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Dependence on oil: What do statistics from Nigeria show?

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Abstract

Many economists have raised cogent concerns regarding the economic stability of Nigeria, given the volatility and in recent times, the decline in oil prices. Since the discovery of crude oil in commercial quantity in Nigeria in 1956 and the attendant oil boom in the 1970s, oil has been the thought and the talk of the country chiefly because of its associated quick and huge returns. The nation by way of dependence on this black gold has experienced rapid economic growth though in an inconsistent manner; this can be attributed to the volatility in the price of the crude oil upon which the country leans. This paper shows how volatility in oil prices engenders inconsistency in economic growth vis-à-vis oil production and oil exports. Secondary data from 1993 to 2015 and descriptive tools were used to assess this and it was found that there exists a positive correlation between oil dependency and inconsistency in economic growth in Nigeria. Growth was attained as a result of high world oil prices; however, due to volatility in oil prices and failure of the country to industrialise and diversify the economy from its monocultural nature, such growth tends to be volatile. It was, therefore, recommended that a forceful and pragmatic diversification, chiefly towards the manufacturing sector, is the key to an increased and a sustainable economic growth.

Keywords: dependency, diversification, Gross Domestic Product (GDP), Nigeria, volatility

JEL Classification: Q31, Q32

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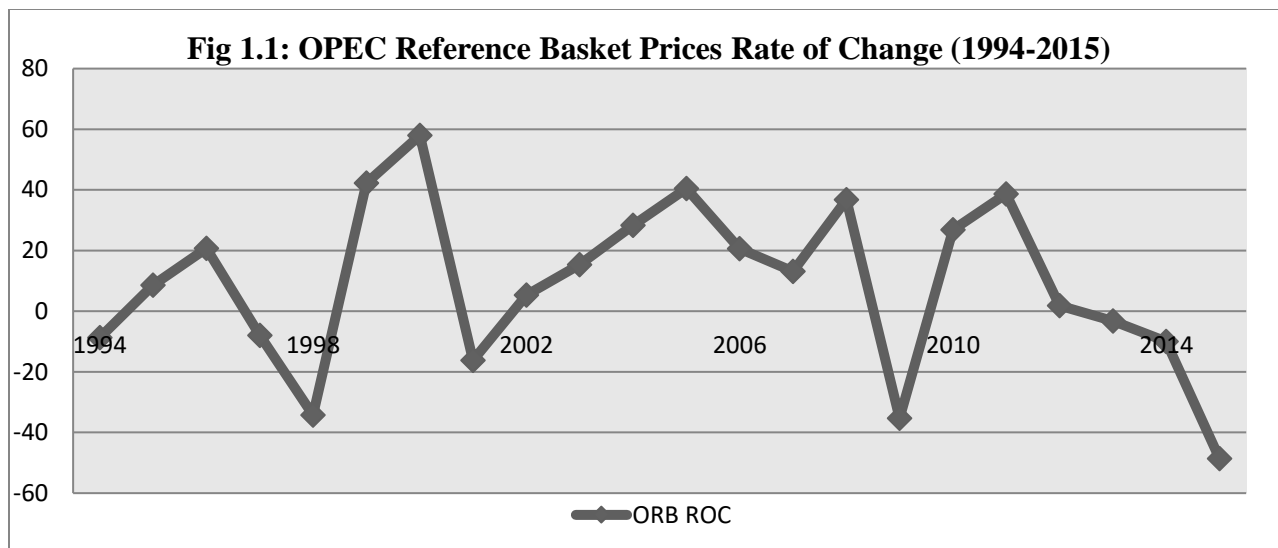
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1. INTRODUCTION

Nigeria is a country that is blessed with diverse natural resources. The most populous black nation with over 172 million inhabitants, located on the Gulf of Guinea on African's western coast. It is made up of 36 states and a Federal Capital Territory further divided into 776 Local Governments areas in six geopolitical zones. Apart from petroleum, Nigeria's other natural resources include natural gas, tin, iron ore, coal, limestone, niobium, lead, zinc and arable land. In 2015, gross oil revenue accounts for about 4% of the gross domestic product (GDP), representing 55.4% of total federally-collected revenue; and petroleum export revenue represents over 90% of total exports revenue (CBN, 2015).

Prior to the oil boom of the 1970s, Nigeria was principally an agrarian economy, producing cocoa, groundnuts, palm kernel, palm oil, amongst other cash crops for exports. In the late 1960s, the agricultural sector contributed on the average 55.18% to the nation's GDP and 55% of her foreign exchange earnings. During the era preceding the discovery of oil in commercial quantity, the groundnut pyramid of the north, cocoa plantation of the west and palm products of the east constituted the primary sources of foreign revenues in these regions and by extension the nation (Emediegwu and Monye-Emina, 2016; Vincent, 2001; Anyanwu et. al., 1997). However, the economy took a different dimension by the turn of the 1970s which saw the petroleum sector taking over as the mainstay of the nation. This implies that the country's economy is primarily driven by the oil sector, making it an *oil-based* economy.

