### IMPACT OF PETROLEUM PROFIT TAX ON ECONOMIC GROWTH IN NIGERIA

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#### Abstract

The Downturn in the Nigerian economy has been traced to failure of successive governments to utilize oil revenue and excess crude oil income effectively in the development of other sectors of the economy. The study examines the effect of petroleum profit tax on economic growth of Nigeria for a period of 36 years, ranging from 1981-2017. Revenue from petroleum taxes is the proxy for petroleum profit tax (PPT) while economic growth was measured using Gross Domestic Product (GDP). The study used various preliminary tests which included trend analysis, descriptive statistics and stationary tests employing the use of the Augmented Dickey Fuller test (ADF). The research adopted ex-post facto research design as secondary data were used for the analysis using the Ordinary Least Square (OLS) regression analysis. Data were sourced from the Central Bank of Nigeria Statistical Bulletin and the Federal Bureau of Statistics. The results reveal that there is a significant and positive relationship between PPT and Economic Growth in Nigeria during the period under review. The regression result also shows that long run relationship exists between the variables. Findings indicate that it is important that PPT as an economic and fiscal policy tool be employed in order to grow Nigeria GDP. The study further revealed that the rise and fall in tax revenue and economic development are occasioned by corruption, tax evasion, economic meltdown, dysfunctionalities in the income tax system, and loopholes in tax laws as well inefficient tax administration. The study recommends that the economy should be diversified, to mitigate against corruption within the system, investing in economic activities that will generate jobs, harmonize our tax laws and administration to acceptable global standard. The government should equally provide the necessary human and material infrastructures that are needed to support petroleum business so they can earn more income that will boost taxation and checkmate the activities of corporate bodies in their tax sheltering.

Keywords: Petroleum Profit Tax, Economic Growth, Gross Domestic Product, Nigeria.

### Introduction

The Nigerian economy is largely dependent on oil, as it is unable to finance social and economic growth in the absence of a large oil revenue base. Oil accounts for about 90-95% of the export revenue, over 90% of foreign exchange earnings and about 80% of government revenue (Nwete 2003). The oil industry is thus the hub of the Nigerian economy, and needs to be sustained if the country is to achieve real economic growth. The Nigerian petroleum industry has been described as the largest among all industries in the country. The size, international characteristic, and role assumed by the petroleum industry were noted to have originated from the notion that petroleum is versatile as it currently satisfies a wide variety of energy and related needs. Petroleum is the most vital source of energy, providing over 50 percent of all commercial energy consumption in the world (Adekanola, 2012).

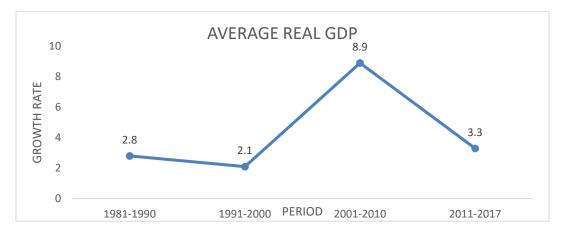
Eromosele (2012) noted that the objectives of petroleum profit tax are numerous among which are: to achieve government's objective of exercising right and control over the public asset, Government imposes very high tax as a way of regulating the number of participants in the industry and discouraging its rapid depletion in other to conserve some of the oil for future generation. This in effect will achieve government aim of controlling the petroleum sector development. The second objective is that the high profit profile of a successful investment in the oil industry makes it a veritable source for satisfying government objective of raising money to meet its socio-political and economic obligations to the citizenry. The third objective is to make petroleum taxation an instrument for wealth re-distribution between the wealthy and industrialized economies represented by the multinational organizations. These organizations who own the technology, expertise and capital needed to develop the industry and the poor and emerging economies from where the petroleum resources are extracted stand to be short changed. Environmental factor is another objective of petroleum taxing. The high potential for environmental pollution and degradation stemming from industry activities makes it a target for environmental taxation. This is a way of regulating its activity and promoting government quest for a cleaner and healthier environment. Cleaner production may be achieved by imposing tax for pollution and environmental offences. The Petroleum Profit Tax (PPT) will help to give higher revenue to the Nigerian Economy, if properly managed.

Given the forgoing this study seeks to examine the impact of petroleum profit tax on economic growth in Nigeria. This is particularly important because petroleum profit remains a dominant source of economic growth in Nigeria. This is especially important because an assessment of the past ten years shows the average real GDP of the country as follows:

PERIOD	AVERAGE REAL GDP
1981 – 1990	2.8
1991 - 2000	2.1
2001 - 2010	8.9
2011 - 2017	3.3

Sources: National Bureau of Statistics

The graphical representation of the table above showing the relationship between Petroleum Profit Tax and its impact on economic growth is further thus:



Sources: Authors Creation from NBS Above

Given the foregoing, it is obvious that the impact of PPT on the economic growth of Nigeria needs to be assessed, thus necessitating this study. To give validity to this research, the study will equally test the following hypothesis:

HO1: There is no significant relationship between Petroleum Profit Tax and the economic growth in Nigeria.

#### **Concept of Petroleum Profit Tax**

According to Odusola (2010), petroleum profit tax (PPT) is a tax applicable to upstream operations in the oil industry. It is particularly related to rents, royalties, margins and profit sharing elements associated with oil mining, prospecting and exploration leases. It is the most

important tax in Nigeria in terms of its share of total revenue contributing 95 and 70 percent of foreign exchange earnings and government revenue, respectively. Petroleum operation as defined in the Petroleum Profit Tax Act of 1959 (PPTA) essentially involves petroleum exploration, development, production and sale of crude oil. The Petroleum Profit Tax is regulated by the Petroleum Profit Tax Act of 1959 as amended by the Petroleum Profit Tax Act of 2007. Actually the initial law was passed in 1959 in order to capture the first oil export made in that year (Nwadighoha, 2011).

