PETROLEUM INCOME AND NIGERIAN ECONOMY: EMPIRICAL EVIDENCE

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ABSTRACT

This study investigates the effects of petroleum income on the Nigerian economy for the period 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 covers all the economic sectors of the country, including the oil sector and the non-oil sector. This study relied mostly on secondary data from 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 this study to evaluate the data collected. The results show 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 that LF has a positive but insignificant relationship between GDP, PCI and INF, respectively. Based on these findings, this study concludes that petroleum income (oil revenue and PPT/R) has positively and significantly impacted the Nigerian economy when measured by GDP and PCI for the period 2000 to 2009. This study therefore suggests that the effect of petroleum income on the Nigerian economy was positive for the period reviewed.

Keywords: Petroleum, Income, Economy, Nigeria

INTRODUCTION

Nigeria is situated in West African sub-region with a land mass of 923,768 sq km and a population that is presently more than 123 million people in 2009 as shown in Table 1 below. The global perception of Nigeria is that of a rich oil producing nation but with a growing poverty index (Yakub, 2008). Between 2000-2009, the price of crude oil which has contributed about 80% of
the country’s GDP rose from $13 per barrel to a high of $125 per barrel. This also resulted in significant increase in revenue generated as seen in table 2 below. The annual budget expenditure between the period under review increased from 470 billion (naira) to 2.676 trillion(naira). Budgeted Capital expenditure stood at 36.2% of total budget in 2000 which amounted to 300 billion naira and 20.6% in 2009 amounting to 1.524 trillion naira. Total recurrent expenditure increased between this period as a result of increase in salaries and expansion of government ministries and agencies (Nigeria budget office, 2009). In addition to the low capital budget ratio, government ministries have been unable to deploy capital funds effectively. One of the reasons being that some of these ministries still operate an ineffective manual system which has given rise to inconsistency, lack of transparency and accountability problems. Increased unemployment, poor health facilities and lack of adequate power supply are some of the economic problems that have resulted. Available evidence in shows that the country has proven oil reserves of 36 billion barrels, condensate of 4 billion barrels, proven gas reserves of 187 trillion cubic feet and the present average daily production of oil is 2.6 million bbl/b (Agbogun, 2004, Egbogah, 2010).

The major sources of petroleum income are sale of crude oil and gas(oil revenue), Petroleum profits tax and royalties, licensing fees and other incidentals as shown in CBN Statistical Bulletin (2002 and 2009). The main focus of Petroleum Profits Tax (PPT) is the upstream sector of the Petroleum industry, which deals with oil exploration, prospecting, development and production (EPDP). In 2009, Petroleum Profits Tax attracted 85% tax rate on export and 65.75% on domestic sale of oil and gas.

Previous studies on the Nigeria economy in the last decade show that the petroleum industry has been playing a dominant role and occupies a strategic position in the economic development of Nigeria (Azaiik and Shagari (2007). This is evidenced by the total oil revenue generated into the Federation Account from 2000 to 2009 which amounted to ₦34.2 trillion while non-oil was ₦7.3 trillion, representing 82.36% and 17.64% respectively. The mean value of oil revenue for the 10 year period is ₦3.42 trillion compared to non-oil revenue at ₦732.2 billion (CBN Statistical Bulletin, 2009). Further evidence was ten year’s average crude oil and condensates production of 832,866,752.1 barrels from 2000 to 2009.

The importance of crude oil to the economic development of Nigeria cannot be over emphasized, as shown in the table above and the evidence presented in Binda and Van
Wijnbergen (2008) which states that Nigeria gained an extra $390 billion in oil-related fiscal revenue between 1971 and 2005, or 4.5 times 2005 gross domestic product (GDP). Unfortunately, the economy has been bedeviled by sustained underdevelopment evidenced by poor human developmental and economic indices including poor income distribution, militancy and oil violence in the Niger Delta, endemic corruption, unemployment, relative poverty (Nwezeaku, 2010). Irrespective of Nigeria’s huge oil wealth, the country has remained one of the poorest in the world. In particular, the Niger Delta which produces the oil wealth that accounts for the bulk of Nigeria’s earnings has also emerged as one of the most environmentally degraded regions in the world evidenced from the World Wildlife Fund report released in 2006 (Ekaette, 2009).

The problems with Nigerian economy have been traced to failure of successive governments to use oil revenue and excess crude oil income effectively in the development of other sectors of the economy (Yakub, 2008). Over all, there has been poor performance of national institutions such as power, energy, road, transportation, politics, financial systems, and investment environment have been deteriorating and inefficient (Nafziger, 2008).

