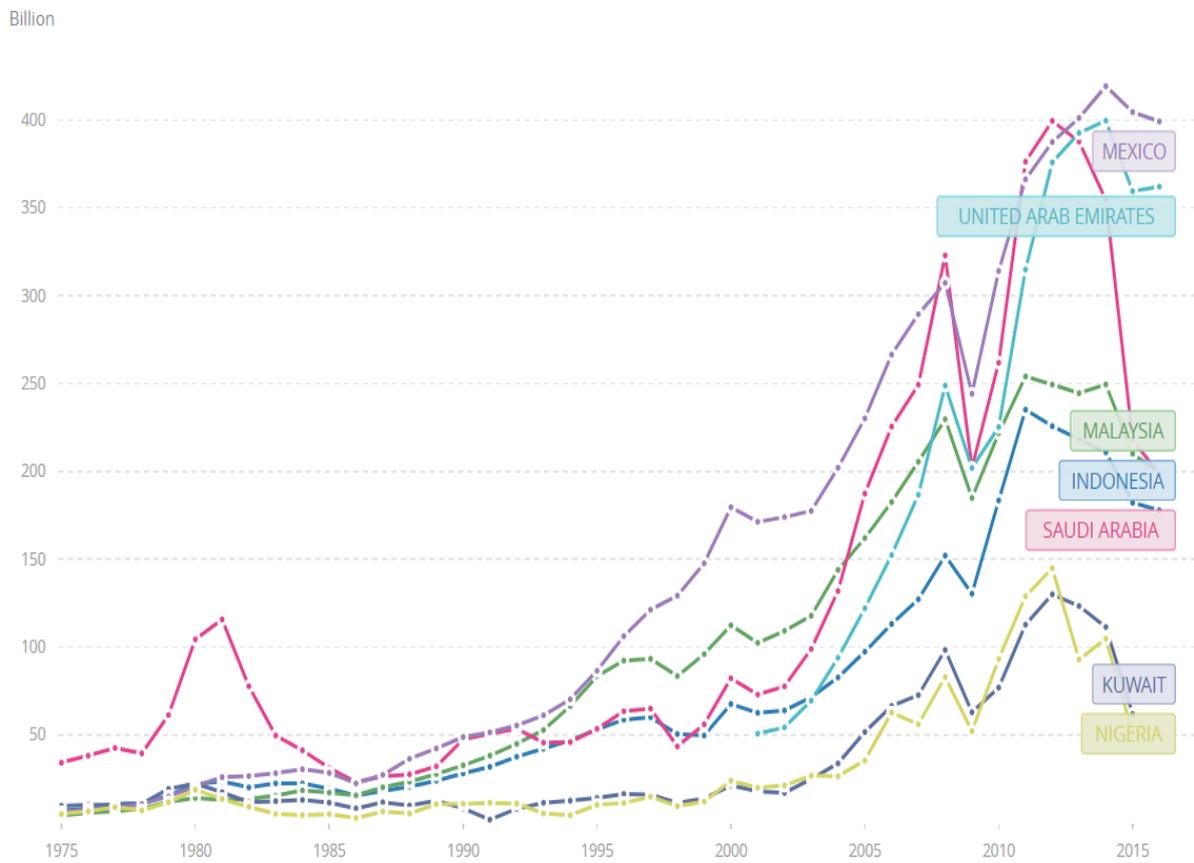


Figure 6 Exports of goods and services (current US\$) 1975-2015
 Source: World Bank national accounts data, OECD national data 2016

From the figure 6 above, and with an exemption to Kuwait, it is evident that Nigeria has not done much to increase its exports over the years and while others like Indonesia, Malaysia, UAE and Mexico etc., with nearly the same exports in dollars in 1985 have achieved so much between 1990 to 2016 with UAE and Mexico recording huge success in increased export values of around \$400 billion as at 2015 from a less than \$40 billion in 1990, over 1000% increase in less than three decades. While the likes of in of Indonesia, Malaysia and Saudi Arabia have also increased their exports values reasonably.

2.4.2. How the successful countries managed to diversify their economies?

Coupled with focusing on creating a stable economic environment and a conducive climate for doing business, the incentives entailed the following:

Establishing channels for local suppliers around existing exporters could lead to the expansion of a sector of an economy, therefore widening the employment potentials of such sectors. However, some precautionary measure should be applied to ensure that the local suppliers are efficient to avoid any room for incompetence and lack of competition. Malaysia was involved in primary and secondary activities of both rubber and palm oil to create connections with the other parts of the economy. The country also improved in research and technology to foster further economic development. There was a similar pattern in Mexico in the development of required channels for automobile sector of the Mexican economy (Tim Callen *et al.* 2014).

Just like Mexico and Malaysia, the technology transfer could be developed and promoted through the use of foreign capital. During the 1980s, Indonesia used its free trade zones strategy to promote foreign capital. In a similar style, the country also implemented a provision of tax incentives and eased the restrictions on both tariff and non-tariff barriers. Malaysia and Mexico adopted the same strategy. Mexican NAFTA (North America Free Trade Agreement) participation also paved ways in attracting foreign direct investment that enhanced the success of the automobile sector in Mexico (Tim Callen *et al.* 2014).

Despite the initial failure in import substitution policies and the dependency on labour-intensive production, which resulted in firms' inefficiency with little grasp of productivity benefits and income. Indonesia, Malaysia, and Mexico, with relatively low technological power, were able to rewrite their stories by switching their approaches and concentrated on specific manufacturing clusters, resulting in improved technology and consequently increased their exports (Tim Callen *et al.* 2014).

The use of export subsidies, tax incentives, and access to finance to facilitate risk-taking by entrepreneurs, especially SMEs. The bigger the technological push in entering a new sector, the bigger the risk for firms in the private sector of the economy (Rodrik 2005; Lin, Chang 2009). Considerable, export subsidies and tax incentives could be used in reducing the risk for entrepreneurs in infant industries. Furthermore, the provision of financial and other supports by development banks, venture capital funds, and export promotion agencies could also provide some hedge against risk. Chile provided financial assistance to SMEs and monitored their performance through a specialised development agency. Malaysia also focused on SME development. In these

countries, export subsidies and tax incentives were paired with measures to hold firms accountable for their export performance.

Human capacity development. The establishment of frameworks and institutional structures to help nurture the human capital and required skills to develop sectors. Malaysia and Mexico, for example, concentrated on human capital development through organised training for workers to improve and acquire more know-how, and equally invested in training workers overseas. This practice paid relative results in the end, with the availability of highly skilled labour in the country (Tim Callen *et al.* 2014).

The Story of Indonesian Economic Diversification.

The sectoral structure of Indonesia's economy has experienced a progression of changes over the past decades. Indonesia used to have an economy that was solely dependent on extractive sector during the 1970s, and the country's industrialisation kicked off when the Indonesian government switched to an import substitution strategy. The country was just like many other oil-producing nations who were often affected by the fall in oil price. Oil boom had in the past made the government of Indonesia ignore the presence of foreign investment which hindered the country from looking beyond Indonesia for more opportunities. During the 1980s, when the oil price fell the country began to look beyond Indonesia and started embracing export-oriented policy (Stephen Elias, Clare Noone, 2011).

During the 1970s to 2009, Indonesia economy witnessed an impressive growth with high performance in economic index. The country's performance was rated among the best in that era together with Thailand and China. Indonesia economy was rated the fourth position in East Asian behind China, Japan and the Republic of South Korea. The success recorded by Indonesia during the era was due to the structural change of the state economy with an initial transfer from the agricultural sector, oil-based economy and manufactured exports. From the start of mid 1908s, barriers to trade were reduced, and the Indonesian economy attained global integration (Stephen Elias, Clare Noone, 2011).

Table 1. Exports of goods and services (current US\$) 1975-2015

Sector	1967	1982	1996	1999	2009
Agriculture	51	23	17	20	16
Construction	-	10	10	8	11

Manufacturing	8	13	26	26	27
Mining & utilities	-	17	8	9	11
Services	36	37	40	37	35

Source: China Economic Database (CEIC); Reserve Bank of Australia (RBA); World Bank; United Nations.