Accounting for income from oil and gas producing activities differ in many respects from financial accounting (Gallun & Stevenson, 1986). According to Jakir (2011), Nigerian law by virtue of the Petroleum Profits Tax Act (2004) which was further amended in 2007 requires "an Act to impose a tax upon profits from the minning of Petroleum in Nigeria, to provide for the assessment and collection thereof and for purposes connected therewith". Adigbe (2011) further stated that the taxable income of a petroleum company comprises proceeds from the sale of oil and related substances used by the company in its own refineries. Adereti (2011) explained that the taxable income of a petroleum company is subject to tax at 85 per cent, but this percentage is lowered to 65.75% during the first 5years of operation but where oil companies operate under production sharing contracts they will be liable to tax at a rate of 50 percent. Due to the importance attached to oil exploration and production by the Federal Government of Nigeria, the taxation of profit of companies engaging in such operation became inevitable under a tax Act different from the companies income tax Act (Success, Success & Ifurueze, 2012). They further posited that this Act became effective 1st January, 1959 since export of oil to the international market started in 1958. This ordinance under which petroleum profit is taxed is referred to as the Petroleum Profit Tax Act (PPTA). It was first amended in January 1967 by the Federal Military Government through decree No 1 of 1967.

The Petroleum Profits tax rate was as low as 18.9% in 1970 after which it rose astronomically to 80.7% between 1971 and 1974. The rate was 82.3% from 1975 to 1989 and it peaked at 85% in 1990 till date. Nigeria appears to have the highest Petroleum Profits tax rate. The defense for this high rate is the need to capture the resource rent tax from the operations of the oil companies. Some other countries charge resource rent tax separately thereby reducing the Petroleum Profits tax rate. For example, South Africa charge 30% Petroleum Profits tax and 40% mineral resource rent tax. Uganda has Petroleum Profits tax rate of 30% and mineral resource rent tax of 0-80%; Malaysia has Petroleum Profits tax rate of 38% and mineral resource rent tax rate of 70%. South Africa, Ghana, Uganda, Tanzania and Zambia appears to be the only African oil producing nations with how mineral resource rent rate (Sunley, Baunsgaard & Simard; 2012). Mineral resource rent tax has been proposed in the current Nigerian Petroleum Industry Bill, yet to be passed into law..

## **Concept of Economic Growth**

Olopade and Olapade (2010) opined that, growth means an increase in economic activities. Jhingan (2004) defined economic growth as the process where the real per capita income of a country increases over a long period of time. However, it can also be seen simply, as the increase over time of an economy's capacity to produce those goods and services needed to improve the wellbeing of the citizen in increasing numbers and diversity. It is the steady process by which the productive capacity of the economy is increased over time to bring about rising level of national income (Anyanwu & Oaikhenan, 1995). Economic growth is primarily driven by improvement in productivity, which involves producing more goods and services with same input of labour, capital, energy and materials. However, economist draws a distinction between short term economic stabilization and long term economic growth. Economic growth is primarily concerned with the long run. The short run variation of economic growth is a long term rise in capital to supply increasing diverse economic goods to its population (Oremade, 2011).

Economic growth represents the expansion of a country's potential GDP or output. Rostow-Musgrave model (1999) conducted a study on growth of public expenditure where Rostow-Musgrave focused mainly on the utilization of taxes as the major revenue source. The study concluded that at the early stages of economic development, the rate of growth of public expenditure will be very high because government provides the basic infrastructural facilities (social overheads) and most of these projects are capital intensive, therefore, the spending of the government will increase steadily.

## **Oil Sector Development Conceptualized**

Gelb (2011) averred that oil and gas production had been receiving favourable tax treatment in Nigeria for many years, although one special provision dealing with percentage depletion was repeated for most oil and gas produces in 1975. The whole of the industry from exploration to production is filled with risks. From the high possibility that a hole in the ground will not yield reserves, the risks that the reserves if discovered will not be in commercial quantity to justify the investment, the technology risk in oil field development, to the failure of operations and vagaries of international oil prices. Thus upstream investment remains very risky and unpredictable. Most times development of new fields involve the sinking of capital before actual production reveals the reservoir characteristics, unlike most other economic activities. For decades, Oil has remained the dominant source of Nigerian government revenue, accounting for about 90% of total exports, and this approximates 80% of total government revenues in Nigeria. Since the oil discoveries in the early 1970s, oil has become the dominant factor in Nigeria's economy. The problem of low economic performance of Nigeria cannot be attributed solely to instability of earnings from the oil sector, but as a result of failure by government to utilize productively the

financial windfall from the export of crude oil from the mid - 1970s to develop other sectors of the economy (Ogbonna, 2012)