As illustrated in Fig. 1.1, oil prices in the world market have remained noticeably volatile. The volatility in oil prices comes from international shocks occasioned by several factors such as wars, financial crisis, decreased oil production and terrorism. Consequently, as an oil dependent country, such volatility is detrimental to the economic wellbeing of Nigeria.



Sources: Organisation of the Petroleum Exporting Countries 2003, 2014, 2016 Rates of Change (ROC) calculated by authors

Besides the unstable trend in oil prices, oil production in the country suffers from supply disruption due to conflicts in the Niger-Delta (the primary location of oil and natural gas industries in Nigeria), oil theft, commonly referred to as “bunkering”, pipeline sabotage, corruption, ageing and poorly maintained infrastructural facilities. Consequently, price effects and supply defects aggregate to militate against securing the lasting benefits derivable from oil (World Bank, 2013). Unfortunately, the oil price is the *meter* against which the national budget is gauged. A change in price, therefore, especially on the *south-side*, can spell doom for an unprepared economy. Additionally, as alternative fuels and *fuel-less* mechanisms become popular, and oil importing nations now discovering oil wells, only a proactive, forceful diversification of the nation’s economy can save Nigeria from an impending economic Waterloo. As a consequence of the foregoing, oil imports from Nigeria by major economies such as the United States have declined steadily. The United States Energy Information Administration (EIA) data show that the United States which has been the largest importer of Nigerian crude oil for, at least, the past decade imported between 9% and 11% of its crude oil from Nigeria.

However, this share nose-dived to an average of 5% in 2015 and, further, 4% from January to August 2016 (EIA, 2016). Thus, the nation's one-time biggest oil importer now has their own oil wells which is a major cause of oil price *free fall*. Their shale gas technology has made the United States one of the largest producers of oil in the world. Against this backdrop, the United States may not be in need of Nigeria's oil anymore and this is disastrous for the revenue generation of an oil-dependent nation.

Since June 2014 (when oil price was \$115/bbl) oil price has been in free fall, with demand dropping across United states, Europe, Japan, India, China, Brazil and much of the emerging world market. From \$115 per barrel, the price of the brent crude has consistently fallen to about half, to stand at \$56.58 per barrel as at April, 12th 2017 (www.vox.com).

The main objective of this paper is to show, with the aid of descriptive tools, the nature of the correlation between dependence on oil and inconsistent economic growth in Nigeria, *inter alia* other relevant factors. The research, in addition, aims to offer policy recommendations that will help propel a non-oil based growth. The paper is subdivided into four sections: section 2 presents an overview of the Nigerian economy and the oil factor. Methodology and data are considered in section 3 while section 4 presents conclusion and policy recommendations.

2. AN OVERVIEW OF THE NIGERIAN ECONOMY AND THE OIL FACTOR

The Nigerian Economy – A Brief

Structurally, Nigeria at different epochs has been dominated by either of these two sectors – the agricultural and oil sectors. This implies that the economy has so far been mono-cultural. The economy has undergone fundamental structural changes since independence. The implementation of the medium-term development has been the major framework which Nigeria

has relied upon to restructure the economy since 1960. Four national plans were launched between 1962 and 1985 (Iyoha, 2003).

The First National Development Plan (NDP) 1962-1968 sought to create the conditions necessary to achieve an increase in the standard of living for all Nigerians by giving priority to agricultural and industrial development as well as training of high level and intermediate manpower (Ekundare, 1971). Whereas the second NDP (1970-1974) which coincided with the period of the oil boom aimed at undertaking reconstruction and rehabilitation as an aftermath of the civil war (1967-1970).

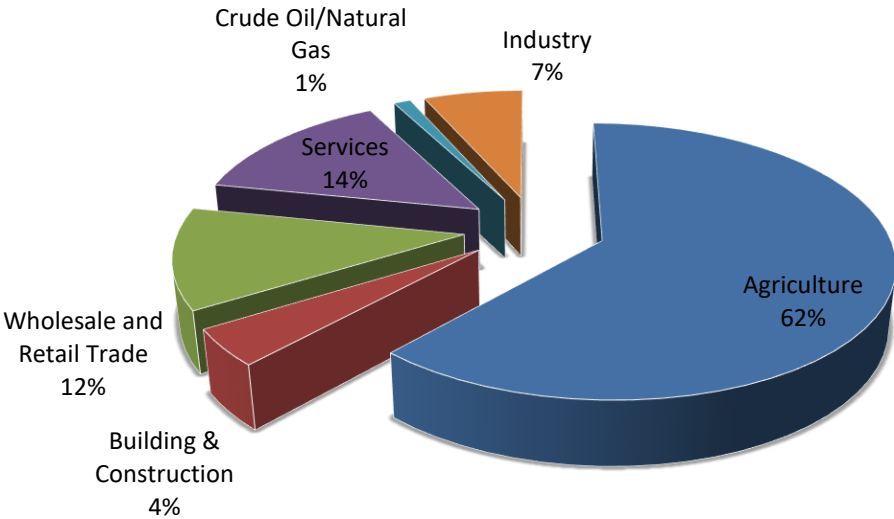
While the third NDP (1975-1980) was designed under a more favourable financial condition of huge oil revenues, the fourth NDP (1981-1985) suffered from paucity of funds as a result of the decline in oil prices. Consequently, the former focused on diversification, further indigenization and balanced development, but the latter was inundated with either uncompleted or abandoned projects. There is no gainsaying to attribute the genesis of the problem of oil dependency to this era of the third NDP.