The table 1 above represents the output by sector of the Indonesian economy. The table shows how agriculture has with more than half of Indonesian GDP in 1967 has been reduced to 16 percent. Similarly, the mining and utilities sector which is made up of 40% oil and gas production also declined from 17 to 11 percent between 1982 and 2009. However, the construction and services sectors have had any significant changes.

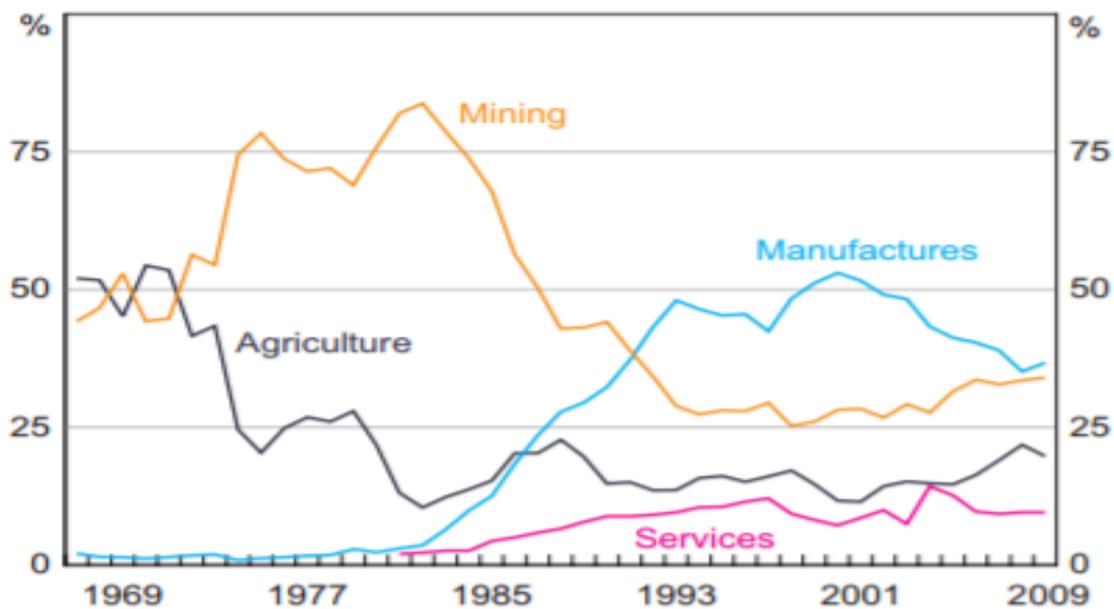


Figure 7 Indonesian output by sector (sector share of GDP, percent).
Source: World Bank.

The figure 7 above shows the trends in the movement of exports of goods and services in Indonesia between 1969 to 2009. As seen in figure 7, Indonesia achieved some breakthrough in the manufacturing sector starting from the early 80s to 90s. The trend which also explains the transition from agriculture sector to the manufacturing industry. Though there was also a massive drop in the mining activities of the country, the service industry also experienced some noticeable progress.

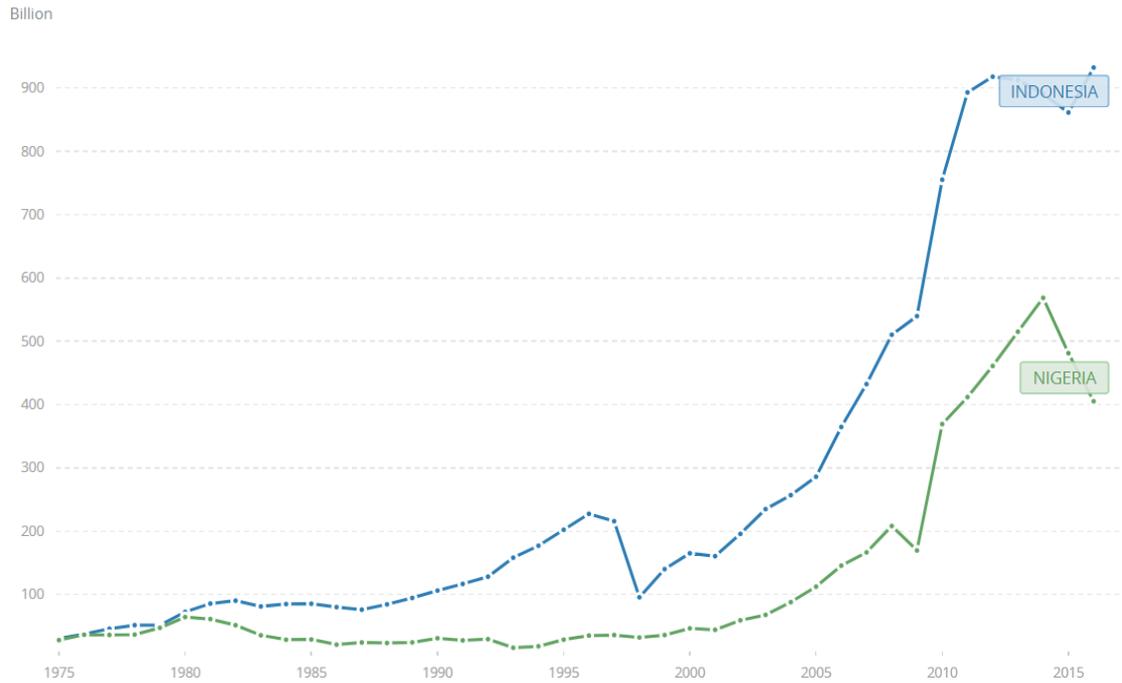


Figure 8 Indonesian and Nigerian GDP movements between 1975 to 2015).
Source: World Bank.

The figure 8 shows how Indonesian economy has moved from a GDP of about \$30 billion in 1975 to a GDP of a little bit above \$860 billion in 2015. The 2016 GDP was about \$930 billion, while Nigeria has only managed to achieve \$568 billion in her historical record in 2014 after the Nigerian economy had been rebased in the same year. Figure 5, therefore, shows how Indonesia has successfully diversified her economy, which in turn explains the huge difference both countries GDPs today. A clear lesson for Nigeria.

During late 1908s, the volume of exports had started rising as the government had already adopted a liberalised trade pattern and as the industrialisation of the Indonesian economy accelerated. During that era through to the Asian financial crisis, the ratio of Indonesia trade had risen steadily and during the mid-1990s, and the trade ratio has not changed till date except the service industry with GDP composition of 45,3% as at 2016. Consistent with these developments, there have been substantial shifts in the composition of Indonesia's exports over the past 50 years. The shocks oil price of the 1970s and early 1980s, and the aftermath economic industrialisation in the country saw agriculture's share of exports decline steadily from 1971 to the early 1990s (Stephen Elias, Clare Noone, 2011).

The Indonesian economy also experienced a considerable movement in manufacturing exports from just 2 percent of total exports in 1980 to 46 percent in 1993. However, a different set of trends have been witnessed since the early 1990s. The share of manufacturing sector exports was no longer trended higher (and has more recently been declining), and there has been some stability in the share of fuel exports of total exports. While growth in oil exports has been modest, partly due to fuel subsidies boosting domestic consumption, Oil and gas production also accounts for around 40 percent of Indonesia's mining and utility output and 1.5 percent of global crude oil and natural gas production. Indonesia is also an important global producer of coal accounting for over 4 percent of world production in 2010, an amount slightly less than that of Australia (BP 2011). The country is also an important producer of some other commodities, accounting for 27 percent of global tin extraction in 2009, 15 percent of nickel extraction and 6 percent of copper extraction (Stephen Elias, Clare Noone, 2011).

Analysis of Available Alternative Resources in Nigeria

It is common among the second tier of government, the state government and third tier of government, the local government in Nigeria to depend entirely on the first tier of government, the federal government for monthly allocation of oil revenue. While many have criticised the revenue sharing formula in the country and the way the country is structured which does not allow the states to control their resources entirely, it is however not enough reason while both states and the local governments should depend on the federal government.