The Nigerian petroleum industry has been described as the largest among all industries in the country. This is probably due to the belief that petroleum is one of the major sources of energy worldwide. The size, international characteristic, and role assumed by the petroleum industry were noted to have originated from the notion that petroleum is versatile as it currently satisfies a wide variety of energy and related needs. Petroleum is the most vital source of energy, providing over 50 percent of all commercial energy consumption in the world. From a policy perspective, various literatures have identified economic development as efforts that seek to improve the economic well-being and quality of life for a community by creating jobs and supporting or growing incomes and the tax base. Dominant theories of economic growth have suggested that significant relationship exists between national income and economic growth. That is, when income is invested in an economy, it results in the growth of that economy. For example, Todaro (2007) noted that Harrod and Domar models states that growth is directly related to savings (unspent income). Similarly, Ogbonna and Appa (2012) observed that income from a nation's natural resources (e.g. petroleum) has a positive influence on economic growth and development. Contrary to this opinion expressed above, other studies on this subject matter, found that natural resources income influences growth negatively. That is, an increase in Income from natural resources does not necessarily result in an increase in economic growth. For example, Sachs and Warner (1997) using a sample of 95 developing countries that included Indonesia, Venezuela, Malaysia, Ivory Coast and Nigeria, found that countries that have a high ratio of natural resource exports to GDP appear to have shown slower economic growth than countries with low ratio of natural resource export to GDP.

## **Empirical Reviews**

Oremade, (2011) examined the perception of Petroleum Profits tax compliance in Nigeria with the oil companies as a focal point. The study adopted a combination of qualitative and quantitative methods. Personal interview was adopted in the data collection. The results of the analysis revealed that there was lack of adequate data base on the Petroleum Profits tax revenue collection from the oil companies. It was also discovered that there was overwhelming influence of the oil producing companies in the administration of the Act imposing Petroleum Profits tax. Petroleum Profit Tax has been defined as a legislation which imposes tax upon profits from the mining of petroleum in Nigeria and provides for the assessment and collection thereof and for the purposes connected therewith (Attamah, 2004).

Afuberoh and Okoye (2014) also studied the impact of taxation on revenue generation in Nigeria for the period 1994 to 2004. The study used petroleum profit tax, education tax and personal income tax as proxy for taxation (independent variables) and gross domestic product as the

dependent variable. Regression analysis was employed to analyse the data used in the study, and it was discovered that taxation has a significant contribution to revenue generation and that taxation has a significant contribution on Gross Domestic Product (GDP).

Ogbonna and Appah (2012), carried out a study titled, Petroleum Income and Nigerian Economy: Empirical Evidence. The main objective of the study was to ascertain the effects of petroleum income on the Nigeria economy. The study investigated the effects of petroleum income on the Nigerian economy from 2000 to 2009 using the gross domestic product (GDP), per capita income (PCI), and inflation (INF) as the explained variables, and oil revenue, petroleum profit tax/royalties (PPT\R), and licensing fees (LF) as the explanatory variables. The sample covered all the economic sectors of the country, including the oil sector and the non-oil sector. The study relied mostly on secondary data sourced from the Central Bank of Nigeria's Statistical Bulletin, Nigerian National Bureau of Statistics, and the Nigerian National Petroleum Corporation. Simple regressions models and Statistical Package for Social Sciences were used in the study to evaluate the data collected. The models used evaluated whether the variation in GDP was explained by the oil revenue using the variables such as alpha ( $\infty$ ), Beta ( $\beta$ ) and Stochastic Terms (U). The study found out that oil revenue has a positive and significant relationship with GDP and PCI, but a positive and insignificant relationship with INF. Similarly, PPT/R has a positive and significant relationship with GDP and PCI, but a negative and insignificant relationship with inflation. It was also found out that LF has a positive but insignificant relationship between GDP, PCI and INF, respectively. Based on these findings, the study concluded that petroleum income (oil revenue and PPT/R) had positively and significantly impacted the Nigerian economy when measured by GDP and PCI for the period 2000 to 2009.

Akinlo (2012), carried out a study on the relationship between Oil revenue in Nigeria and Economic Growth. The study assessed the importance of oil in the development of the Nigerian economy over the period of 1960-2009. The study used secondary data and the multivariate cointegration VAR model developed by Johansen (1988) and Johansen & Juselius (1990; 1992). Quarterly time series data of GDP indices of the five sectors over the 1960-2009 were used in setting up the VAR model namely: agriculture (agr), manufacturing (man), building & construction (buc), oil (oil) and trade & services (tsr) or xt = (oil, agr, man, buc, tsr). The study found out that the five subsectors were cointegrated and that the oil sector caused other non-oil sectors to grow. However, oil had adverse effect on the manufacturing sector. Granger causality test found bidirectional causality between oil and manufacturing and trade and services, and agriculture and building and construction. It also confirmed unidirectional causality from manufacturing to agriculture and trade and services to oil. No causality was found between agriculture and services and building and construction. No causality was found between agriculture and oil, likewise between trade and services and services and

building and construction. It is therefore recommended that appropriate regulatory and pricing reforms in the oil sector should integrate it into the economy and reverse the negative impact of oil on the manufacturing sub-sector.

Baghebo and Atima (2013) carried out a study on the Impact of Petroleum revenue on Economic Growth in Nigeria and data covering the period 1980-2011 was collected from the Central Bank of Nigeria Statistical Bulletin and Transparency International Agency annual publications. The research work made use of the econometric approach in estimating the relationship between oil export, foreign direct investment, corruption index, external debt and the Nigerian economic growth. The stationary status of the time series data was examined using Augmented Dickey Fuller test. The Johansen cointegration test was conducted to ascertain the long run equilibrium condition of the variables in the model. The variables were cointegrated because four cointegrating equations were found. The study found out that FDI impacted positively and significantly on Real GDP with a coefficient of 50.15043. This implies that a unit change in FDI results to 50.15043 increase in GDP. The Parsimonious model was established to account for the short run dynamic adjustments required for stable long run equilibrium. Oil revenue on the other hand impacted negatively and significantly on Real GDP. A unit change in Oil revenue brings about a fall in GDP. The results indicate that a unit change in oil revenue result to 1.362996 reductions in GDP. This means that the resource curse theory is proven to be true in Nigeria. The study concludes that, if the petroleum industry bill is passed and implemented to the latter, there exists hope for the Nigerian nation.