Nigeria and the Oil Factor

It cannot be taken for granted that the Nigerian economy is intricately intertwined with the developments in the oil sector since the oil boom era of the early 1970s. By way of comparison, Figures 2.1a and 2.1b show the percentage contribution of several sectors to GDP in 1962 (First NDP period) and 1985 (Fourth NDP period). While crude oil contributed less than one percent to the country's GDP in 1962, its contribution rose to 36 percent of GDP in 1985. On the other hand, the contribution of the agricultural sector to GDP which stood at 62 percent in 1962 declined significantly to 33 percent in 1985. By this time, the oil sector had already subdued the agricultural sector in terms of financial and economic relevance. It is important to note that

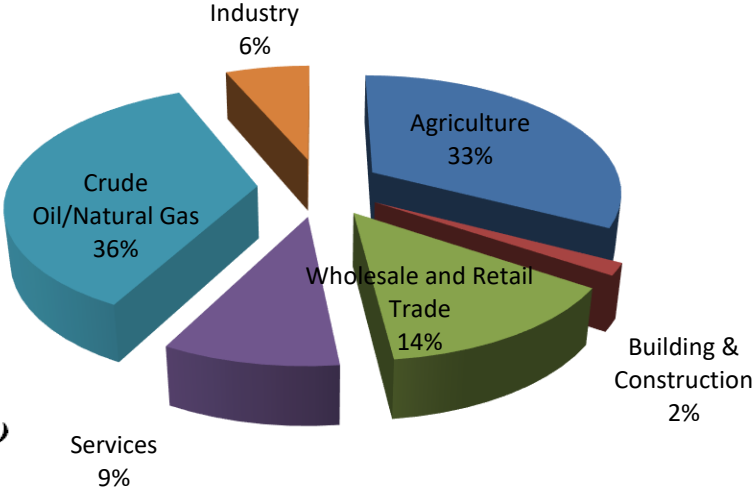
during these periods, the industrial sector contribution to GDP has consistently been very low; 7 percent in 1962 and 6 percent in 1985. Crude oil exports which constituted less than three percent of total exports in 1960/61 rose astronomically to 98.7 percent in 2000, 96.5 percent in 2010 and dropped to 71.4 percent in 2015. (See Table 2.1 and Fig. 2.2).

Fig. 2.1a: Percentage Sectoral Contribution to GDP (1962)



Source: CBN (2008)

Fig. 2.1b: Percentage Sectoral Contribution to GDP (1985)

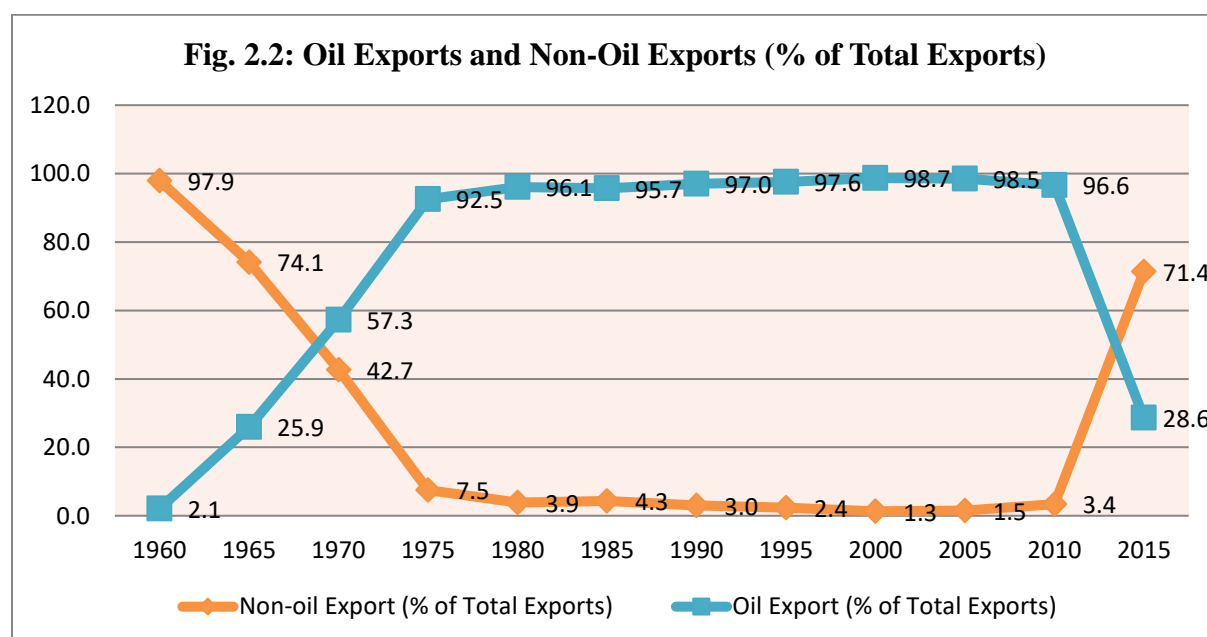


Source: CBN (2008)