Interestingly, with exceptions to Gombe, Jigawa, Kebbi, Taraba, Yobe state, each state in Nigeria is blessed with at least, three or more resources with revenue could be derived. The table below shows the list of the states with the resources available in the states. Surprisingly, most of these resources have not been utilised because of the substantial attention on oil. The utilisation of these available resources could sustain each of these states without oil. The concept of internally generated revenue is to enable states to stand on their own. Many of these states lay so much emphasis to tax when talking about internally generated revenue, and they often cite Lagos as an example, however, the theory of comparative advantage is for resources utilisation where availability of such resource is in abundant. Such is the case of Kebbi with the recent production of rice.

2.4.3. Tourism

Just like many other countries in Africa and other parts of the world like Kenya, Egypt, France, and Spain, etc., Nigeria has much to offer in culture, tradition, and history. The tourism potential is enormous that every state in Nigeria has a rich culture with great tourist attractions. From Iko-Ogosi in Ekiti State where both warm and cold spring meet at confluence, with each maintaining its thermal properties, Idanre hill in Ondo States, Obudu Cattle Ranch in Cross River, the Osun-Osogbo Festival in Osun State, the Argungu Festival in Kebbi, the Olumo Rock in Ogun, the Zuma Rock in Abuja, the Eyo Festival in Lagos, the Calabar Carnival, Badagry historical sites, Bauchi Game Reserves to Ilesha Waterfall also in Osun State are among many tourist attractions in Nigeria. With the right atmosphere, such attractions would attract people from both home and abroad and would contribute significantly to the economy. If well positioned and managed, Nigeria tourism could well be placed among the best in the world going by the country's tourism potential and be ranked among the countries with massive revenue from tourism just like USA, China, France, Spain, etc.

Tourism has helped in many developed nations and the recently industrialised Asian countries. One can aggregate up tourism performance, the role it plays and contributions to as follows: Tourism provides a noteworthy wellspring of business open doors for an expansive more significant part of individuals, labour intensive with higher capacity for employment generation. In Nigeria, it can absorb a high proportion of the teeming population of unemployed youths. Many of those who are willing to work because of labour intensive and the industry includes hotels, airlines, travel agency and all tourism-related organisations (Bondrea *et al.* 2014)

Tourism could function as an excellent avenue for the creation and development of local entrepreneurs and hospitality managers in several areas of economic activity.

Tourism could be used to enhance income redistribution as it impacts more positively on the bulk of low-income earners.

Tourism, a great asset to many nations, is believed to be one of the most effective means of creating structural transformation in the rural areas.

There has been increasing role tourism in foreign direct investment (FDI) flows, through global awareness creation for local enterprises in the international market. It is a tool for the promotion of FDI.

Despite the vast tourism potential in Nigeria, the Nigerian governments at all levels (federal, state and local government) are yet to take significant advantage of the tourism potential. Consequently, tourism's contribution to the GDP of Nigeria has been relatively insignificant. The vast and rich cultural heritage need be strategically positioned to partner tourism as its catalyst to drive the Nigerian economy. Without the components of culture, tourism will barely and efficiently flourish. The need to design the culture and tourism as part the catalysts of Nigeria's economic growth and development is a responsibility of the Ministry of Information and Culture, and the ministry needs to plan to transform both sectors into a monolithic entity to galvanise national economic development. The exertion is in accordance with the understanding that no country can truly succeed without the incorporation of its social-cultural and tourism parameters in its affairs. Interestingly, cultural tourism had long been identified as Nigeria's area of high comparative advantage.

According to World Travels and Tourism Council, the following statistics were recorded by Nigeria in 2017.

GDP: Direct Contribution. Travel & Tourism's direct contribution to GDP was NAIRA (NGN) 1,861.4bn (USD7.4bn), 1.7% of total GDP in the year 2016 and is forecast to rise by 1.1% in 2017, and to rise by 3.6% pa, from 2017-2027, to NAIRA (NGN) 2,680.7bn (USD10.6bn), 1.6% of total GDP in 2027 (Travel & Tourism Economic Impact 2017 World).

GDP: Total Contribution. Travel & Tourism contributions total to GDP was NAIRA (NGN) 5,124.3bn (USD20.3bn), 4.7% of GDP in the year 2016, and is forecast to fall by 1.3% in 2017, and to rise by 4.0% pa to NAIRA (NGN) 7,507.7bn (USD29.7bn), 4.5% of GDP in 2027 (Prasad, *et al.* 2015).

Employment: Direct Contribution. In 2016 Travel & Tourism directly supported 649,500 jobs (1.6% of total employment). This is expected to rise by 3.4% in 2017 and rise by 3.3% pa to 926,000 jobs (1.5% of total employment) in 2027 (Travel & Tourism Economic Impact 2017 World).

Employment: Total Contribution. The percentage contribution of Travel & Tourism to employment in 2016, including jobs indirectly supported by the industry, was 4.5% of total employment (1,793,000 jobs). This is expected to rise by 1.4% in 2017 to 1,818,500 jobs and rise by 3.6% per

annum to 2,598,000 jobs in 2027 (4.2% of total) (Travel & Tourism Economic Impact 2017 World).

Visitor Exports: Visitor exports generated NAIRA (NGN) 211.3bn (USD836.7mn), 1.9% of total exports in 2016. This is forecast to fall by 2.8% in 2017, and grow by 1.7% pa, from 2017-2027 to NAIRA (NGN) 242.4bn (USD959.9mn) in 2027 (Travel & Tourism Economic Impact 2017 World).

Investment: Travel & Tourism investment in 2016 was NAIRA (NGN) 1,129.4bn, 7.2% of total investment (USD4.5bn). This was expected fall by 5.0% in 2017, and rise by 5.4% per annum over the next ten years to NAIRA (NGN) 1,821.5bn (USD7.2bn) in 2027, 7.3% of total GDP (Travel & Tourism Economic Impact 2017 World).

According to the world travels and tourism council's report in 2016, travel and tourism's contribution to Nigerian GDP was 1.7 percent, a figure that shows how little tourism contributes to GDP despite the huge tourism potential in the country. While Gambia, Morocco, Tunisia, Senegal, Tanzania, Kenya, Egypt, etc. achieved 9%, 8.1%, 6.6%, 4.8%, 4.7%, 3.7%, 3.2% respectively. Nigeria ranked 168 on global ranking regarding tourism to GDP contributions.

2.4.3. Agriculture

Agriculture used to be the mainstay of Nigerian economy before the discovery of crude oil. It used to contribute about 57% of GDP, also accounted for 64.5% of the country's revenue from exports. Since 1970, the agriculture remains one of the major sectors of the Nigerian economy, the most populous black nation in the world. Agriculture, with the contribution of about 30% to Nigerian GDP in the past, provides jobs for close to 70% of the Nigerian population. Despite the vast availability of land in Nigeria, most of the foods that are consumed in Nigeria are imported. Rice is imported from either Brazil, Thailand or elsewhere. The volume of food imports has been a major source of concern for the government, and the importation has also cut across all other agricultural produce- virtually everything is imported, both foods and non-foods items, raw materials that are used for the few locally produced goods. Consequently, agricultural contributions to exports are less than 5% (PWC Analysis, 2016).

Generally, there is a direct and positive relationship between agriculture and industrialisation. Agricultural sector influences the economic growth process; increases the supply of food and fibre for domestic consumption, supply excess farm human resources to the industrial sector.

Agricultural sector generates foreign earnings through exports, increasing domestic saving and rural purchasing power, (Poonyth *et al.* 2001). The contribution of agriculture to Nigerian economy in the early 1960s was over 80 percent of total export earnings and a major source of employment; about 65 percent of the GDP (gross domestic product), also representing 50 percent of the government revenue, despite the dependence of most of Nigerian farmers on traditional tools and indigenous farming methods (Lawal, 1997, p 195).