Ogbonna and Ebimobowei (2012), using macroeconomic data from 1970 to 2010 in Nigeria, investigated the effect of Petroleum Profits tax on economic growth. The study adopted the Johansen co-integration approach and the Granger causality tests to estimate the data for the study. The study found a statically significant long-run relationship between Petroleum Profits tax and economic growth in Nigeria. Specifically, the study concluded that Petroleum Profits tax was one of the most important direct taxes in Nigeria. Karshenas and Hakimian (2013) examined the impact of oil revenues on the Iranian economy for the period 1908 to 2010 and found out that although oil has been produced in Iran over a long period, its importance in the Iranian economy was relatively small up until early 1960s. The data were analyzed using the Ordinary Least Squares Regression Analysis. It was concluded that oil income has been both a blessing and a curse. In terms of maintaining and sustaining GDP growth, oil income has been a blessing. But it has also been a curse in inducing excess inflation, exchange rate volatility and macroeconomic inefficiencies, with adverse political and institutional implications and recommendation were made that appropriate policy responses are needed to deal with the large swings in oil revenues that Iran has been facing, particularly over the past three decades.

## **Benefit Received Theory**

This theory premises on the assumption that there is basically an exchange relationship between tax-payers and the state. The state provides certain goods and services to the members of the society and they contribute to the cost of these supplies in proportion to the benefits received (Bhartia, 2012). Bariyima (2012), argues that taxes should be allocated on the basis of benefits received from government expenditure. This theory has a modern version, known as the "voluntary exchange" theory and is derived from the presumed relationship between the state and taxpayers. Governments are obligated to provide certain goods and services to the members of the society in compensation for taxes paid for such supplies. The taxes individuals pay should be direct and proportional to the benefit they receive from the government that is, taxpayers who benefit larger portion of public goods and services are expected to pay taxes. Although this theory argue that taxes should be allocated on the basis of benefits received from government expenditure, it should be noted that it is impossible to establish direct relationship between paid taxes and benefit received from government expenditure.

This benefit principle theory, also called vertical equity stipulates that an individual ought to be taxed according to the benefits he receives from government provision of goods and services. This in other words, is a benefit cost approach in which tax is a cost and government amenities are the benefits (Bhartia, 2009 & Anyanfo, 1996) This theory assumes a state of equality between the marginal tax rate (MTR) and marginal benefit received (MBR) to determine the amount of taxes to be paid.However, the benefit principle does not work well for the efficient provision of publicgoods. For example military defence, thus the conditions of equality between taxes paid and benefits-received which sound so egalitarian in principle, do not hold in practice.

## **Keynesian Theory**

According to Salen (2003), as stated by Wosowie (2013), this group of economists proposed a positive relationship between budget deficit and macroeconomic aggregates. They maintained that budget deficits results to an increase in the domestic production, increases aggregate demand, increases savings and private investment at any given level of interest rate. The main argument against the Keynesian theory suggests that an increase in the budget deficits would induce domestic captivation and thus, import expansion, causing current account deficit. In the mundell-Fleming framework, an increase in the budget deficit would induce an upward pressure on interest rate, causing capital inflows and an appreciation of the exchange rate that will increase the current account balance.

The Keynesian school of thought differs from the standard neoclassical paradigm in two ways; first, the Keynesian school permits the possibility that some economic resources are unemployed, secondly, they presuppose the existence of large number of liquidity constrained individuals.

This assumption guarantees that the aggregate consumption is very sensitive to changes in disposable income. Many traditional Keynesians maintained that deficits need not crowd-out private investment. Eisner (1989), reported in Wosowei (2013), argued that increased aggregate demand enhances profitability of private investments and leads to higher level of investment at any given rate of interest. Therefore, deficits may stimulate aggregate savings and investment despite the fact that they raise interest rates. He concludes that evidence abounds that deficits have not crowded- out investment; instead there is a crowd-in.

## **Expediency Theory**

This theory asserts that every tax proposal must pass the test of practicality. It must be the only consideration weighing with the authorities in choosing a tax proposal. Therefore economic and social objectives of the state and the effects of a tax system should be treated irrelevant (Bhartia, 2012). Otubala (2011), explained that the expediency theory is based on a link between tax liability and state activities. It assumes that the state should charge the members of the society for the services provided by it. This reasoning justifies imposition of taxes for financing state activities by inferences, provides a basis, for apportioning the tax burden between members of society. This proposition has a truth in it, since it is useless to have a tax which cannot be levied and collected efficiently.

There are pressures from economic, social and political groups as every group tries to protect and promote its own interests and authorities are often forced to reshape tax structure to accommodate these pressures. In addition, the administrative set up may not be efficient to collect the tax at a reasonable cost of collection. Taxation provides a powerful set of policy tools to the authorities and should be effectively used for remedying economic and social ills of the society such as income inequalities, regional disparities, unemployment, and cyclical fluctuations and so on. Bhartia (2009), explained that expediency theory asserts that every tax proposal must pass the test of practicality. That it must be a factor that should be considered in choosing a tax proposal. In Ibn Khaldun's theory of taxation which has been considered as one of his most important contributions to economic thought, he debates the relationship of taxation with the government expenditure and argues for low tax rate, so that incentive to work is not killed and taxes are paid happily (Islahi, 2006).