Table 2.1: Nigeria's Total Exports and Value of Oil Exports

YEARS	TOTAL EXPORTS (billion =N=)	VALUE OF OIL EXPORTS (billion =N=)	OIL EXPORT AS % OF TOTAL EXPORTS	NON-OIL EXPORT AS % OF TOTAL EXPORT
1960	0.34	0.01	2.1	97.9
1965	0.54	0.14	25.9	74.1
1970	0.89	0.51	57.3	42.7
1975	4.93	4.56	92.5	7.5
1980	14.19	13.63	96.1	3.9
1985	11.72	11.22	95.7	4.3
1990	109.89	106.63	97.0	3.0
1995	950.66	927.57	97.6	2.4
2000	1,945.72	1,920.90	98.7	1.3
2005	7,246.53	7,140.58	98.5	1.5
2010	11,631.81	11,230.55	96.6	3.4
2015	9,729	6,950	71.4	28.6

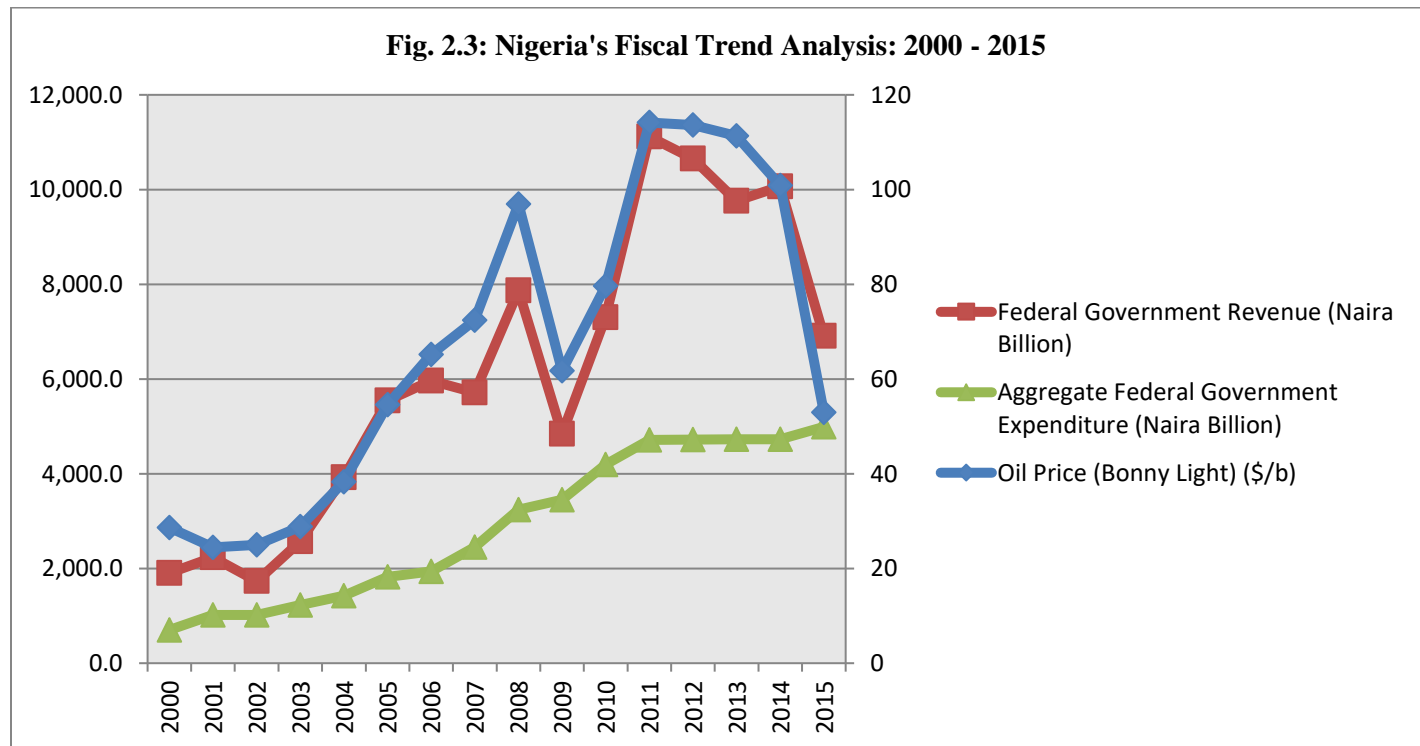
Sources: CBN 2008, 2015



Sources: CBN 2009, 2012; OPEC 2016

The above statistics underscore the fact that the oil sector has been the backbone of the Nigerian economy since the 1970s. Consequently, the country's fiscal policy is strongly controlled by the oil volume, value and volatility in price. The sizeable oil windfall presented net wealth and thus additional spending room, but it also led to an extreme dependence on oil. As such, any major shock in international oil market negatively affects the economy as was evident during the global economic and financial crisis when crude oil prices plummeted from its record price of \$147.50 per barrel in July 2008 to less than \$40 per barrel in December 2008. This expectedly caused government revenue to fall. (Igberaese, 2013; Agbaeze, Udeh and Onwuka, 2015).