Over the years, there has been an alarming decline in the agriculture contributions to the Nigerian economic growth. The proportion of agriculture addition to the GDP was about 50% in 1970 and 34% in 2003, (CBN 2003) and currently lesser than 34%. This disparity is enormous and equally undermines the vital participation of farming, fishing and material processing sector added to the economy over decades which petroleum sector has since replaced. At present, agriculture sector only accounts for just a little below 30 percent of the nation's gross domestic product, (World Bank 2014). Though agriculture no longer serves as the leading contributor to Nigeria's gross national product and leading foreign exchange earner due to phenomenal development in the oil sector of the economy as (Ingawa 1979) observed, however, agriculture is still the dominant economic activity in terms of employment and linkages with the rest of the economy (Oluwafemi *et al.* 2015).

In 2016, agriculture only accounted for 24.4% (National Bureau of Statistics, 2016 Q4 Report), with a real growth rate of 4.1%. The agriculture exports were \$1.4 billion, representing about 0.35% of the GDP and about 4.8% of the country's exports foreign earnings in 2016, while the total food importation was \$5.3 billion in 2016. (World Bank, NBS, CBN) despite agriculture being the largest Nigerian sector.

The following were the top 5 agricultural exports in 2016.

- 1) cocoa: \$698 million;
- 2) oil seeds and oleaginous fruits: \$216 million;
- 3) fruits and nuts: \$156 million;
- 4) milk, cream and milk products: \$68 million;
- 5) spices: \$48 million.

While the following top the list of imports in 2016:

- 1) fish: \$1,461 million;
- 2) wheat: \$1070 million;
- 3) sugar, molasses, and honey: \$373 million;

- 4) milk, cream and milk products: \$295 million;
- 5) fixed vegetables, fat and oil: \$250 million.

The agriculture sector in Nigeria is highly characterised by the substantial dominance of crop production, which represents about 90% of the total output (CBN 2015 Annual Report). Fishery, forestry, and livestock jointly account for the remaining 10%. Despite the vast agricultural potential, with the arable land of 82 million hectares, only 34 million of the hectares has been cultivated so far (Oni, J.C 2011).

In 2012, when the Agriculture Transformation Agenda (ATA) was established to improve farmer's income, while the policy was also meant to increase food security, create jobs and take the country to a top position in the food markets (Ajani, E.N, E.M, Igbokwe 2014). The agenda was reported to have raised the country's agricultural output by 11% to 202.9 million tonnes between 2011 and 2014. Similarly, the scheme was also reported to have raised commercial banks' lending to agriculture from 0.1% in 2011 to 5% in 2014, reduced the bill on food importation by NAIRA (NGN) 466 billion (Akinwunmi Adeshina, Leadership Newspaper, 2015). These achievements in two years are signs of the significant role the agriculture sector can play in diversifying the Nigerian economy.

The present administration also recently launched the Agriculture Promotion Policy (APP), a policy aimed at countering food production shortages while output quality is also improved. In addition, the Economic Recovery and Growth Plan (ERGP) attributes more importance to food security while also achieving self-sufficiency in tomato paste, rice, and wheat, by 2017, 2018 and 2020 respectively. The projection for agricultural production by Economic Recovery and Growth Plan (ERGP) is put at 31% increase which would amount to NAIRA (NGN) 21 trillion by the year 2020.

Despite these policy interventions, the agriculture sector remains massively underdeveloped, just because the attention is how production would increase, instead of stimulating the value increase across value chain segments. For example, some analysis from cocoa barometer shows that in the bar chocolate's production, a marginal 6.6% of the value added is in the production, while the rest spreads across processing, marketing and the retail segments of the value chain, this could also be the case across most agricultural products. However, the value chain in Nigerian agriculture is

dominated by smallholder farmers and a few commercial processors who are faced with low inputs, insufficient finance, and end of life technology.

The agribusiness in Brazil that created 16 million new jobs in 2012(PwC Report, September 2013) and generated 46.3% of exports in 2016(Marin, D.C 2016) was as a result of improved the country's agricultural value chain. Brazil is now a global producer of many agro-processed commodities such as rice, orange juice, sugar and ethanol (PwC Report, September 2013). The success in the value chain in Brazil could be attributed to the availability of improved seeds, improvement in soil fertility, increased adaptation to technology, and the support of domestic and international research institutions (Santana *et al.* 2012).

Nigeria as a significant producer of many agricultural commodities. For Nigeria to achieve the needed self-sufficiency in food production and increase diversification, there is an increasing need to increase production and value addition across crucial agriculture food products while ensuring the that the short terms imperatives of the government are well aligned its long-term interests in reducing foods importations and increase agricultural production.

Some challenges facing Agricultural Production and Exportation in Nigeria.

Low agricultural production promotes import dependency.

The consumption of important crops has drastically increased and outgrown production as the population grows while production declines. The demand and supply margin has been majorly bridged by importation, making Nigeria a net importer, a trend evident since 1975. Averagely, a sum of Naira (NGN)1.4 trillion has been spent on the importation of foods with milk, rice, wheat, sugar and malt extract accounting for the bulk of the country's food import bill (National Bureau of Statistics Foreign Trade Report 2013 & 2015). Consequently, Nigeria is highly vulnerable to any increase in global prices of these commodities, with a significant impact on inflation and the country's foreign reserves.

The Decline in Agro-processed exports.

Nigeria experienced a decline of NAIRA (NGN)143 billion in her exports between 2011 and 2015, representing 41% drop in exports. These exports, which presented about 20% of the country's non-oil exports in 2015, were mainly leather and processed skin, alcoholic and non-alcoholic beverages, tobacco and cocoa derivatives. Going by the data from Food and Agriculture Organisation of the United Nations(FAO), Nigeria was estimated to have lost about US\$ 10 billion

in annual exports of agriculture and agro-processed commodities including groundnut, palm oil, cocoa, and cotton as a result of the decline in production of these commodities.

In addition, the Nigerian Export Promotion Council (NEPC) also related the drop in food exports to failure to comply with the regulatory and documentation requirements for food imports to the European Union and the United Kingdom. Also, the World Bank estimates that Nigeria and other developing countries could have lost as much as US\$ 6.9 billion in 2015, as a result of food exports rejection.

Similarly, cocoa bean export has also experienced a major drop from approximately 20% in 1970 to about 5% in 2014 while groundnuts export has also declined. These are significant indications of how the country gradually moved from a net exporter of agricultural products to a net importer of agricultural products.

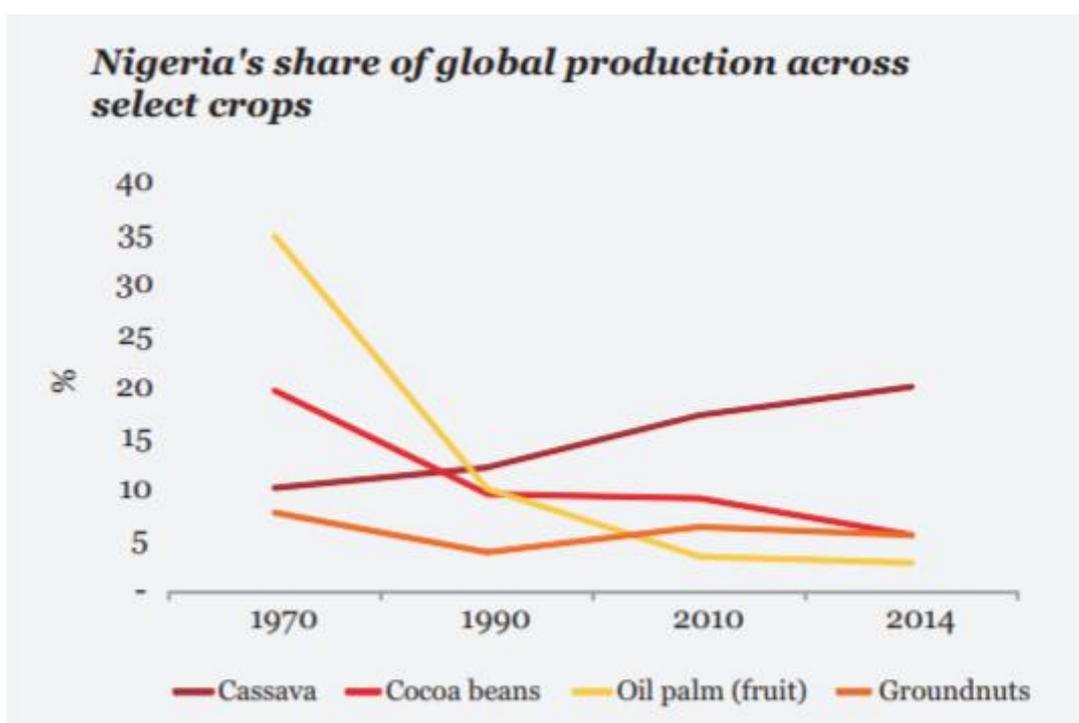


Figure 9 Nigeria's share of global production select crops, 1970-2014.
Source: FAO 2014, PwC Analysis 2015 report.