As cited in Uwaoma and Ordu (2016) this theory of taxation 'states that social and political objectives should be the major factors in selecting taxes. The theory advocated that a tax system should not be designed to serve individuals, but should be used to cure the ills of society as a whole. The theories clealerly identify the role of tax incentives in economic development of a country. Adolph Wagner advocated that social and political objectives should be the deciding factors in choosing taxes. Wagner did not believe in individualist approach to a problem. He

wanted that each economic problem be looked at in its social and political context and an appropriate solution found thereof. Accordingly, a tax system should not be designed to serve individual members of the society, but should be used to cure the ills of society as a whole. This theory relates to a normal development process and represents a benchmark against which country specific empirical evidence may be compared.

## **Resource Curse Theory**

The resource curse theory presupposes that countries with abundant natural resources may fail to grow in other sectors and ultimately resulting to financial problems(Mbendi,2010).Pigou (1920) mentioned that the theory also assumes that such a country will also fail to grow critical infrastructures and other industries; rather they emphasis on a handful of industries which cripples the economy by encouraging very isolated investments and development; while ignoring the need to develop a more diversified economy. Auty (2011) added that the result of such attitude is that the country is also forced to a large degree to depend on other nations for a wide variety of goods and services; and may in fact end up with a net loss at the end of the year. Auty (2012) was the first author to use the term resource curse to describe how countries rich in natural resources were unable to use that wealth to boost their economies; these countries had lower economic growth than countries without an abundance of natural resources. Some studies including one by Nwadighoha (2011), Nwezeaku (2014) and Oremade (2011) have investigated the relationship between abundance of natural resources and poor economic growth. Oremade (2011) stressed that in the traditional common society, free access to a finite resource eventually dooms the resource through over exploitation. Natural resources can and often do provoke conflicts within the society as diverse factions fight for their share. This tends to erode government's ability to function effectively (Gylfason, 2000; Appah & Oyandonghan, 2012; Ola, 2011).

This study is underpinned on the benefit received theory as propounded by Bhartia (2012). The theory assumes that citizens tend to pay more taxes when they feel they have sufficient benefits from the activities of the state. It is however argued that the services which are provided by the state may not be quantified and measured, after all some citizens who pay taxes do not have the opportunity of enjoying them. The theory argue that taxes should be allocated on the basis of benefits received from government expenditure. But it should be noted here that it is impossible to establish direct relationship between tax paid and benefit received from government expenditure. This theory is relevant as the theory is used to evaluate the benefits of petroleum profit tax just as the topic measures the impact of petroleum profit tax on growth of the Nigerian economy.

## Methodology

The research design used in this study is ex-post facto research designs. In this research work, secondary method was used for the collection of data. Also, the use of ex-post facto design was due to the fact that the data were in time series and the event of the study had already taken place. This study covered a period of 1981 to 2017 which represented a period of 36 years. The basis for deciding this period of time is to show whether there have been any significant contributions of Petroleum Profit Tax on the economic growth in Nigeria. The data for this study are secondary in nature. They were obtained from the Central Bank Nigeria Statistical Bulletin 2017 publication

Ordinary Least Square (OLS) regression technique was used and it is useful for estimation. Gross Domestic Product which is the dependent variable was regressed on the explanatory variables in the equation which includes: Petroleum Profit Tax, Oil Revenue and Custom Excise Duties. Some statistical and econometric test were used to evaluate the regression, these included, Multiple R, which is the correlation coefficient and it measured the extent of relationship between variables, R – squares, which is the coefficient of determination measured the percentage (proportion) of variation in the dependent variable that can attribute to the independent variables. The F statistics, The Beta coefficient measure the relative significance of each of the independent variable, "t" statistics and Durbin Watson test. Guided by the perceived functional relationship between the matrix of economic growth (GDP) with PPT, ORV and CED revenue, a link is forged among the 3(three) variables. From sub-macro and micro economic perspectives, the model for this work states that economic growth (GDP) depends on PPT, ORV and CED. The model which is in line with the work of Ogbonna and Ebimobowei (2012) is a modified form of the model specified by Anyanwu (2010) in his study of Nigeria's tax efforts and economic development. Thus, the functional relationship and the resultant models are as specified as:

## Model 1

## Where;

GDP = Gross Domestic Product (dependent variable)

PPT= Petroleum Profit Tax (independent variable)

ORV= Oil Revenue (independent variable)

CED= Custom Excise Duties (independent variable)

A priori expectation is that  $\beta_1$ ,  $\beta_2$  and  $\beta_3 > 0$ 

 $\alpha$  is to take care of the constant variable;  $\beta_1$  is the coefficient of PPT (Petroleum Profit Tax) which is expected to be greater than Zero because it is positively related to Oil and Gas Sector.  $\beta_2$  is the coefficient of ORV (Oil Revenue) which is expected to be greater than Zero because it is positively related to Oil and Gas Sector.  $\beta_3$  is the coefficient of CED (Custom Excise Duties) which is expected to be greater than Zero because it is positively related to Oil and Gas Sector.