According to Odularu (2008), outside of the energy sector, Nigeria’s economy is highly inefficient. Moreover, human capital is underdeveloped. Nigeria ranked 151 out of 177 countries in the United Nations Development Index in 2004 and non-energy-related infrastructure is inadequate. Nigeria’s economy is struggling to leverage the country’s vast wealth in fossil fuels in order to displace the devastating lack that affects about 57 percent of its population. In 2009, persistent inflation and environmental degradation led to deprivation of means of livelihood and other socio-economic factors to the people of Niger Delta which is the major oil producing state in Nigeria. Despite the fact that crude oil has been the source of Nigerian economy, the economy is faced with high rate of unemployment, wide spread oil spillage, increasing poor standard of living as a result of decreasing gross domestic product, per capita income and high rate of inflation which has led to the effect of the economic development .(Nwezeaku, 2010)

Bawa and Mohammed (2007) assert that “Nigeria with all its oil wealth has performed poorly, with GDP, per capita today not higher than at independence in 1960”. This means that an average Nigerian was better off before independence in 1960.Bawa and Mohammed acknowledged poor performance of Nigeria’s economy but did not provide any empirical
evidence or percentage figures by way of hypotheses testing and thereby confirming the fact that some of their works must have been based on assumptions that cannot be statistically verified and generalized (Baridam, 2008, and Eromosele, 1997).

Oil revenue which is supposed to be a source of finance for economic development has turned out to be a bone of contention between many interest groups, precisely the government and oil and gas companies. From the work of Odularu (2008) which focused mainly on Labor, Capital, Real gross domestic product, domestic crude oil consumption and crude oil export in Nigeria, the period of his study like some other previous ones were different from this study. That is, Odularu’s period of study was 1970 to 2005 while this present study covers 2000 to 2009, which is different from previous works. This proves that so far, there has not been any empirical research to find out the effects of petroleum income on the Nigerian economy from 2000 to 2009. Hence, this study becomes imperative in order to provide empirical solution to some of the numerous problems besetting Nigerian economy.

THEORETICAL FRAMEWORK

Dominant theories of economic growth have suggested that significant relationship exist 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, Harrod (1939) and Domar (1946) models state that growth is directly related to savings (unspent income). Similarly Yakubu (2008) suggests 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 which appears to have shown slower economic growth than countries with low ratio of natural resource export to GDP. Similarly, Collier and Hoeffler (2002), is of the opinion that increase in natural resources income does not result in increase in economic growth. This is so because they found that 23.0 per cent of countries that are dependent on oil exports are likely to experience civil war in any five-year period compared to 0.6 percent for countries without natural resources. During each of these periods, there was no economic growth. Yakub, (2008) also supports the argument that increase natural resources income does not result in increases in
economic growth but result in vicious development cycle (i.e. violent and adverse development). According to him, increase in natural resources income encourages rent-seeking in the economy whereby all economic units, whether public and private, domestic and foreign have overwhelming incentives to seek links with the state in order to share in the resource pie. This incentive for rent-seeking penalizes productive activities, distorts the entire economy and hinders economic growth.

In theory, proponent of oil-led development (for example Yakubu (2008) and Hoffman (1999)) believes that countries lucky enough to have petroleum, can base their development on this resource. They point to the potential benefits of enhanced economic growth and the creation of jobs, increased government revenues to finance poverty alleviation, the transfer of technology, the improvement of infrastructure and the encouragement of related industries. But the experience of almost all oil-exporting countries to date, especially Nigeria illustrates few of these benefits (Terry, 2000). To say the least, Nafziger (1984) says that Nigeria’s case is increasingly degenerating to a state of chaos as petroleum income is brazenly mismanaged while the basic national institutions such as electricity, energy, road, transportation, political, financial systems, and investment environment have been decreasing and inefficient in Nigeria, the infrastructure is still poor; talent is scarce. Poverty, famine, and disease afflict many nations, including Nigeria (Chironga, et al, 2011).

It is evident from the opinions expressed in the foregoing theories that petroleum income can cause an increase or a decrease in economic growth and development of a nation, depending on the type of theory, policy and practical implementation the government in power adopts.

**OIL REVENUE**

Oil revenue refers to the income earned from the sale of crude oil. According to Budina and van Wijnbergen (2008) oil is the dominant source of government revenue, accounting for about 90 percent of total exports, and this approximates to 80% of total government revenues. 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. So far, the oil boom of the 1970s led to the neglect of non-oil tax revenues, expansion of the public sector, and deterioration in financial discipline and accountability. In
turn, oil-dependence exposed Nigeria to oil price volatility which threw the country’s public finance into disarray (Yakubu, 2008).