The figure 9 above shows the declines in Nigeria's shares of export in global productions of crops between 1970 to 2014. As seen from the figure, Nigeria's share of global oil palm exports in 1970 stood above 30%, that was about a decade after the discovery of crude oil in Nigeria. During the period, agriculture was the major contributor to GDP and government revenue. However, Nigeria's

share of oil palm in 2014 was less than 5%, which also shows that the country did not only lost her global position but also shows why agriculture sector's contribution to both the GDP and foreign revenue of government has continuously declined.

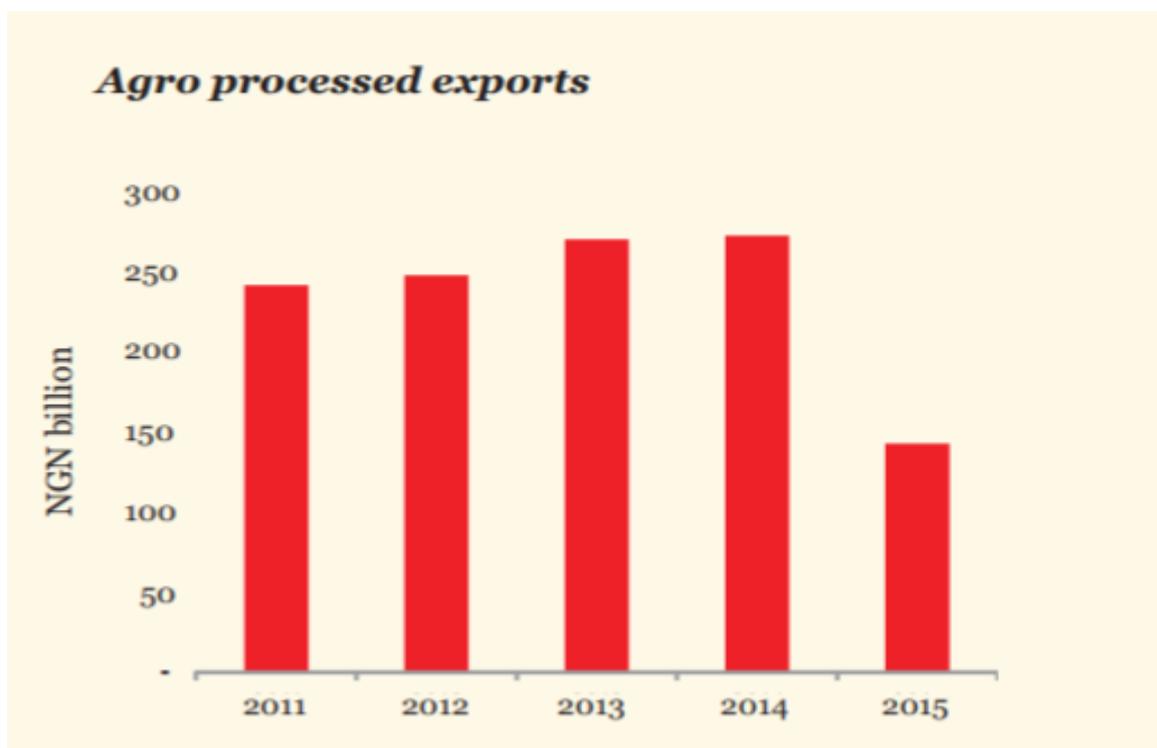


Figure 10 Agro processed exports 2011-2015
PwC Analysis 2015 report.

Source:

One Strategic to Improve Agricultural Productions.

Indonesia in April 2010, introduced an export tax of 0% to 15% on cocoa beans. The policy was aimed at encouraging cocoa processing and exportation of cocoa derivatives (powder, butter, and paste). Before the introduction of the policy, the exports of cocoa derivatives less than 100,000 tonnes. However, the policy resulted in a shift from cocoa beans exportation to processing, which increased the capacity of cocoa beans processors and the reopening of moribund and closed processing plants in the country. By 2015, the exports of cocoa derivatives had increased to 274,018 tonnes, nearly a 274% increase. In a similar development, the attention given to cocoa processing by Indonesia has increased the country's cocoa derivatives' export revenues from \$326 million in 2009 to \$1.2 billion in 2015 (International Trade Statistic Report (2015)). Such or related policy could be applied in Nigeria to encourage more participation in cocoa derivatives and production.

3. EMPIRICAL MODELING

The research methodology constitutes some critical parts of this thesis with the aim of establishing the evidence through which the validity of the empirical outcomes of this thesis is based. It, therefore, sets out the strategical approach, the pattern of research, the needed data, different sources of data, the natures of the data, data type, how the data were collated, and the estimated parameters used in this thesis. It equally presents the model structured through which the hypothesis of this paper is tested, and the result is established. The essential terminologies and the logical expressions were clearly spelt to avoid any ambiguity from readers.

3.1. Data and source

Judging by nature of this thesis, it is only reasonable to apply the data that could stand the estimation of stochastic equations to show the effect of fall in oil price on the gross domestic product of Nigeria, which could, in turn, affect the economic growth of the country. Series of data were collected from World Bank database, Central Bank of Nigeria, International Monetary Fund, National Bureau of Statistics and The Central Intelligence Agency (USA). These sets of data include annual gross national products from 1986 to 2016, daily oil prices which were calculated to annual average from 1986 to 2016. Inflation rates, money supply exchange rates {Naira (₦) to USD (\$)}, the United States dollar (USD), was used as the only exchange rate because it is the most sorted out for currency in Nigeria and through which most foreign transactions conducted by Nigerians are done. Crude oil outputs, imports, exports were all converted from daily, monthly figures to annual figures for standard and easy application.

Data Limitation: There were some hiccups in obtaining accurate data such as interest rates, which was only available in the database of Central Bank of Nigeria from 2002 to 2016.

The research hypothesis is formalised as follows:

H0: oil price is very significant to Nigerian economy.

H1: oil price is not massively significant to Nigerian economy.

3.2. Theoretical modelling

The Neoclassical growth theory of economic development as presented by Todaro and Smith (2004), attributes the relationship between growth in outputs as a subject of the relative increase in labour and the quality of labour. The quality and know-how attribute of labour are as results of education and the increase in the labour force as a function of the rise in the population. Todaro and Smith in their theory also added that both rise in the capital as a subject of increased investment and savings, and technological advancement as a catalyst for an increase in productivity.

Similarly, Robert Solow (1978), also presents the theory towards economic developments where technological advancement as a distinguishing factor for increased productivity, given both in productive inputs and output. Further study of Solow shows some variation in the empirical investigation of Cobb-Douglas function of production. Solow's pattern of estimation and the residual were however neglected for some reasons such as the residual method could not be used to analyse growth process since the basis was on Solow's ideology that there is a stability function of production, and the Solow's approach was measured on the notion that perfect competition does exist, which is unrealistic, total homogeneity and a stable return to scale etc.

The aftermath of Solow's model of growths' criticisms, Mankiw, Romer, and Weil (1992) presented economic aggregate output as follows:

$$Y_t = A_t K_t^\alpha H_t^\beta L_t^{1-\alpha-\beta} \dots\dots\dots (1).$$

Where A represents the indicator of technical variation, which changes from time to time but would assume to be constant for the moment,

K - capital stock, *L* - supply of labour, *H* - human capital.