## **Result and Discussion**

Data for this study is hereby presented in Table 4.1 Showing Gross Domestic Product and Petroleum Profit Tax Generated by the Federal government of Nigeria.

Year	Gross Domestic Product at Current Basic Prices - Annual (N' Billion)	Petroleum Profit Tax and Royalties (N' Billion)
	GDP	PPT
1981	144.83	6.3258
1982	154.98	4.8464
1983	163.00	3.7469
1984	170.38	4.7614
1985	192.27	6.711
1986	202.44	4.811
1987	249.44	12.504
1988	320.33	6.8144
1989	419.20	10.5981
1990	499.68	26.909
1991	596.04	38.6159
1992	909.80	51.4767
1993	1,259.07	59.2076
1994	1,762.81	42.8027
1995	2,895.20	42.8579
1996	3,779.13	76.667
1997	4,111.64	68.5741
1998	4,588.99	67.9866
1999	5,307.36	164.2734
2000	6,897.48	525.0729
2001	8,134.14	639.2340

2002	11,332.25	392.2072
2003	13,301.56	683.4849
2004	17,321.30	1,183.50
2005	22,269.98	1,904.90
2006	28,662.47	2,038.30
2007	32,995.38	1,500.60
2008	39,157.88	2,812.30
2009	44,285.56	1,256.50
2010	54,612.26	1,944.70
2011	62,980.40	3,976.30
2012	71,713.94	4,365.40
2013	80,092.56	3,719.00
2014	89,043.62	3,439.60
2015	94,144.96	1,782.40
2016	101,489.49	1,192.30
2017	113,711.63	1,801.40

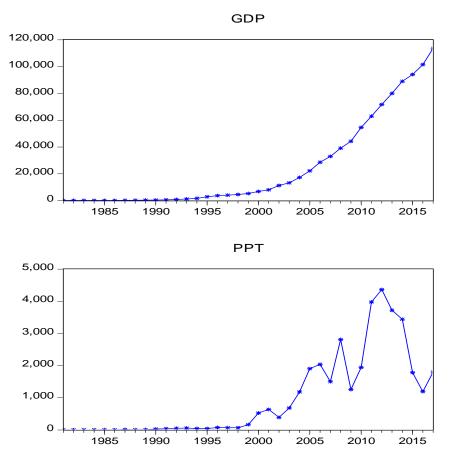
Sources: CBN Statistical Bulletin 2017.

# **Model Estimation and Interpretation**

This section deals with model estimation and interpretation. The estimation starts from trend and descriptive analysis. Correlation and regression analysis were carried out thereafter. In addition, pre and post diagnostics test were conducted.

## **Trends Analysis**

The nature and trends of the variables are presented in figure 1. A visual plot of the data is usually the first step in the analysis of time series (Gujarati &Porter 2009). The trend indicates the movements of the variables overtime; Are they moving upward or downward or constant? It clearly show the pattern and the degree of volatility of the variables



**Figure 1 Trends of the Variables** 

From plot 1 it is evident that Real Gross Domestic Product (RGDP) was relatively low in the early 1970s to 1980. From 1981 RGDP maintains a steady upward movement. Similarly, Petroleum Profit Tax (PPT) in the early 1970s was also relatively low, below one billion naira. However, by the year 1974 the value of PPT started increasing over a billion naira due to Nigeria becoming member of the Organization of the Petroleum Exporting Countries (OPEC) coupled with rising price of crude oil. This rising trend was sustained till 1980. A decline trend in PPT was experienced thereafter up till 1986 due to downward oil price shock of the early 1980s. Steady upward movement was experienced from 1989 to a peak value of over 4 trillion in 2012 after which a downward trend set in due to collapse in crude oil price and violence activities in the oil producing area by militants that affected volume of crude production.

## **Descriptive Statistics**

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with the simple graphics analysis, they form the basis of virtually every quantitative analysis of data. Hence, the descriptive statistics of the data are as presented in table 2.

	GDP	PPT
Mean	24861.44	969.1267
Median	5307.360	164.2734
Maximum	113711.6	4365.400
Minimum	144.8300	3.746900
Std. Dev.	34308.70	1287.632
Skewness	1.290054	1.279114
Kurtosis	3.299436	3.525366
Jarque-Bera	10.40105	10.51499
Probability	0.005514	0.005208
Sum	919873.5	35857.69
Sum Sq. Dev.	4.24E+10	59687890
Observations	37	37

**Table 2: Descriptive Statistics Results** 

## Source: Computed by the Researcher (2019) E-views 10

The summary of descriptive statistics of relevant variables of the study is as reported in table 2, shows that the table, the mean, median, standard deviation as well as the skewness and kurtosis measures of our variables of interest are given. The mean values indicate that on the average Real Gross Domestic Product (RGDP) in Nigeria and Petroleum Profit Tax (PPT) is 24861.44 and 969.1267 billion naira respectively. The highest values for Real Gross Domestic Product (RGDP) and Petroleum Profit Tax (PPT), are: 113711.6 and 4365.40 naira respectively during the period of study. However, the lowest value for Real Gross Domestic Product (RGDP) and Petroleum Profit Tax (PPT) are 144.8300, 3.746900 naira respectively. A distribution is positively skewed if the right tail is longer. Then, mean > median > mode. A distribution is negatively skewed if the left tail is longer. Then, mode > median > mean. Hence, the distributions of both variables are positively skewed since their mean are greater than their median.