Nafziger (2006) and Ibaba, (2005) state that Nigerian economy has the potentialities of becoming one of the twenty leading economies of the world before the year 2020 if their abundant crude oil wealth, human and natural resources are properly managed and corruption mitigated.

PETROLEUM PROFITS TAX (PPT) AND ITS ADMINISTRATION IN NIGERIA

The focus of Petroleum Profits Tax in Nigeria is the upstream sector of the petroleum industry which deals with oil prospecting, mining and production. Crude Oil production is taxed at the rate of 85% on export and 65.75% on domestic sale of oil within the periods under review. (Kiable and Nwikpasi, 2009). The tax laws according to Adekanola (2007) have vested the authority to assess, administer and collect all taxes from corporate entities on the Federal Inland Revenue Services. Taxes administered at the Federal level include the Petroleum Profits Tax, Companies Income Tax, and the Value Added Tax as well as the Capital Gain Tax, when such capital gains are generated by corporate entities. The administration of taxes in Nigeria has also been focused on revenue generation to the detriment of stimulating economic development. Azubuike (2009) however posits that tax payers or revenue public payers are well disposed to perform their civic duties willingly when they see evidence of public expenditure which they can identify with or benefit directly from. Unfortunately, this has not been the case in Nigeria. Macdonald (1980) opines the fact that the retention of a corporation tax under an expenditure tax regime is justified in the Meade Report of 1978 on Tax Reform on the ground that it can raise revenue while not distorting the rate of return to saving. Ogbonna (2009) expressed the view that the administration of Petroleum Profits Tax in Nigeria has mainly been focused on revenue generation to the detriment of stimulating economic growth and development

LICENSING FEE

According to the Nigeria constitution (2011), a license means a permission given by a competent authority to do an act, which without such grant would be illegal or would amount to a trespass or tort. A license therefore confers certain rights on the licensee. Such a license is usually issued under terms whose objectives range from the raising of revenue, to the establishment of controls and the maintenance of standards. In essence, the goals of a license
granted in accordance with the relevant provisions of the Petroleum Act, either for the exploration or prospecting for petroleum are basically not different from the foregoing objectives.

Licensing fee constitutes part of petroleum income. The origin of this source of income according to Etiherentse (2004) is from the 1999 Nigerian Constitution, Section 44 (3) which provides the transfer of:

“the entire property in and control of all minerals, mineral oils and natural gas in, under or upon any land in Nigeria or in, under or upon the territorial waters and the Exclusive Economic Zone of Nigeria shall vest in the government of the federation and shall be managed in such manner as may be prescribed by the National Assembly”.

Also, Sections 1 and 2 of Petroleum Act, 1969, as amended to date, provides that “the entire ownership and control of all petroleum in, under or upon any lands to which this section applies shall be vested in the country”. Therefore, by these legal provisions, the Federal government of Nigeria is entitled to assign oil prospecting license and oil mining lease and receive fees from oil companies operating in Nigeria before they could be allowed to prospect and explore for oil. This is how licensing fee become part of petroleum income and therefore the Central Bank of Nigeria (CBN) have used it in 2008 and 2009 in presenting the summary of the Nigerian Federal Government Finances.

2.7. GROSS DOMESTIC PRODUCT (GDP)

According to World Bank Report (2011), “GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products, It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources”.

The Central Bank of Nigeria (2010) defines GDP as the money value of goods and services produced in an economy during a period of time irrespective of the nationality of the people who produced the goods and services. It is usually calculated without making any allowance for capital consumption (or deductions for depreciation).

Schiller (2003) used GDP and per capita income to assess the growth rate in selected countries from 1990 to 2000, see table 2.7.1 below. The relationship between GDP growth and population
growth is very different in rich and poor countries. The populations in rich countries according to him are growing very slowly, and gains in per capita income and GDP are easily achieved. That is, while rich countries’ population growth grows slowly, their per capita income and gross domestic products (GDP) are high and easily achieved. Conversely, in the poorest countries, population is still increasing rapidly, making it difficult to raise standard of living. A typical example is how per capita incomes are declining in many poor countries such as Nigeria, Kenya, Venezuela and Haiti. According to World Bank Development Report, (2002) and Schiller (2003), Nigeria has an average economic growth rate from 1990 to 2000 as follows: GDP of 2.4, National Income of 1.12, population of 2.8, and per capita income of -0.4.

PER CAPITA INCOME

Per capita income simply refers to the national income (that is GDP) per person in an economy (country). According to World Bank (2011),

“GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources”.