The oil-induced prosperity of the early 1970s which Nigeria enjoyed as one of the world's top oil exporter has led to the federal government's revenue and expenditure moving in sympathy with the fluctuations in oil prices over the years (see Fig. 2.3).



Sources: OPEC 2014, 2016; CBN 2008, 2015

Figure 2.3 shows that government revenue takes on almost exactly the same trend as oil prices while expenditure maintained a fairly consistent rise. For example, in periods of positive change in oil price such as 2002-2008 and 2009-2011, revenue imitated the trend, while expenditure kept rising fairly. It is sad, however, to state that despite the moments of oil commerce and more importantly, the periods of positive oil shocks experienced by the country over the years, the country instead of advancing is retrogressing as evidenced by the plethora of developmental challenges bedevilling it today.

Udoh, Ebong and Ekpenyong (2007) asserts that large swings in revenue hamper a sound budget process and spending plans as well as the delivery of minimum standards in public service. This in conjunction with the failure of the Nigerian government over the years to facilitate the diversification and growth of the non-oil sector has made the “black gold” more of a curse in disguise.

The reduction in the forecast for oil demand in 2014 by the Organisation of Petroleum Exporting Countries (OPEC) and worse still, the free fall of crude oil prices since mid-2014 is a perturbing development not just in the oil sector but for the whole country. The reduction in production which results from internal challenges; cut in oil demand by major importing countries, coupled with the fall in global oil price which among other things is occasioned by the discovery of oil wells and alternative sources of commercial energy by major importing countries have a far reaching effect on budget implementation that is anchored on expected revenue from oil exports earnings.

Summarily, over-dependence on oil revenue which unfortunately is mercurial and consequently unreliable has been the bane of development in Nigeria as evidenced by the failure of its several development programmes. Another reason is the several successive government failure to

achieve the twin goal of diversification and industrialisation which is the key to sustainable economic growth and development. The glut of “quick money” emanating from oil sales has probably blindfolded the government and stayed it from focusing critically on how to revive other viable sectors of the economy.

3. METHODOLOGY AND DATA

In this section, we used descriptive methods to analyse the data on oil production, oil prices, oil exports, manufacturing exports and GDP growth. We must state, however, that the results from the analysis do not show causality. The essence, at best, is to show correlative relationship of oil production, prices and export revenue on economic growth. Furthermore, we shall also consider how the manufacturing sector has fared *vis-à-vis* the oil sector.

The data analysed in this section are gathered from both national and international sources. They include National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN), Nigerian National Petroleum Corporation (NNPC), World Bank, Organisation of Petroleum Exporting Countries (OPEC) and U.S. Energy International Agency (EIA). The data analysed range from 1992 to 2015.