The Jarque-Bera statistic is for testing normality of a variable. If the variable is normally distributed, the histogram should be bell-shaped and the Jarque-Bera statistic should not be significant. The JB test of normality is an *asymptotic*, or large-sample, test. This test first computes the **skewness** and **kurtosis** measures of the variable. For a normally distributed

variable, S = 0 and K = 3. Therefore, the JB test of normality is a test of the joint hypothesis that S and K are 0 and 3, respectively. In that case the value of the JB statistic is expected to be 0.

Under the null hypothesis that the variable is normally distributed, Jarque and Bera showed that asymptotically (i.e., in large samples) the JB statistic follows the chi-square distribution with 2 df. If the computed p value of the JB statistic in an application is sufficiently low, which will happen if the value of the statistic is very different from zero (0), one can reject the hypothesis that the variable is normally distributed. But if the *p* value is reasonably high, which will happen if the value of the statistic is close to zero, we do not reject the normality assumption. Recall low *p*-values lead to the rejection of the null hypothesis. For example, if a *p*-value lies between 0.05 and 0.01, the null hypothesis is rejected at the 5 percent but not at the 1 percent level. From the descriptive statistic table above given the JB *P* value of 0.005514 and 0.005208 for GDP and PPT respectively, we cannot accept the normality assumption for both GDP and PPT. Hence, both variables are not normally distributed.

## **Diagnostic Tests**

The first steps to examine the characteristics of the time series data used for estimation of the model is to determine whether the variables have unit roots, that is, whether it is stationary and also to determine the order of integration. The Augmented Dickey-fuller (ADF) test is used for this purpose. A variable is considered stationary if the absolute ADF value is higher than any of the absolute Mackinnon critical values. In other word, the ADF test statistic must be more negative than the MacKinnon critical value at the chosen level of significance. The result of ADF test is presented in table 3 below.

	. Results of Augmented Diekey-Funct Clift Root Tests				
	ADF Test Statistics and				
	MacKinnon (1996) one-				
	sided P-va	lues for the	MacKinnon	Critical	
	Variables in bracket		Value at 5%		
		1st		1st	Order of
Variables	Level	Difference	Level	Difference	Integration
	-0.792308	-3.157453	-2.945842	-2.948404	I(1)
LNGDP	( 0.8093)	( 0.0314)*	-2.943042	-2.940404	1(1)
	-0.971774	-6.039560	-2.945842	-2.948404	I(1)
LNPPT	(0.7528)*	( 0.0000)	-2.943042	-2.940404	I(1)

 Table 3:
 Results of Augmented Dickey-Fuller Unit Root Tests

*Note:* \* Significant at 5 per cent Level of Significance (LOS). ADF is calculated with intercept using Lag Length: 0, (Automatic - based on SIC, maxlag=9) Source: Computed by the Researcher (2019) employing E-Views 10

Table 3 presents the summary of the results of unit root test or test of stationarity. The detail results of unit root test are presented in Appendix I. The orders of integration of the variables were also indicated. The Augmented Dickey Fuller (ADF) test for unit root was employed. The null hypothesis of non-stationarity is rejected, and the decision for stationarity is accepted when the ADF test statistics is greater than the test critical value in absolute term. Alternatively, when the MacKinnon (1996) one-sided p-values is less than or equal to 10 or 5 percent unit root is rejected. It is evident that the two variables (GDP and PPT) are not stationary at levels but become stationary at first difference. Hence, the two variables are integrated of order one I(1).

## **Correlation Analysis**

The analysis continues in this section in determining the degree of linear association between Real Gross Domestic Product (RGDP) and the independent variables. The result of the correlation analysis is presented in table 4:

## Table 4: Correlation Matrix between the Variables

 Correlation
 GDP
 PPT

 GDP
 1.000000
 ---- 

 PPT
 0.777881
 1.000000

 0.0000
 ----

Covariance Analysis: Ordinary

Source: Computed by the Researcher (2019) E-views 9

It is evident from table 4 that there is a strong and significant positive relationship between Gross Domestic Product (GDP) and Petroleum Profit Tax (PPT). This is indicated by the high Pearson Correlation Coefficients of 0.777881 and it is statistically significant at 1 percent level of significance (LOS) as the p-value is 0.0000. Meaning an increase or decrease in Gross Domestic Product (GDP) is associated with an increase or decrease in Petroleum Profit Tax (PPT)

## **Regression Analysis Results**

The objective of this study is to determine the relationship between Gross Domestic Product and Petroleum Profit Tax in Nigeria during the period of the study. To carry out this objective an Auto regressive analysis using ordinary least squares (OLS) was conducted and the result is as presented below in table 5.

#### Table 5Regression Results

Dependent Variable: LNGDP Method: Least Squares

Variable	Coefficien	t Std. Error	t-Statistic	Prob.
С	4.144866	0.195509	21.20033	0.0000
LNPPT	0.780435	0.043842	17.80106	0.0000
GDP(-1)	1.48E-05	3.35E-06	4.412198	0.0001
R-squared	0.966034	Mean dependent var		8.543717
Adjusted R-squared	0.963975	S.D. dependent var		2.260913
S.E. of regression	0.429126	Akaike info criterion		1.225521
Sum squared resid	6.076909	Schwarz criterion		1.357481
Log likelihood	-19.05938	Hannan-	Quinn criter.	1.271578
F-statistic	469.2770	Durbin-V	Watson stat	0.809427
Prob(F-statistic)	0.000000			

Source: Computed by the Researcher (2019) Employing E-views 9

The estimated regression result can be represented as: *LNGDP* = 4.144866 + 0.780435\**LNPPT* +0.0148\**GDP*(-1), ------, 4.1

## Interpretation of Regression Result

From the regression result the  $R^2$  of 0.966034 and adjusted  $R^2$  of 0.963975, it shows that about 96 percent variation in the dependent variable (GDP) is explained by the regressors, leaving the remaining 4 percent to other variables not captured by the model. This indicates that the model is a "good fit". In addition the F-statistic and F-statistic probability of 469.277 and 0.0000 respectively are highly plausible indicating that overall, the model is statistically significant at one percent level of significance. However the D-W statistic of 0.552905 is not desirable as it indicates that there is serial correlation since the value is in the neighbourhood of zero.

