

## Assessment of the Impact of Oil and Non-Oil Products on Nigeria Gross Domestic Product (GDP)

**Okeke Charles C.\***

Department of Statistics, Nnamdi Azikiwe University, Awka, Nigeria

**Eze Francis C.**

Department of Statistics, Nnamdi Azikiwe University, Awka, Nigeria

### Abstract

This study investigates specifically the impact of Oil and Non-Oil Products on Nigeria Gross Domestic Product (GDP). Data were collected for period 1981-2016 Descriptive Statistics and Multiple Linear Regression Approach was used, defining Oil, and Non-Oil Products as independent variables and Gross Domestic Product (GDP) as dependent variable. From the analysis, Oil, and Non-Oil Products contributes immensely to the Nigeria Gross Domestic Product (GDP). Contrary, the Oil Product is positively and insignificant on economic growth of Nigeria (GDP) and the Non-Oil Product has positively and significant on economic growth of Nigeria (GDP). This study therefore recommends that Nigeria should enhance her export promotion strategies and diversify her economy far away from Crude oil.

**Keywords:** Oil; Non-oil; GDP; Exports; Imports.



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### 1. Introduction

Prior to the discovery of oil in Nigeria, agricultural sector was the main stay of Nigeria economy, contributing about 95% to her foreign exchange earnings, generating over 60% of her employment capacity and approximately

56% to her gross domestic earnings (World Bank, 2013). The major exportable crops were cocoa, palm products, cotton, ground nut, timber and rubber, which contributes most of Nigeria's export. Agriculture being the leading growth sector of the Nigerian economy while oil export was very poor.

The non-oil sector of the Nigerian economy can generally be described as those groups of economic activities which are outside the petroleum and gas industry or not directly linked to them. These include: telecommunication services; financial sector (banking and insurance) services; tourism service (hotels, restaurants, parks, carnivals, movies; wholesale and retail trade; Health services; export trade; agricultural activities; mineral activities; power (conventional and renewable); Manufacturing; environmental services (cleaning, waste collection and recycling); R&D activities; ICT, etc. (Adulagba, 2011; Onwualu, 2012).

Exports of goods and services represent one of the most important sources of foreign exchange income that ease the pressure on the balance of payments and create employments opportunities (Ruba and Thikraiat, 2014). Generally, export activities are said to stimulate economic growth in a number of ways such as: through production and demand linkages, and economies of scale due to larger international markets.

Export led Growth is said to be an economic development strategy in which export expansion play a central role in a country's economic growth. Although practical evidence in support of export led growth may not be universal, it is widely acknowledged that carefully managed openness to trade through an export led growth can be a mechanism for achieving rapid growth, (Giles and Williams, 2000a).

Nigeria as a developing country, has been struggling with the realities of developmental process not only politically and socially but also economically. In the 1960s, agriculture contributed 80% of the total export making agriculture the main stay of the Nigeria economy and the greatest foreign exchange earner. By the middle of 1970, the situation changed in favour of oil which then contributes 94% of total export making oil the main stay and the greatest foreign exchange earner of the Nigeria economy. Since 70's, till the present moment, oil has been playing the leading role in the Nigeria economy being the major source of foreign exchange (Yusuf, 2015).

According to the Office for this mono cultural nature of the economy makes Nigeria susceptible to the effects of oil price shock. The over reliance of the country on oil was manifested in the inability of the country to manage her economy as a result of fall in the price of oil globally towards the end of 2015 which now push Nigeria economy into recession. Therefore, not only that export is important for the survival of an economy but also the composition of export is of paramount important.

Further, Gorman (2003), presented evidence that the answer to the question- trade deficits: bad or good? generate several different views. While some economists who oppose trade deficits see them as a symptom, rather than a cause of trouble, specifically bad central banking policy, others that consider trade deficits good associate them with positive economic developments, specifically, higher levels of income, consumer confidence and investment. Yet, some economists see trade deficits as mere expressions of consumer preferences and as immaterial.

For more than a half century, the most widely accepted measure of a country's economic progress has been changes in its Gross Domestic Product (GDP). The GDP has maintained a firm position as a dominant economic indicator. Indeed, most economists in business and government, teachers of economics at various levels of education, and journalists, policy makers and politicians (regardless of their political preferences) continue to give much importance to GDP and calling for unconditional GDP growth (Jeroen and van den, 2009).

GDP is an estimate of market throughput, adding together the value of all final goods and services that are produced and traded for money within a given period of time. It is typically measured by adding together a nation's personal consumption expenditures (payments by households for goods and services), government expenditures (public spending on the provision of goods and services, infrastructure, debt payments, etc.), net exports (the value of a country's exports minus the value of imports), and net capital formation (the increase in value of a nation's total stock of monetized capital goods) (Costanza *et al.*, 2009).