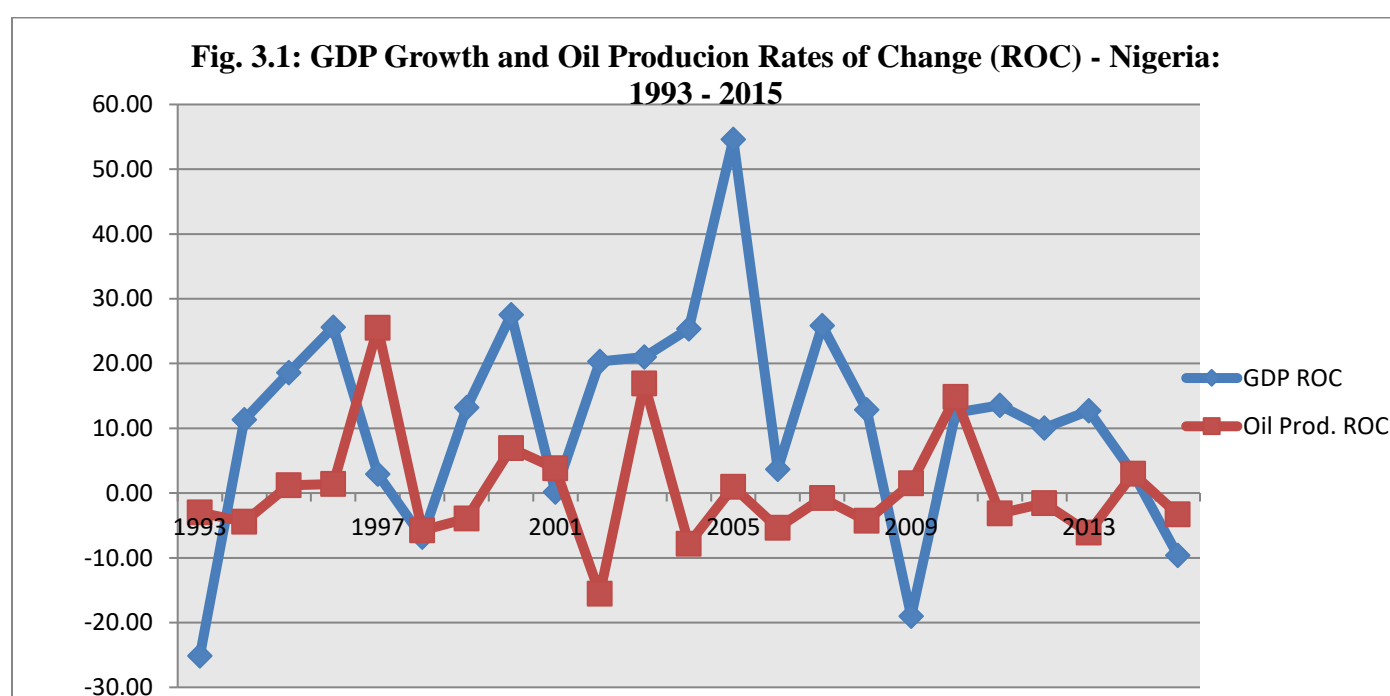
Oil Dependency and Growth

Since crude oil accounts for over 80 percent of total merchandise exports, it has been the mainstay of the Nigerian economy for over three decades. It is, therefore, imperative to find out the nature of the effect it has had on GDP over the decades.

Table 3.1 reveals the summary statistics of the variables used in the analysis while Fig. 3.1 shows the relationship between average oil production in Nigeria and average GDP growth rate between 1993 and 2015.

Table 3.1: Summary Statistics of Variables

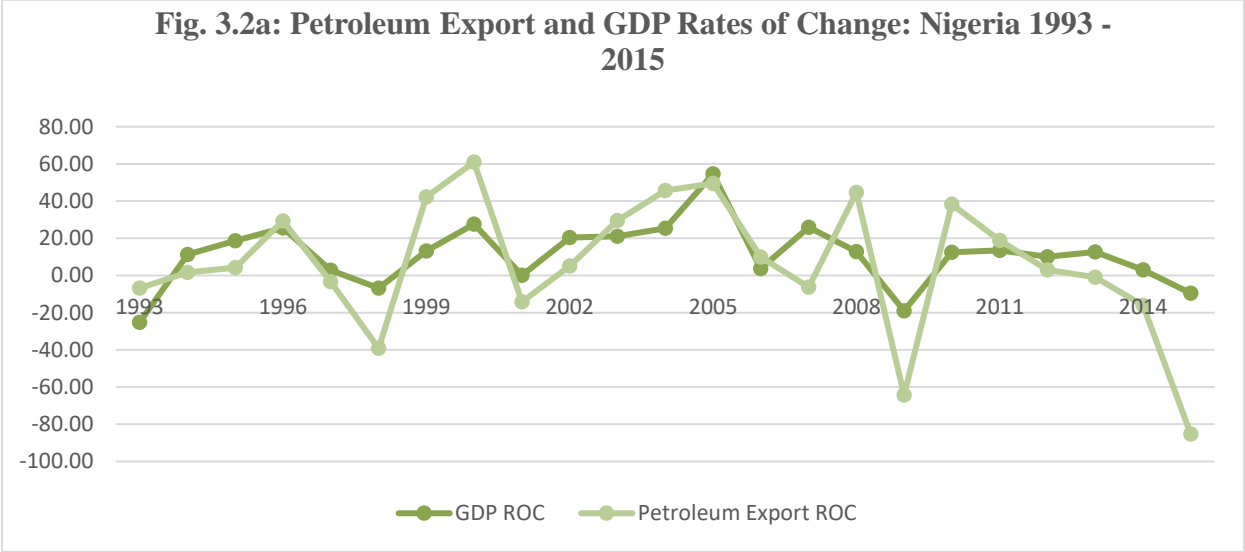
<i>Variable</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
<i>Global oil price ROC</i>	23	8.754091	27.71761	-48.6	57.99
<i>Petroleum exports ROC</i>	23	6.958636	36.59247	-85.3	60.93
<i>GDP ROC</i>	23	11.04957	16.95775	-25.13	54.6
<i>Oil production ROC</i>	23	0.4704347	8.833897	-15.56	25.49