It is essential to understand that both coefficients α and β should be within the range of 0 to 1, meaning that the sum of α and β should be less than 1, to show that all returns in the capital in the aggregate economic function are subjected to some degrees of decrease.

This above model is therefore modified to follow the earlier study carried out by Agbede M. Oyeyemi (2013), given:

$$GDP = F(L, K, C, E) \dots\dots\dots (2).$$

Where

GDP - gross national product,

L- for labour,

K - capital,

C - crude oil consumption,

E - crude oil export.

Using the Cobb-Douglas function of production, the model is then restructured as follows:

$$GDP = L^{\beta_1} K^{\beta_2} C^{\beta_3} E^{\beta_4} \dots\dots\dots(3).$$

Rewriting the equation (3) in linear model,

$$GDP = \beta_0 + \beta_1 L + \beta_2 K + \beta_3 C + \beta_4 E \dots\dots\dots(4).$$

To further modify this model to suit the linearity of change in oil price over time, using crude oil price, imports, total exports, government expenditures, inflation rates, government revenue and crude oil exports, money supply, and exchange rate as the primary factors.

$$RGDP = f(CROP, GEXPDT, INFLT, CRUEXPT) \dots\dots\dots(5).$$

Where

GDP_t – growth rate of gross domestic product,

$CROP_t$ - crude oil price,

$GEXPDT_t$ - government expenditure,

$INFLT_t$ - inflation rate,

$CRUEXPT_t$ - petroleum output,

Computing the linear formula, the model in equation 5 can therefore, be re-written as follows:

$$GDP_t = \beta_0 + \beta_1 CROP_t + \beta_2 GEXPDT_t + \beta_3 INFLT_t + \beta_4 CRUEXPT_t + \mu_t \dots\dots\dots(6).$$

Where μ_1 - stochastic error term assumption,

t – time series

with a normal distribution of zero (0), while variance is assumed to be constant, so that data remains stationary.

A priori economic expectations are as follows:

$$\beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 < 0, \beta_4 > 0.$$

Going with the rewritten model above, we then plan to estimate equation 6 in this paper.

3.3. Theoretical proposition of the model

In the earlier research work done by (Hamilton 2003), the relationship between changes in oil price and real gross national product growth is proposed to be nonlinear, more elaborately, the fall in oil price does not affect the real GDP growth, but a rise in oil price cause the GDP growth to increase. Also, oil price increases aftermath the era of some stability in oil price are more relevant than oil

price increases that move in the direction earlier drops. This paper, just like many other research works, however, expects a positive correlation between oil price and GDP growth. A significant body of empirical shows that increase in oil prices brings about a corresponding increase in GDP in oil-importing economies, this increase in oil price equally has a positive relationship with the GDP in Nigeria as observed in 2014 (Word Data, 2014). Research works done so far have established that many recessions or falls in GDP aftermath of oil price shock are traced to a downfall in oil price, and not monetary policy.

A positive correlation between oil price and government spending was also claimed by Obadan (2003), with arguments that relationship between oil price and the government is huge, and exhibits some connections and possess fiscal consequences. The mentioned linkages are the potential channels through which government could use increasing oil revenue to map out strategies and develop other sectors of the economy such as tourism, education, agriculture, services, infrastructures, etc. There is also a corresponding increase in government spending when the government receives more from the oil rent resulting from an increase in oil price. There increased spending is mainly through an increase in investments infrastructures, salaries, and other recurrent expenditures. Hence, increased oil price is directly proportionate to an increase in government expenditures.

3.4. Empirical results

To establish the acceptance of the econometrics outcome of this empirical results, the Augmented Dickey-Fuller is conducted for all variables with constant.

Table 2. Unit root test

VARIABLES	INTEGRATION	NUMBER OF LAG	CRITICAL VALUES	AUGMENTED DICKEY-FULLER	REMARKS
GDP	1(1)	0	2.967767	4.369650	Stationary
CROP	1(1)	0	2.967767	5.688543	Stationary
CRUEXPRT	1(1)	0	2.967767	4.851488	Stationary
GEXPDT	1(2)	1	2.976263	13.37353	Stationary
INFLT	1(0)	7	2.998064	4.169701	Stationary

Source: Author's calculations

The table 1 above shows the stationary of the unit root test that was conducted which indicates that only inflation (INFLT) exhibits stationary at level, which is observed by establishing a comparison between the test statistics in absolute term and Augmented Dickey-Fuller test statistics test at 5% critical value of significance. Since other variables remained non-stationary at level, they were again tested at difference, and the results further showed that they were all stationary at first differenced, except government expenditure (GEXPDT). Government expenditure (GEXPDT) were therefore tested at second differenced, and the expected stationary was equally observed for all variables by comparing both the test statistics of Augmented Dickey-Fuller test in absolute terms to the test statistics in critical value at 5% significance. Hence, all variables became stationary.

Table 3. Co-integration test result

Date: 05/15/18 Time: 14:04
 Sample (adjusted): 1988 2015
 Included observations: 28 after adjustments
 Trend assumption: Linear deterministic trend
 Series: INFLT GEXPDT GDP EXCHG CRUEXPT CROP
 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 *	0.860180	152.8700	95.75366	0.0000
At most 1 *	0.742393	97.78268	69.81889	0.0001
At most 2 *	0.703861	59.80576	47.85613	0.0026
At most 3	0.395457	25.73179	29.79707	0.1369
At most 4	0.247716	11.63988	15.49471	0.1750
At most 5	0.122843	3.669927	3.841466	0.0554

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.860180	55.08728	40.07757	0.0005
At most 1 *	0.742393	37.97692	33.87687	0.0153
At most 2 *	0.703861	34.07398	27.58434	0.0064
At most 3	0.395457	14.09191	21.13162	0.3575
At most 4	0.247716	7.969951	14.26460	0.3818
At most 5	0.122843	3.669927	3.841466	0.0554

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b*S11*b=I):

INFLT	GEXPDT	GDP	EXCHG	CRUEXPT	CROP
1.498267	-6.583109	6.771943	-0.662627	-3.752066	0.391134
-0.251300	-3.214041	1.609781	1.241829	-9.482278	3.754135
-0.353598	-15.86124	9.046378	-2.415444	5.584354	1.226255
-0.285471	-12.18788	15.87528	0.794136	0.452925	-8.723483
-0.095722	-10.92543	6.753869	-2.526669	-12.70134	-2.970764
-0.058352	5.719338	-8.171560	1.448625	7.450253	-3.609933

Unrestricted Adjustment Coefficients (alpha):

D(INFLT)	D(GEXPDT)	D(GDP)	D(EXCHG)	D(CRUEXPT)	D(CROP)
-0.920079	0.016609	0.125405	-0.007091	0.079102	-0.102014
0.225945	0.009952	0.101587	0.094360	-0.017850	0.025150
-0.007091	0.009952	0.101587	0.026173	-0.073461	0.034637
0.056230	-0.163763	-0.396544	0.056230	-0.015779	0.060241
-0.015779	0.036802	0.050828	-0.076594	-0.018799	0.233174
0.017993	0.015444	-0.030311	-0.039724	0.047103	0.004149
0.030925					0.053931

Source: Author's calculations

Accordingly, to show the cointegration relationship between the variables just after the unit root test, a test of cointegration was conducted by applying the Johansen Maximum likelihood estimation method. Trace test statistic from Johansen Maximum estimation method was then used to determine what kind of relationship do variables exhibit in the long run. It should be concluded that a long run relationship does exist between variables if and only if at least, a one-one cointegration vector is associated with the variables. The table 3 above shows the outcomes of cointegration findings.

From the table 3 above, there is a co-integration existence between variables. It should, therefore, be established that there is indeed, a long-term relationship between both the dependent variable and independent variables in the model since the critical value at 5% or 0.05 is less than the likelihood ratio.

Regression result and discussion.