Available evidence from the World Bank report of (2005) and Iyoha (2007), states that per capita income in Nigeria in 2000 was US$260. This is only one-third of the per capita income of 1980. Real income per capita grew at only 0.43% annually at constant domestic prices between 1960 and 2000. Iyoha(2007) further stated that during this period of the decline of the per capita income, the external debts of Nigeria was rising continuously, as was the share of GDP owed annually in debt services. He attributed the decline in the Nigeria economy to the inability of managing the economy effectively and efficiently so that the non-oil sector generates and contributes revenue as much as the oil sector of the economy.

The World Bank Report (2010) stated that as a result of corruption, 80% of Nigerian energy revenue benefits only 1% of the population. This means that 99% of Nigerians do not benefit from oil revenue according to World Bank Report. Similarly, The World Bank development report (2010) reviewed that Nigeria’s per capita income stands at US$2,748. This amount falls behind Ghana and Cameroun with US$10,748 and US$10,758 respectively. The comparison
above supports the argument of Terry (2000) which stated that oil-dependent countries suffer from what economists call the “resource curse”. In its simplest form, resource curse view refers to the inverse association between growth and natural resource abundance, especially minerals and oil. According to Ross (1999), available evidence shows that countries with abundant resource wealth do not perform better than their resource poor counterparts, but there is slight agreement on why this happens. Similar finding have been replicated through a study of the members of the Organization of Petroleum Exporting Countries (OPEC), using a different and longer time period, from 1965 to 1998. OPEC members experienced an average decrease in their per capita national income of 1.3% per year during this period, whereas lower and middle-income developing countries as a whole grew by an average rate of 2.2% per year over the same time. Moreover, Previous studies show that the greater the dependence on oil and mineral resources, the worse the growth performance. Finally, countries dependent on the export of oil for example Nigeria, have not only performed worse than their resource-poor counterparts; they have also performed poorly than they should have given their revenue streams.

INFLATION

Black (2002) describes inflation as a persistent tendency for price and money wages to increase. Inflation is measured by the proportional changes over time in some appropriate price index, commonly a consumer price index or a GDP deflator. According to the World Bank (2011), consumer price index measure of inflation, shows the yearly percentage change in the cost to the average consumer of purchasing a basket of goods and services that may be fixed or changed at particular intervals, such as annually. While GDP deflator as a measure of inflation is the rate of change in prices of goods and services in the entire economy.

Over the years economists have attempted to distinguish between cost-pull and demand-pull inflation. Cost-pull inflation can start by an increase in the elements of cost. For instance, petroleum oil price explosion in the world market and excess crude oil can trigger off inflation in the economy if the increased income is not properly managed. Black (2002) further stated that demand-pull inflation can be caused by too much aggregate demand. According to Jhingan (2009) the neo-classical economists defined inflation as a galloping rise in prices as a result of the excessive increase in the quantity of money. However, Keynes (1936) in his general theory did not see it in the light with the neo-classical economists. He therefore allayed all such fears.
He did not believe according to Jhingan (2009) like the neo-classicalists that there was always full employment in the economy which resulted in hyperinflation with increase in the quality of money. According to him, there being underemployment in the economy, an increase in the money supply leads to increase in aggregate demand, output, and employment.

According to Binda and Van Wijnbergen (2008), the sizable oil windfall, of course, presented net wealth and thus additional spending room, but it also has complicated macroeconomic management. The evidence above therefore suggests that petroleum income plays an important role in a petroleum exporting country such as Nigeria. Earnings from petroleum exports provide the country with significant foreign exchange, which has, on the average been on the increase. However, this increase in earnings influences excessive government expenditure, which in turn, increases the supply of money in the economy.

According to Sikkam (1998), the beginning of the continuous increase in prices of goods and services could be drawn to rising government expenditure which is fuelled by increasing petroleum income. The effects of inflation have been devastating to Nigerian economy. According to Bawa and Mohammed (2007), natural resource income dependence for economic growth, which in the case of Nigeria is dependence in petroleum income, is accompanied by a boom and burst cycle. As the prices of raw materials fluctuate in the local and world markets, so does the income of countries that supply these raw materials. These incidents of price fluctuation do cause inflation and erode purchasing power in Nigeria. For instance, the resulting fluctuations in export earnings trigger off exchange rate volatility, while unstable exchange rates create uncertainty that can be harmful to exports and other trade, including foreign investment.