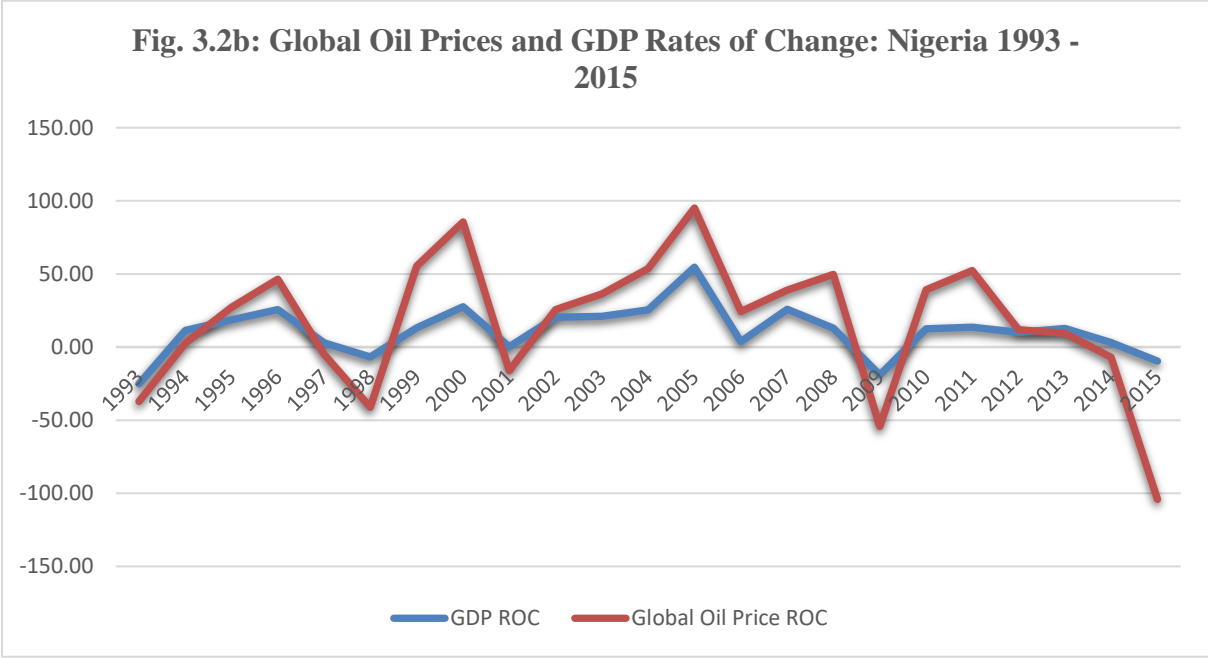
*Sources: NNPC 2005, 2013; OPEC 2016; World Bank Databank
Rates of Change calculated by authors*

Fig. 3.1 indicates that there is no positive correlation between oil production and GDP growth. Though there was an increase in oil production between 1995 and 1997, GDP maintained a negative growth rate. Similarly, while oil production in 2002 decreased by above 15 percent points, GDP still increased by about 20 percent points. It was only in 2014 and 2015 that both variable moved in the same downward direction. This clearly reveals to us that oil production did

not have any visible effect on Nigeria GDP growth between 1993 and 2015. How then can GDP growth in Nigeria vis-à-vis oil be explained? To answer this, we have to analyse the correlation oil export revenue and GDP growth, as well as fluctuation in global oil prices and GDP growth.



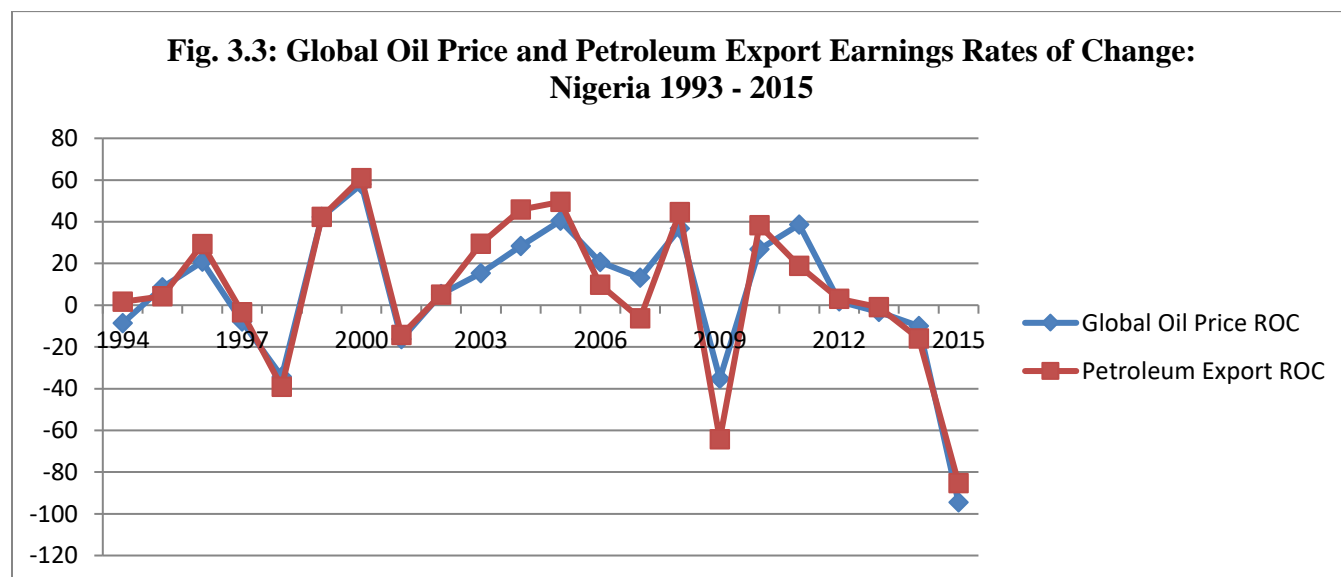
*Sources: OPEC 2004, 2009, 2016.
Rates of Change (ROC) calculated by authors*