Table 4. Regression result

Dependent Variable: GDP
Method: Least Squares
Date: 05/15/18 Time: 13:51
Sample (adjusted): 1988 2015
Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.008786	0.031450	-0.279348	0.7830
CROP	0.390251	0.125744	3.103538	0.0058
CROP(-1)	-0.088269	0.122858	-0.718467	0.4812
GEXPDT	0.884373	0.106603	8.295981	0.0000
CRUEXPT	0.644374	0.275492	2.338994	0.0304
CRUEXPT(-1)	-0.241793	0.295111	-0.819330	0.4228
CRUEXPT(-2)	0.296486	0.266130	1.114065	0.2791
INFLT	-0.024960	0.038694	-0.645068	0.5266
INFLT(-2)	-0.033970	0.031636	-1.073787	0.2964
R-squared	0.864806	Mean dependent var		0.140282
Adjusted R-squared	0.807882	S.D. dependent var		0.289911
S.E. of regression	0.127072	Akaike info criterion		-1.033037
Sum squared resid	0.306798	Schwarz criterion		-0.604828
Log likelihood	23.46252	Hannan-Quinn criter.		-0.902129
F-statistic	15.19233	Durbin-Watson stat		2.736969
Prob(F-statistic)	0.000001			

Source: Author's calculations

The table 4 above presents the regression result for the equation modelled earlier to test the consequence and the significance of oil shock on the Nigerian economy.

With the help of correlation coefficient of the parameter estimate, the significance of the parameter estimate can be statistically investigated, i.e., the standard error test, the R² (Adjusted R-square), the Durbin Watson Statistics and F-statistics.

As seen in table 4 above, the standard error showed the test exhibited a statistical significance as the standard errors of some relevant variables were way below 50% of their coefficient. Crude oil price, without lag, showed a standard error of 0.125744, which is about one-third of crude oil coefficient of 0.39025. This proves that there is a significant impact of crude oil price on Nigerian GDP according to the model. Similarly, government expenditure, without lag, has a coefficient of 0.884373 which is almost eight times its standard error of 0.106603. Inflation, however, do not shown any significance with respects to GDP growth rate but shows a negative correlation as expected. Crude oil export also showed a significant correlation to GDP growth rate at 0.644374 coefficient and 0.275492 standard error. Which also implies that an increase crude oil export would lead to an increase in GDP.

The adjusted R-square for the model is significantly large at 0.807882, which indicates that the variables with significant p-values at 5% significance critical level are all impactful on the GDP according to the model equation. In other words, crude oil price, government expenditure, crude oil export, government revenue all represent 80% systemic changes in GDP.

On the other hand, Durbin-Watson stood at 2.736969 for the model, which is relatively within the acceptable region and also an indication that the model is auto-correlation error-free.

At 15.19233, F-statistic is considered high enough to establish the overall model significance of the regression analysis. In addition, the probability of the F-statistic at 0.000001, which is less than the p-value of 5% or 0.05 also shows that the relevant variables involved in the equation are critical GDP and economic growth.

It can, therefore, be concluded that oil price is very significant to the GDP of Nigeria and the Nigerian economy since the statistical results of all the tests conducted in the paper indicate that there is a statistical significant relationship between both independent and dependent variables. Hence, the alternative hypothesis is therefore accepted.

Similarly, Table 4 above which is the ordinary least square test result of the multiple regression. According to the result, crude oil price exhibited a positive relationship with GDP at level and further showed a correlation with GDP at 0.58% significance statistically. This, therefore, shows that there is a direct relationship between the gross domestic product and crude oil price in Nigeria.

In addition, it also means that a unit rise in crude oil price will lead to about 39% increase in GDP of Nigeria. This further shows that the proposed priori economic expectation is accurate for crude oil price. Government expenditure, at level, shows statistical significance at 0.0000%, and at 0.884373 statistical coefficient, which equally indicates that a unit increase in government revenue will lead to an increase of about 88% of GDP. This also shows the significance of crude oil price in Nigeria, as oil revenue accounts for more than 70% of government earnings in Nigeria.

Judging by the results obtained in the regression analysis, government expenditure also a statistical significance as hoped and possess a positive coefficient, which indicates that a proportionate increase in government spending will cause the GDP to increase by 88%. This further testifies the early research works of Oladeji(2007), Cover (1997) and Agbede (2013) that both contraction and expansionary monetary and fiscal policy affect outputs in the economy.

CONCLUSION

This thesis looked into how oil shock affects the gross domestic product and the economic growth in Nigeria. The empirical analysis was carried out to establish the relationship between GDP as the dependent variable and crude oil price, among many other variables as independent variables using ordinary least square approach for annual data of all variables between 1986 to 2016. The model was structured and observed to be significant with some of the variables estimated turning out as expected.

The study also established a positive correlation between GDP and crude oil price as well as government expenditure. This outcome is in line with the model's economic priori expectations. The result also shows that non-oil sector of the Nigerian economy is rather insignificant to the nations economy. Therefore, it is highly recommended that the Nigerian government and the policy makers look inward and device strategies to diversify the economy by taking the advantage all available alternative resources such solid minerals, tourism, agriculture, technology and service sector in the country to ensure a sustainable economic development and economic growth, drawing examples from the UAE, Indonesia, Mexico etc. That would also safeguard the nation against future oil shock as oil shock has proven to be inevitable.

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APPENDICES

Appendix 1.

Table 5. Nigerian States and their Natural Resources

S/N	States	Resources
1	Abia	Gold, Lead/Zinc, Limestone, Oil/Gas & Salt
2	Abuja	Cassiterite, Clay, Dolomite, Gold, Lead/Zinc, Marble & Tantalite
3	Adamawa	Bentonite, Gypsum, Kaolin & Magnesite
4	Akwa Ibom	Clay, Lead/Zinc, Lignite, Limestone, Oil/Gas, Salt & Uranium
5	Anambra	Clay, Glass-Sand, Gypsum, Iron-ore, Lead/Zinc, Lignite, Limestone, Phosphate & Salt
6	Bauchi	Gold, Cassiterite (tine ore), Columbite, Gypsum, Wolfram, Coal, Limestone, Lignite, Iron-ore & Clay
7	Bayelsa	Glau, Gypsum, Lead/Zinc, Lignite, Limestone, Maganese, Oil/Gas & Uranium
8	Benue	Barite, Clay, Coal, Gemstone, Gypsum, Iron-Ore, Lead/Zinc, Limestone, Marble & Salt
9	Borno	Bentonite, Clay, Diatomite, Gypsum, Hydro-carbon, Kaolin & Limestone

10	Delta	Clay, Glass-sand, Gypsum, Iron-ore, Kaolin, Lignite, Marble & Oil/Gas
11	Ebonyi	Gold, Lead/Zinc & Salt
12	Edo	Bitumen, Clay Dolomite, Phosphate, Glass-sand, Gold, Gypsum, Iron-ore, Lignite, Limestone, Marble & Oil/Gas
13	Ekiti	Feldspar, Granite, Kaolin, Syenite & Tatum
14	Enugu	Coal, Lead/Zinc & Limestone
15	Gombe	Gemstone & Gypsum
16	Imo	Gypsum, Lead/Zinc, Lignite, Limestone, Marcasite, Oil/Gas, Phosphate & Salt
17	Cross River	Barite, Lead/Zinc, Lignite, Limestone, Manganese, Oil/Gas, Salt & Uranium
18	Jigawa	Butyles
19	Kaduna	Amethyst, Aqua Marine, Asbestos, Clay, Flosper, Gemstone, Gold, Graphite, Kaolin, Hyanite, Mica, Rock Crystal, Ruby, Sapphire, Sihnite, Superntinite, Tentalime, Topaz & Tourmaline
20	Kano	Gassiterite, Copper, Gemstone, Glass-sand, Lead/Zinc, Pyrochinre & Tantalite
21	Kastina	Kaolin, Marble & Salt
22	Kebbi	Gold
23	Kogi	Cole, Dolomite, Feldspar, Gypsum, Iron-ore, Kaolin, Marble, Talc & Tantalite
24	Kwara	Cassiterite, Columbite, Feldspar, Gold, Iron-ore, Marble, Mica & Tantalite