In addition, Sinha and Lipton (1999) posit that oil wealth can affect the poor by creating economic volatility. Volatility tends to hurt the poor in two ways: by causing macroeconomic shocks, and by making government revenues unstable. They also noted that unmanaged external shocks create a number of economic problems, including: fiscal and monetary, disequilibria and inflation, exchange rate appreciation. This in turn affects other export sectors; lower private investment, and capita flight. These problems tend to cause greater difficulties for the poor than the general population, since the poor are less able to protect themselves against negative shocks, and to offset their impact when they occur.
MATERIALS AND METHODS

The sample for this study is the national economy of Nigeria. That is, the sample covers all the economic sectors of the country, including the oil sector and the non-oil sector. The data used in this study are quantitative secondary data collected from three very important organizations in Nigeria namely the Central Bank of Nigeria (CBN), the National Bureau of Statistics (NBS), and the Nigerian National Petroleum Corporation (NNPC). From CBN statistical bulletins and NNPC statistical bulletins, we collected petroleum income (the explainer variables – oil revenue, petroleum profit tax/royalties, and licensing fees) data for the period 2000 to 2009. From the CBN and the National Bureau of Statistics (NBS), we collected the economic indicators (explained variables – gross domestic product, per capita income, and inflation). The main objective of this study is to ascertain the effects of petroleum income on the Nigeria economy. The following models specified have been used to evaluate whether the variation in GDP is explained by the oil revenue using the following variables: alpha (α), Beta (β) and Stochastic Terms (U). This model which was adapted from the work of Odularu (2008), Gujarati (2006), and Dougherty (1992), has been specified for the successful investigation of the effects of petroleum income on the Nigerian economy. We have therefore summarized the relationship between the explained variable (GDP) and the explainer variable (Oil Revenue) in the following regression equation.

RESULTS AND DISCUSSION

Descriptive Statistics

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Sum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Revenue</td>
<td>10</td>
<td>1230851</td>
<td>6530630</td>
<td>3419465.0</td>
<td>3419466</td>
<td>1794696.3</td>
<td>3220934828816</td>
</tr>
<tr>
<td>Petroleum Profit Tax/ Royalties</td>
<td>10</td>
<td>392200.00</td>
<td>2038300</td>
<td>12466400.0</td>
<td>1246640</td>
<td>639199.48</td>
<td>408575973777.8</td>
</tr>
<tr>
<td>Licensing Fee</td>
<td>10</td>
<td>78034.00</td>
<td>99213.50</td>
<td>914599.00</td>
<td>91459.9</td>
<td>1246640</td>
<td>639199.48</td>
</tr>
<tr>
<td>Gross Domestic Product</td>
<td>10</td>
<td>329178.70</td>
<td>716949.70</td>
<td>5305641.90</td>
<td>530564.2</td>
<td>130714.86</td>
<td>17086374100.05</td>
</tr>
<tr>
<td>Per capita Income</td>
<td>10</td>
<td>49614.00</td>
<td>89400.00</td>
<td>637599.00</td>
<td>63759.9</td>
<td>14928.806</td>
<td>222869240.100</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td>10</td>
<td>5.38</td>
<td>18.90</td>
<td>123.05</td>
<td>12.3050</td>
<td>4.54611</td>
<td>20.667</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
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<td></td>
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</tr>
</tbody>
</table>
The Descriptive Statistics of Variables in the table above shows that

n = 10; this is the ten years the work covered.

OIL REVENUE

It indicates the variability in inflation rates within the period.

The minimum oil revenue in a year within the period of the study is 1.230851 Trillion Naira (#1,230,851,000,000) and the Maximum is about 6.53063 Trillion Naira (#6,530,630,000,000). The total oil revenue generated within the period of the study is 34.194655 Trillion Naira (#34,194,655,000,000). On the average, the oil revenue generated within the period of the study is 3.4194655 Trillion Naira (#3,419,466,000,000). However, the standard deviation of 1794696.3 is very high; it indicates the variability or dispersion of the yearly oil revenues within the period under survey, i.e. the increase/decrease in oil revenue within the studied period was very high.

PETROLEUM PROFITS TAX/ROYALTIES

The minimum petroleum profits tax/royalties within the year under review is 392,200 Billion Naira (#392,29,000,000) and the Maximum is about 2038300 Billion Naira (#2038300, 000,000). The petroleum profits tax/royalties generated within the period of the study is 5.305641 Trillion Naira (#5,305,641,000,000). On the average, the petroleum profits tax/royalties within the period of the study is 124,664 Billion Naira (#124,664,000,000). However, the standard deviation of 639199.4 is high; it indicates the fluctuation or dispersion of the yearly petroleum profits tax/royalties within the period under survey, i.e. the increase/decrease in petroleum profits tax/royalties within the studied period was high.

LICENSING FEE

The minimum licensing fee in a year within the period of the study is 78034.00 and the Maximum licensing fee is 99213.50. The average licensing fee within the period under survey is
91459.90. However, the standard deviation is 9015.44083. This value is low in view of the fact that Nigeria is an oil rich country.