According to the Office for National Statistics (2013), GDP may be measured using production, income and expenditure approaches. The expenditure-based measure of GDP is derived as final consumption expenditure by government and households, plus investment in fixed capital formation and changes in inventories, plus exports minus imports of goods and services, plus (or minus) the statistical discrepancy. Exports and imports are the same as the balance of payments components, exports and imports of goods and services. The income-based measure of GDP shows the components of factor income, namely compensation of employees, gross operating surplus and mixed incomes, plus taxes less subsidies on production and imports.

Despite the fact that GDP is the one indicator that says the most about the health of the economy (Barnes, 2012), prior studies have identified the strength, weaknesses and ultimately the limit to which GDP should be used to assess economic welfare and standards. Barnes (2012), equally affirmed that GDP is considered the broadest indicator of economic output and growth; real GDP takes inflation into account, allowing for comparisons against other historical time periods and that the Bureau of Economic Analysis issues its own analysis document with each GDP release, which is a great investor tool for analysing figures and trends, and reading highlights of the very lengthy full release.

However, Haggart (2000) identified as weaknesses that GDP excludes non-market activities, do not contribute to economic welfare, measures only flows, not stocks, ignores distributions of income and consumption and measures only those items that can be priced, it automatically excludes things that are not in the economic sphere, such as a low crime rate, family stability and clean air. Similarly, posits as short falls that GDP only measures the amount of goods and services produced during the year and fails to recognize the size of the population that it must support, gives no account of how the goods and services produced by the economy are distributed among members of the economy, its growth may overstate the growth of the standard of living since price level increases (inflation) would raise its measurement, measures the value of production in the economy rather than consumption, which is more important for economic well-being and sometimes, economies with high GDPs may also produce a large amount of negative production externalities.

Conversely, non-oil activities can be broadly classified into three, namely: agricultural produce, manufactured activities or industries and machineries (Ajakaiye and Ojowu, 1994). These activities have great potentials. Ozurumba and Chigbu (2013), Thus, non-oil exports/imports comprise of agricultural products, chemicals, manufactured goods such as textile, tyre etc, machineries, manpower, etc. it is made up of every other thing exported or imported, except petroleum products. In the decades of the 1960s and 1970s, the Nigeria economy was dominated by agricultural commodity which played significant roles in the economy before the advent of crude oil. Such commodities include cocoa, groundnut, cotton and palm produce. From the mid-1970s, crude oil became the main export produce of the Nigerian economy (Anyanwu *et al.*, 1997).

Mcteer (2008), affirmed that exports of goods and services generate income at home and so they are also a component of Gross Domestic Product (GDP) Imports, on the other hand, generate income abroad, so they are subtracted from the other categories of spending to get a more complete picture of how much an economy is actually producing. Higher exports and lower imports add to GDP, while reduced exports and higher imports contract GDP. In other words, while the value of both exports and imports are included in the GDP report, imports are subtracted from total GDP, meaning that all consumer purchases of imported items are not counted as contributions toward GDP (Barnes, 2012).

Confirming this position, Gorman (2003), presented a mathematical formula for gross domestic product,  $C + I + G + (Ex - Im)$ . The expression  $(Ex - Im)$  equals net exports, which may be either positive or negative. If net exports are positive, the nation's GDP increases. If they are negative, GDP decreases. Gorman equally posits that though all nations want their GDP to be higher rather than lower, so all nations want their net exports to be positive, it is not possible for all nations to have positive net exports because one or more nations must import more than they export if the others export more than they import.

Ogborkor (2001), analysed the macroeconomic impact of oil exports on the economy of Nigeria. With the use of OLS technique, he observed that economic growth reacted in an expected way to changes in the variables used in the study. He also found that 10% increase in oil exports would lead to 5.2% increase in economic growth. He concluded that export-oriented strategies should be given a more practical support.

Also, according to Frankel and Romer (1999), trade increase GDP which ultimately increases the income per person. In other words, trade not only enhances economic growth but is also a useful tool in achieving economic development provided there are other structural and institutional changes in the economy and as Morton and Tullock (1976), noted, international trade brings gains to a nation and it acts as a stimulus to growth.

Abebe (1995), noted that Nigeria's over-dependence on crude oil is dangerous for two reasons one being because crude oil is a wasting asset with a proven reserve which would eventually become depleted and secondly, the vagaries of the oil market has resulted in a significant decline in the earnings because of the exogenously determined price of crude oil.