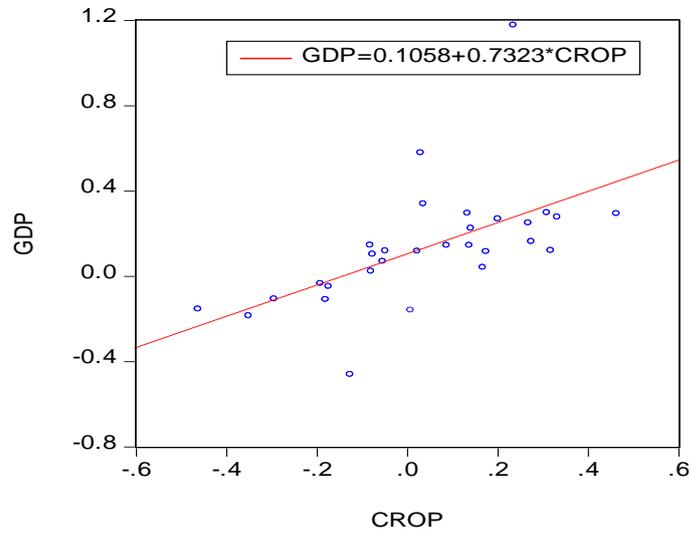
25	Lagos	Bitumen, Clay & Glass-sand
26	Nasarawa	Amethyst (Topaz Garnet), Barytex, Barite, Cassirite, Chalcopyrite, Clay, Columbite, Coking Coal, Dolomite/Marble, Feldspar, Galena, Iron-ore, Limestone, Mica, Salt, Sapphire, Talc, Tantalite, Tourmaline Quartz & Zircon
27	Niger	Gold, Lead/Zinc & Talc
28	Ogun	Bitumen, Clay, Feldspar, Gemstone, Kaolin, Limestone & Phosphate
29	Ondo	Bitumen, Clay, Coal, Dimension Stones, Feldspar, Gemstone, Glass-Sand, Granite, Gypsum, Kaolin, Limestone & Oil/Gas
30	Osun	Columbite, Gold, Granite, Talc, Tantalite & Tourmaline
31	Oyo	Aqua Marine, Cassiterite, Clay, Dolomite, Gemstone, Gold, Kaolin, Marble, Silimonite, Talc & Tantalite
32	Pleteau	Barite, Bauxite, Betonite, Bismuth, Cassiterite, Clay, Coal, Emerald, Fluoride, Gemstone, Granite, Iron-ore, Kaolin, Lead/Zinc, Marble, Molybdenite, Phrochlore, Salt, Tantalite/Columbite, Tin & Wolfram
33	Rivers	Clay, Glass-Sand, Lignite, Marble & Oil/Gas
34	Sokoto	Clay, Flakes, Gold, Granite, Gypsum, Kaolin, Laterite, Limestone, Phosphate, Potash, Silica Sand & Salt
35	Taraba	Lead/Zinc
36	Yobe	Soda Ash & Tintomite
37	Zamfara	Coal, Cotton & Gold

Source: Nigerian Embassy, Sweden. <http://nigerianembassy.nu/natural-resources/>

Apart from oil, there are several investments opportunities in the solid mineral sector of the Nigerian economy. And with the provision of the right environment, these resources could attract both local and foreign investors.

Appendix 2.

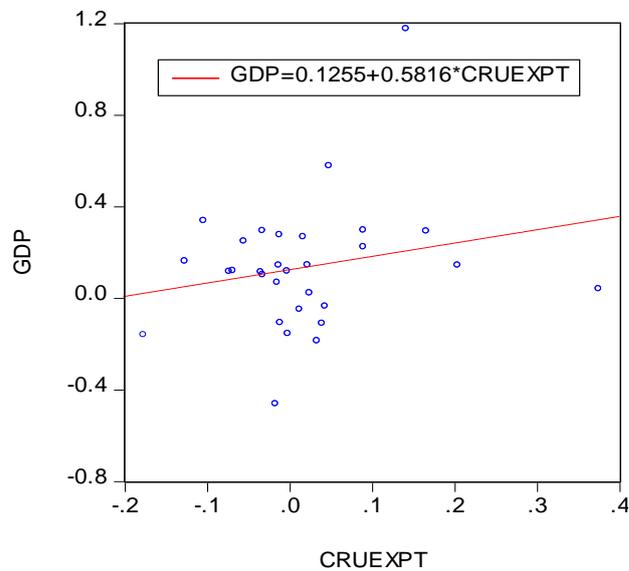
GDP growth rate and crude oil price



Source: Author's calculation

Appendix 3.

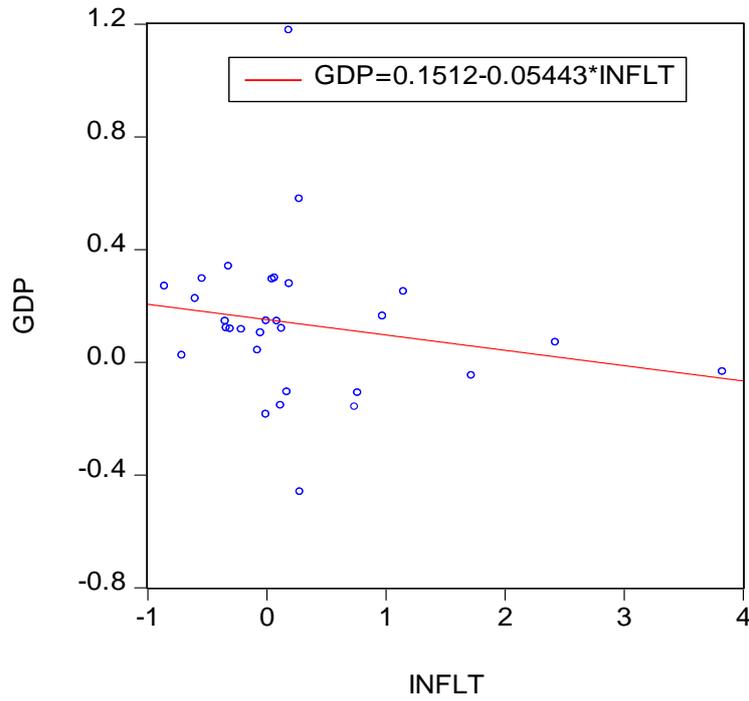
GDP growth rate and crude oil exports.



Source: Author's calculation

Appendix 4.

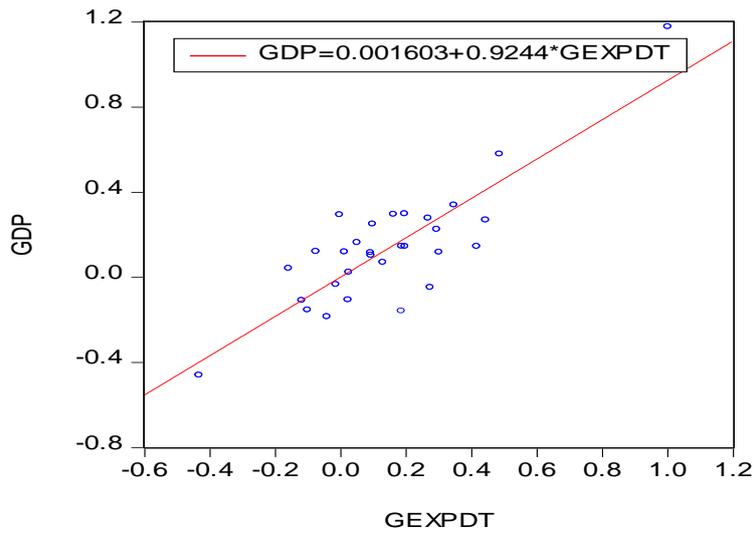
GDP growth rate and Inflation rate.



Source: Author's calculation.

Appendix 5.

GDP growth rate and government expenditure



Source: Author's calculation