GROSS DOMESTIC PRODUCT

The minimum Gross Domestic Product year within the period of the study is 329.178 Billion Naira (#329,178,000,000) and the Maximum is about 716.949 Billion Naira (#716,949,000,000) the Gross Domestic Product generated within the period of the study is 5.305641 Trillion Naira (#5,305,641,000,000). On the average, the Gross Domestic Product within the period of the study is 530.564 Billion Naira (#530,564,000,000). However, the standard deviation of 130714.86 is high; it indicates the fluctuation or dispersion of the yearly Gross Domestic Product within the period under survey, i.e. the increase/decrease in Gross Domestic Product within the studied period was high.

PER CAPITA INCOME

The minimum per capita income in a year within the period of the study is 49614.00 and the Maximum per capita income is 89,400.00. The average per capita income within the period under survey is 63,759.90. However, the standard deviation is 14,929; this value is on the low side when compared with other countries.

INFLATION RATE

The minimum rate of inflation in a year within the period of the study is 5.38% and the Maximum inflation rate is 18.9%. The average inflation rate within the period under survey is 12.3%. However, the standard deviation is 4.5, this value is low; it indicates under survey is considerably (one digit).

The values presented in table above, summarise and answer the first research question of this study, which is: Does oil revenue have any significant relationship with GDP, per capita income and inflation respectively? The table above shows that the oil revenue (the explanatory variable) influences the three explained variables (GDP, PCI, and INF). GDP and PCI have a positive relationship with oil revenue. That is, a 1% increase in oil revenue results in a 0.056% increase in GDP. Likewise, a 1% increase in oil revenue results in 0.006% increase in PCI. This implies that the Nigerian economy, measured by GDP and PCI respectively, is better
off when oil revenue is increasing. On the other hand, INF has a negative relationship with oil revenue. That is, a 1% increase in oil revenue, results in a 0.000006% decrease in inflation. This inverse relationship between oil revenue and inflation implies that the economy is better off within the period under review, since increases in oil revenue causes a decrease in inflation.

Further analysis on the result above and to make comparisons with findings of previous studies, we discuss the explanatory powers of the oil revenue on the explained variables in turn, at a significant level of 5%. The GDP variable has a positive sign as shown in the table 4 above. This implies that oil revenue has a positive impact on GDP and that both variables, move in the same direction. In addition, this positive relation between oil revenue and GDP is statistically significant at 5%. This is so because we can say with 90% probability of being correct that oil revenue influences GDP positively. This finding is similar to the suggestion of Yakub (2008) that income from a nation’s natural resource (e.g. petroleum) has a positive influence on economic growth and development, which in this case is measured by GDP.

**Per Capita Income (PCI)**

The table below shows that PCI has a positive relationship that is statistically significant at 5% with oil revenue. That is, beta has a positive sign and the p – value is 0.02, which is less than 0.05, and this indicates that we are 98% certain that the effect of oil revenue on inflation as seen in the results is true. In other words, a variation in per capita income in the Nigerian economy is explained by oil revenue. This result suggests that income per person in the country increases as oil revenue increases. This implies that Nigerians are made well off as a result of increasing oil revenue during the period under review. This study finds petroleum income to have a positive effect on the economy of the producing nation, and this agrees with the opinions of previous studies (for example Iyoha (2007)) that per capita income in Nigeria grew over the period under review.
Inflation (INF)

The result in table below shows that inflation has a negative sign. That is, oil revenue and inflation move in opposite directions. For every 1% increase in oil revenue will cause a decrease in inflation. In other words, increasing oil revenue benefits the Nigerian economy in the sense that when oil revenue is on the increase, prices of goods and services, for example cost of production is on the decrease. This implies that economic activities are boosted by the falling cost of production, increasing domestic consumption, and making export cheaper, enabling the country to compete favourably abroad. However, the relationship between oil revenue and inflation at 5% is not statistically significant. This is so because the estimated p-value of 0.501 is greater than expected p-value of 0.05. This indicates that we are not 95% certain of the effect of oil revenue on inflation as seen in the results is true. The values presented in table above, summarise and answer the second research question of this study, which is: Have petroleum profits tax and royalties any significant relationship with GDP, per capital income and inflation? The table above shows that the PPT/R (the explanatory variable) influences the three explained variables (GDP, PCI, and INF). GDP and PCI have a positive relation with PPT/R. That is, a 1% increase in PPT/R results in a 0.175% increase in GDP. Likewise, a 1% increase in PPT/R results in 0.018% increase in PCI. This implies that the Nigerian economy, measured by GDP and PCI respectively, is better off when PPT/R is increasing. On the other hand, INF has a negative relationship with PPT/R. That is, a 1% increase in PPT/R, results in a 0.00006% decrease in inflation. This inverse relationship between PPT/R and Inflation implies that the economy is better off within the period under review, since increases in PPT/R causes a decrease in inflation. Further analysis on the result above and to make comparisons with findings of previous studies, we discuss the explanatory powers of the PPT/R on the explained variables in turn, at a significant level of 5%.
Gross Domestic Product (GDP)