The regression result also shows that the coefficient of Petroleum Profit Tax (PPT) is positively related to Real Gross Domestic Product in Nigeria; these conform to the *a priori* expectation of the model for the study. In addition, the coefficient of Petroleum Profit Tax (PPT) is statistically significant. The coefficient value of Petroleum Profit Tax (PPT) indicates that a percentage change in its value leads to about 78 percent change in Gross Domestic Product (GDP). For the robustness of the model, an autoregressive model of order one, AR(1), was built into the model by adding the one period lag of the dependent variable as an explanatory variable. From the coefficient of the AR(1), the immediate past value of GDP contributes meaningfully to

explaining GDP. This is because the coefficient is statistically significant at 1 percent level of significance. Thus, a one percent increase in one time lag of GDP will result to 0.0148 percent increase in GDP.

## Summary of Diagnostic Test

The summary statistics of the diagnostic test were presented in simple tabular form in table 6 for clarity of presentation. Thus, the residual is normally distributed; no serial correlation, there is homoscedasticity and the parameter is stable for policy purposes. Details of the results were presented in Table 6.

Table 6:	Summary	of Diagnostic	Test
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Test	F-Stat	Prob.
Normality <sup>a</sup>	2.865887	0.2386
Autocorrelation <sup>b</sup> (LM stat)	8.823208	0.0009
Heteroskedasticity <sup>c</sup>	1.318657	0.2812

Source: Authors Computation, 2019.

- a. Jarque Bera (JB) Residual Normality Test
- b. Serial Correlation Lagranger Multiplier (LM) Autocorrelation Test
- c. Residual Heteroskedasticity: Breusch-Pagan-Godfrey

## **Test of Hypotheses**

From the regression result, since the t-statistics of 17.8 is far greater than 2 we reject Ho (Petroleum Profit Tax Has No Significant Relationship with Economic Growth in Nigeria) and accept Hi (Petroleum Profit has Significant Relationship with Economic Growth in Nigeria). Alternatively since the P value of 0.000 is less than 5%, we accept Hi and reject Ho at 5% level of significance. To test the hypotheses the results of the model estimation was applied in this section. The null hypothesis that Petroleum Profit Tax has no positive relationship with Economic growth in Nigeria during the scope of the study was rejected as the coefficient of PPT is statistically significant.

## **Discussion of Research Findings**

A preliminary diagnostic test of unit root was conducted using Augmented Dickey Fuller (ADF) test. This is to determine the order of integration of the variables. The ADF indicates that the variables have combined order of integration hence they were difference to achieve *stationarity*. The model estimation involves: trend analysis, descriptive statistics, correlation and regression

analysis. The trend analysis shows that the variables trend upward over the years during the period of the study. From the analyses it is also evident that there is a strong and significant positive relationship between PPT and Economic Growth proxy by GDP in Nigeria during the period of the study. Lastly, the regression result shows that long run relationship exists between the variables.

## **Conclusion and Recommendations**

This study has reviewed the effects of PPT on the economic growth of Nigeria. The links between PPT and economy growth was assessed. PPT has a positive impact on growth after a considerable lag. All the variables are statistically significant. Estimated results suggest that PPT impacts strongly upon gross domestic product. PPT is viewed as one of the policies available for the control of inflation. Results also showed that PPT revenue contributed positively to the development of the respective sectors. The huge revenue earned by the government through the PPT helps government to fund public expenditure that stimulates the national economy and improve economic growth. Increasing oil revenue benefits the Nigerian economy in the sense that when oil revenue is on the increase, prices of goods and services reduce. An increase in petroleum income helps to drive down inflationary trends in Nigeria as indicated by the results, and therefore set the economy in the part of growth and development. This study brought out that petroleum incomes have a positive effect on the economy of the producing nation, and this agrees that per capita income in Nigeria grew over the period under review. There is evidence that petroleum income has a significant and positive impact on the Nigerian economy for the period under review. Lastly, the findings of this study pointed out that the abundance of petroleum and its associated income has been beneficial to the Nigerian economy for the period 1981 to 2017. Income from a nation's natural resource has a positive influence on economic growth and development. Based on the findings of this study, the following recommendations are hereby suggested:

- i. It is recommended that bodies responsible for tax generation such as FIRS, should transparently and judiciously account for the revenue it generates through PPT by investing in the provision of infrastructure and public goods and services. It is expected that the more effectively and efficiently revenue is utilized by such bodies to create growth, employment opportunities and wealth in the economy, the more willing taxpayers would be to meet their obligations to the Government and discharge their duties in the overriding goal of achieving National Development.
- ii. For the PPT policy to have a more significant impact on the revenue and economic development of Nigeria, Tax administrators should minimize or find ways of eliminating totally the widespread corruption and leakages in the petroleum profit tax administration.

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