Lyakurwa (1991), also posited that export diversification is important because it will play an important role in reducing the variability of the export earnings of developing countries and raising the growth rates of both exports and domestic output. However, he warned that the composition of a diversifying country's exports has to match the import structure of the target countries (Osuntogun *et al.*, 1997).

According to the diversification of countries exports base increases local production, employment, income and economic growth. Developing countries that export large amounts of a small number of products have export revenues that are quite volatile. Many OPEC members derive more than 80 percent of their export revenues from oil and gas. As a result, the decline in oil prices from the early 1980s to 2000 reduced export receipts. Dunn and Mutti (2004), observed that the export promotion strategy does enhance economic growth but they also pointed out that the strategy rests upon the diversification and expansion of non-traditional exports.

Opara (2010), said that exports are the bed-rock of any economic development which is meaningfully centered on non-oil export in most countries of the world. He also said that promoting non-oil export products will bring about a reduction of the nation's level of dependence on crude oil or what he describes as, "monoculture foreign trade product".

## 2. Methodology

The data used for this study were basically annual time series data covering 1981 to 2016. The data used for both dependent (Gross Domestic Product) and independent (Oil, and Non-Oil products) variables were obtained from National Bureau of Statistics and Central Bank of Nigeria. The Descriptive statistics and multiple linear regression approach was used to examine the relationship between Gross Domestic Product (GDP), Oil (O), and Non-Oil (NO).

### 2.1. Model Specification

The model to capture the assessment of the impact of Oil and Non-Oil products on Nigeria GDP variables are stated below with the independent variables as Oil, and Non-Oil while the dependent variable is Gross Domestic Product.

This is expressed functionally as

$$GDP = f(O, NO) \quad (1)$$

Where:  $O = Oil$

$NO = Non\ Oil$

$$GDP_t = \beta_0 + \beta_1 O_t + \beta_2 NO_t + \mu \quad (2)$$

$\beta_0$  = Intercept

$\beta_1 - \beta_2$  = Coefficient of the independent variables

$\mu_t$  = White noise or error term

**The apriori expectation:**

It is anticipated that:  $\beta_1, \beta_2 > 0$

### 2.2. Source of Data

Annual time series data were utilized to investigate the relationship between the Oil and Non-Oil products on Nigeria GDP. All the data patterning to the chosen variables were obtained from the National Bureau of Statistics and CBN statistical bulletin over the period 1981 – 2016.

## 3. Data Presentation

The data for this study on the statistical variables are presented below:

Table-1.

Year	Gross Domestic Product	Oil	Non - Oil
1981	94.33	5.40	6.50
1982	101.01	4.10	5.35
1983	110.06	3.70	4.50
1984	116.27	4.55	3.55
1985	134.59	5.65	3.75
1986	134.60	4.65	2.85
1987	193.13	15.70	8.45
1988	263.29	16.10	10.20
1989	382.26	29.85	14.60
1990	472.65	56.35	21.45
1991	545.67	62.35	43.20
1992	875.34	110.5	63.90
1993	1,089.68	127.45	64.75
1994	1,399.70	121.50	62.85
1995	2,907.36	541.70	311.20
1996	4,032.30	724.20	211.85
1997	4,189.25	689.70	354.00
1998	3,989.45	446.85	347.85
1999	4,679.21	690.60	335.20
2000	6,713.57	1070.85	394.50
2001	6,895.20	1038.50	574.55
2002	7,795.76	1005.55	622.85
2003	9,913.52	1696.00	888.05
2004	11,411.07	2403.80	891.10
2005	14,610.88	3968.95	1054.80
2006	18,564.59	3950.90	1265.70
2007	20,657.32	4439.35	1671.50
2008	24,296.33	5588.65	2401.75
2009	24,794.24	4587.10	2456.40
2010	54,612.26	6528.80	3558.90
2011	62,980.40	8683.40	4432.90
2012	71,713.94	8662.15	3790.80
2013	80,092.56	8,280.60	4070.10
2014	89,043.62	7,111.00	4638.60
2015	94,144.96	35,911.26	3,444.35
2016	3,537.18	27,356.57	2,674.86

Source: National Bureau of Statistics and Central Bank of Nigeria

Table-2. Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Gross Domestic Product	36	94.33	94144.96	627487.55	17430.2097	27790.37963	1.809	.393	1.995	.768
Oil	36	3.70	35911.26	135944.33	3776.2314	7472.03346	3.316	.393	11.749	.768
Non-Oil	36	2.85	4638.60	40707.71	1130.7697	1493.21219	1.233	.393	.094	.768
Valid N (listwise)	36									

Source: Spss Output, Version 23

The descriptive statistics presented in Table 2 shows the mean, minimum, maximum and standard deviation of all the variables under consideration. The Table shows the mean for GDP, Oil, and Non-Oil products as a value of N17430.2097 billion, N3776.2314 billion, N1130.7697 billion respectively, with minimum value of N94.33 billion, N3.70 billion, N2.85 billion respectively. This show a clear clue of the activities of Oil and Non-Oil products in Nigeria under the period of investigation. However, with a maximum value of N94144.96 billion, N35911.26 billion, N4638.60 billion respectively show that Oil and Non-Oil products and Nigeria GDP is fairly encouraging. This gives a clue of the performance of Oil and Non-oil products and Nigeria GDP for the years under examination.