The results contained in table below shows that a relationship exists between PPT/R and GDP. The relationship is positive and statistically significant at 5% over the period under review this is by the positive sign of the beta coefficient and the p – value of 0.002, which is less than 0.05, and this indicates that we are 99.998% certain that the effect of oil revenue on inflation as seen in the results is true. This suggests that petroleum income has a positive impact on GDP, a major indicator of growth and development of an economy. That is, an increase in petroleum income in the form of increasing PPT/R, results in an increase in the value of goods and services produced in an economy. The benefits of PPT/R to an economy cannot be over emphasized. The huge revenue earned by the government through the PPT/R helps government to fund public expenditure that stimulates the national economy and improve economic growth. It is not surprising that PPT/R as an explainer of GDP performs in this way, since crude oil production in Nigeria is taxed at the rate of 85% on export and 65.75% on domestic sale of oil (Kiable and Nwikpasi, 2009).

Per Capita Income (PCI)

The table below shows that the manner which PPT/R explained per capita income, is similar to that which oil revenue explained per capita income as was seen in table in the earlier section. PPT/R has a positive relationship with per capita income and both variables move in the same direction. This implies that an increase PPT/R result in an increase in PCI. For example, for every 1% increase in PPT/R result in 0.018% increase in PCI. However, some reports and studies have suggested that per capita income in oil rich nations has been on the decline. For example, The World Bank development (2010) reviewed that Nigeria’s per capita income stands at US$2,748. This amount falls behind Ghana and Cameroun with US$10,748 and US$10,758 respectively. This World Bank report may contradict the findings of this study but the question
that is unanswered is whether the countries being compared are alike in all respect, for example population. The population of Nigeria far exceeds those of these two countries. Secondly, the relationship between PPT/R and per capita income is statistically significant at 5%. That is, beta has a positive sign and the $p$–value is 0.008, which is less than 0.05, and this indicates that we are 99.992% certain that the effect of PPT/R on PCI as seen in the results is true. This therefore suggests that the behavior of the explainer variable could not have occurred by chance.

**Inflation (INF)**

Table 4.6.1 shows that the coefficient of the inflation variable has a negative sign. PPT/R and inflation have an inverse relationship. That is, an increase in PPT/R results in a decrease in inflation. The result indicates that for every 1% increase in PPT/R results to a 0.000006% decrease in inflation for the period under review. This relationship is beneficial to the economy of an oil producing nation like Nigeria. In other words, an increase in petroleum income helps to drive down inflationary trends in Nigeria as indicated by our results, and therefore set the economy in the part of growth and development. This opinion therefore disagrees with the views of previous studies for example Terry (2000) and Ross (1999) which suggest that abundance of oil wealth and its associated income has a negative impact on such a nation. However, it is important to note that the relationship between PPT/R and inflation is not statically significant at 5%. That is, beta has a negative sign and the $p$–value is 0.633, which is more than 0.05, and this indicates that we are not 99.367% certain of the effect of oil revenue on inflation as seen in the results is true. The values presented in the table 4.10 above, summarise and answer the third research question of this study, which is: **Is there any significant relationship between licensing fees and GDP, per capital income and inflation?** The table above shows that the LF (the explanatory variable) influences the three explained variables (GDP, PCI, and INF). GDP, PCI, and INF all have a positive relationship with LF. That is, a 1% increase in LF results
in a 4.620% increase in GDP. Likewise, a 1% increase in LF results in 0.496% increase in PCI, and a 1% increase in LF, results in a 0.001% increase in inflation. This implies that the Nigerian economy, measured by GDP, PCI, and INF respectively, is better off when LF is increasing. Further analysis on the result above and to make comparisons with findings of previous studies, we discuss the explanatory powers of the LF on the explained variables in turn, at a significant level of 5%.

Gross Domestic Product (GDP)

The GDP variable has a positive sign as shown in table 4.10.2 above. This implies that LF has a positive impact on GDP and that both variables, move in the same direction. In addition, this positive relationship between LF and GDP is very strong but is not statistically significant at 5%. This is so because we can only say with 63% probability of being correct that LF influences GDP positively. Although the results suggests that LF is not a confident significant explainer of the variations in GDP in Nigeria for the period under review, our model, to the extent which it is correct has shown that there is a positive relationship between petroleum income in the form of licensing fees, and the gross domestic product. That is, increase in petroleum income has positive impact on the Nigerian economy.