*Sources: OPEC 2004, 2009, 2016.
Rates of Change (ROC) calculated by authors*

Fig. 3.2a suggests that for most of the years under consideration, GDP is directly related to petroleum export earnings. For years like 1993, 1998 and 2009 where there was a drop in petroleum export earnings, GDP followed the same downward trend. Furthermore, as earnings from petroleum export declined between 2013 to 2015, GDP followed suit. Expectedly, most years when oil exports earning increased also saw the rise of GDP. However, it is important to note that for some years – 2001, 2007 and 2012 – GDP still grew despite the decrease of export earnings. In the same vein, Fig. 3.2b shows that change in GDP has been moving in the similar direction with world oil price changes for all the years under consideration except 2011 where both moved in different directions. This shows a clear positive correlation between both variables.

Next, we now analyse the relationship that exists between petroleum export earnings and global oil prices.



Sources: OPEC 2004, 2009, 2016
Rates of Change (ROC) calculated by author.

Figure 3.3 shows the rate of change in petroleum export revenue and oil prices between 1993 and 2015. The graph reveals that there exists a positive relationship between the two for the

years under review except in the year 2007 when there was a decrease in export earning though oil prices increased. The decrease in oil export despite an increase in global oil price in 2002 could likely be as a result of the unrest caused by the petroleum protests of the militants in the Niger-Delta.

From the descriptive analysis, it appears that oil production in Nigeria did not affect GDP growth in any significant way, nonetheless, oil export earning has a positive relationship with economic growth. Although this relationship is not claimed to be causal, however, the resultant correlation from the primary analysis is a useful *prima facie* in studying the causality between the two variables.

Industrialisation, Diversification and Growth

The key to sustainable growth is industrialisation and diversification. Putting all of one's egg in a single basket can only lead to 'growth-mirage', hence the clarion call for a paradigm and pragmatic shift from a monocultural economy under which Nigeria can be classed to a diversified economy. Nigeria, an oil-based nation has neither efficiently diversified its economic base nor sufficiently industrialised. This is illustrated in Table 3.1 where the percentage of oil export and manufactured exports are expressed as a percentage of total merchandise export from 1996 to 2015.

Table 3.1 reveals that manufacturing sector's contribution has been uninspiring, going as low as 0.2 percent in year the 2000 while its oil counterpart contributed about 100 percent to merchandise export. Given the low and high level of manufactured goods exports and oil exports respectively, it is very glaring that Nigeria, unlike the Asian Tigers, has not toed the path of industrialisation.

**Table 3.1: Oil and Manufactured Exports as Percentage of Merchandise Exports: Nigeria
1996 – 2011**

Year	Oil Exports (% of Merchandise Exports)	Manufactured Exports (% of Merchandise Exports)
1996	96	1.1
1997	96	3.4
1998	97	2.5
1999	99	0.6
2000	100	0.2
2001	100	0.3
2002	94	5
2003	98	2.1
2004	NA	NA
2005	NA	NA
2006	98	1.3
2007	94	2.2
2008	92	5.5
2009	90	3.6
2010	87	6.7
2011	89	3.0
2012	84	3.0
2013	88	3.0
2014	88	3.2
2015	85	3.0

Source: World Bank Databank (databank.worldbank.org)

Despite the campaign in favour of diversification by international agencies such as the World Bank and African Development Bank, Nigeria has not been able to diversify. As long as this trend continues, the hope of sustainable economic growth embedded in different development plans, programmes and projects will only be a figment of our imagination.

4. CONCLUSION AND POLICY RECOMMENDATIONS

Nigeria since the post-colonial era has been a monocultural economy much to its detriment, ranging from agriculture in the pre-oil era to the precarious dependence on oil revenue. This paper finds a positive correlation between oil dependence and inconsistent economic growth.

Nigeria, since independence, has not been able to achieve sustainable economic growth, not really because she is an oil exporter but basically because she lays her complete trust in a product whose price is volatile. Consequently, the 'black gold' has been the basis of Nigeria's economic growth. Basing economic growth on natural resources, oil in this case, will not meet our end – sustainable economic growth.

Nigeria's strategy and resource dependency for sustainable economic development has a vital lesson for future, lessons that should be heeded if the country wishes to be amongst the comity of industrialised nation. Resource dependence has proved unsuccessful at least in the case of Nigeria. It is high time, therefore we focused on diversification and industrialisation to rouse economic growth and more importantly, to set ourselves free from recolonization and neoimperialism that results from carrying out on the whims and caprices of oil importing countries in order to gain market favour. This policy will, in effect, transform Nigeria from being an oil exporter to a manufacturing exporter. Thus, the call for the revival and restoration of other viable sectors of the economy that are either ailing or, altogether, abandoned.

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