## 4. Results

The impact of Oil and Non-Oil Products (measured by Oil, and Non-Oil Products) on Nigeria GDP (Measured by Gross Domestic Product)

**Table-3.** Multiple Regressions

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.922 <sup>a</sup>	.850	.841	11093.13846	1.723	
a. Predictors: (Constant), Non-Oil, Oil						
b. Dependent Variable: Gross Domestic Product						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22969777215.131	2	11484888607.565	93.329	.000 <sup>b</sup>
	Residual	4060904787.129	33	123057720.822		
	Total	27030682002.259	35			
a. Dependent Variable: Gross Domestic Product						
b. Predictors: (Constant), Non-Oil, Oil						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1977.667	2331.570		-.848	.402
	Oil	.141	.328	.038	.428	.672
	Non-Oil	16.694	1.644	.897	10.157	.000

a. Dependent Variable: Gross Domestic Product

### 4.1. Discussions of Findings

From Table 3 above, the result shows that all the explanatory variables significantly impact on Nigeria Gross Domestic Product. It could be also observed that oil on Nigeria GDP contributes 0.141 Meaning that for every unit change of Oil there is a corresponding unit change of 0.141, showing an insignificant relationship between Oil and Gross Domestic Product in Nigeria since the p – value is above 0.05. Therefore, the result revealed that Oil is insignificantly affecting the economic growth of the Nation. The result of Non-oil also shows that Non-Oil on Nigeria GDP contributes 16. 694.This means that for every unit change in Non-Oil there is a corresponding unit change of 16.694 on Nigeria GDP, showing a significant relationship between Non-Oil and Gross Domestic Product in Nigeria since the p – value is below or equal to 0.05. Therefore, the result revealed that non-oil is significantly affecting the economic growth of the Nation.

The coefficient of determination ( $R^2$ ) of the multiple regressions is 0.850, which implies that the explanatory variables which are Oil and Non-Oil, have high impact on the Gross Domestic Product (GDP). This means that the impact of Oil and Non-Oil products on Nigerian economic growth (GDP) explain or account 85.0% influence or movement on the gross domestic product of Nigeria, while only 99.15% account could be explained by other variables or factors not included in the model. The Adjusted  $R^2$  of 0.841 is close to the  $R^2$  value of 0.850 meaning that the model is fit for making a generalization. Furthermore, the value of  $F = 93.329$  indicates the models' goodness of fit to the data. Also looking at the D.W of 1.723 shows an absence of positive auto correlation among the variables in the model. Finally, looking at the p-value of Oil and Non-Oil products is  $< 0.05$  at 5% degree of freedom. Therefore, the study concluded that there is a positive significant relationship between assessment of the impact of Oil and Non-Oil products and Nigeria economic growth (GDP) in Nigeria. All explanatory variables (Oil and Non-Oil) were significantly joint predictors of economic growth in Nigeria. For instance, Non-Oil is positive and significant to GDP. This implies that an increase in Non-Oil will boost economic growth. We found that Non-oil had a positive impact on economic of Nigeria. But it has not contributed much meaningfully to economic growth and development due to the low output of the manufacturing sector and undeveloped Local Market Base. The overall result of assessment of the impact of Oil and Non-Oil Products on Nigeria Gross Domestic Product (GDP) indicates a positive significant relationship with Nigeria GDP. Finally, we found a positive significant relationship between assessment of the impact of Oil and Non-Oil Products and economic growth in Nigeria.

This study concludes that despite the ability of a nation to finance its total import from total exports (that is total exports exceeds total imports) resulting into surplus balance of trade, unalloyed consideration is given majorly to specific impacts of dichotomised international trade activities (Oil and Non-oil activities). From the above results it is crystal clear that the ability of a nation to finance or accommodate her Non-oil imports from in her Non-oil exports is a major determinant of the country's GDP quality.

Therefore, in view of the fact that Crude oil is an exhaustible asset which makes it unreliable for sustainable development (Ozurumba and Chigbu, 2013), this study recommends that Nigerian government should borrow leaves from countries in order to diversify the nations export base by facilitating and expanding the Non - oil export sector.

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