Per Capita Income (PCI)

The table below shows that PCI has a positive relationship with LF. That is, an increase in licensing fees causes an increase in per capita income. Precisely, for every 1% increase in LF, has a corresponding 0.496% increase in PCI. This result suggests that income per person in the country increases as petroleum income increases as indicated by the positive sign of the beta coefficient. However, the positive relationship between LF and PCI is not statistically significant at 5% as is indicated p – value of 0.401 which is greater than 0.05. This implies that we are not 95% certain of the effect of oil revenue on inflation as seen in the results is true. This implies
that an increase in Licensing fee marginally increased per capita income within the period under review.

**Inflation (INF)**

The result in table below shows that inflation has a positive sign. That is, LF and inflation move in the same directions. An increase in LF results in an increase in inflation. In other words, increasing LF does not benefit the Nigerian economy in the sense that when LF is on the increase, prices of goods and services, for example cost of production is on the increase. This implies that economic activities are hindered by increasing cost of production, decrease in domestic consumption, and making export more expensive. This therefore limits the country from competing favourably in international trade. However, the relationship between LF and inflation at 5% is statistically significant. This is so because the estimated p-value of 0.012 is less 0.005. This indicates that we are

<table>
<thead>
<tr>
<th>H0:1</th>
<th>GDP = α₁ + β₁ OR + U₁</th>
<th>0.056</th>
<th>3.386</th>
<th>0.010</th>
<th>There is significant relationship</th>
<th>Accept</th>
</tr>
</thead>
</table>


The table below shows a summary of the nine hypothesis tests conducted on our models using simple regression estimation method. The accept or reject decision was reached based on whether a relationship exists between the explained and explainer variable and whether the relationship is significant. A relationship is significant if it has a $p$ – value that is equal to or less than 0.05. Therefore, we accept the null hypothesis if the model meets this rule, otherwise we reject the

<table>
<thead>
<tr>
<th>HO:2</th>
<th>$PCI = \alpha_2 + \beta_2 \text{ OR} + U_2$</th>
<th>0.006</th>
<th>2.907</th>
<th>0.020</th>
<th>There is significant relationship</th>
<th>Accept</th>
</tr>
</thead>
<tbody>
<tr>
<td>HO:3</td>
<td>$INF = \alpha_3 + \beta_3 \text{ OR} + U_3$</td>
<td>-</td>
<td>-0.705</td>
<td>0.501</td>
<td>There is no significant relationship</td>
<td>Reject</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0000006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HO:4</td>
<td>$GDP = \alpha_4 + \beta_4 \text{ PPT/R} + U_4$</td>
<td>0.175</td>
<td>4.673</td>
<td>0.002</td>
<td>There is significant relationship</td>
<td>Accept</td>
</tr>
<tr>
<td>HO:5</td>
<td>$PCI = \alpha_5 + \beta_5 \text{ PPT/R} + U_5$</td>
<td>0.018</td>
<td>3.505</td>
<td>0.008</td>
<td>There is significant relationship</td>
<td>Accept</td>
</tr>
<tr>
<td>HO:6</td>
<td>$INF = \alpha_6 + \beta_6 \text{ PPT/R} + U_6$</td>
<td>-0.000006</td>
<td>-0.496</td>
<td>0.633</td>
<td>There is no significant relationship</td>
<td>Reject</td>
</tr>
<tr>
<td>HO:7</td>
<td>$GDP = \alpha_7 + \beta_7 \text{ LF} + U_7$</td>
<td>4.620</td>
<td>0.951</td>
<td>0.370</td>
<td>There is no significant relationship</td>
<td>Reject</td>
</tr>
<tr>
<td>HO:8</td>
<td>$PCI = \alpha_6 + \beta_6 \text{ LF} + U_8$</td>
<td>0.496</td>
<td>0.887</td>
<td>0.401</td>
<td>There is no significant relationship</td>
<td>Reject</td>
</tr>
<tr>
<td>HO:9</td>
<td>$INF = \alpha_9 + \beta_9 \text{ LF} + U_9$</td>
<td>0.001</td>
<td>-3.251</td>
<td>0.012</td>
<td>There is significant relationship</td>
<td>Accept</td>
</tr>
</tbody>
</table>
null hypothesis.

CONCLUDING REMARKS

Our findings from the estimation of our models indicate that oil revenue has a positive and statistically significant relation with GDP and per capita income respectively, but its relationship with inflation is negative and not statistically significant. Similarly petroleum profit tax and royalties has a positive and statistically significant relation with GDP and per capita income respectively, but its relationship with inflation is negative and not statistically significant. Finally, licensing fee has a negative and a non-statistically significant relationship with GDP and per capita income respectively, but its relationship with inflation is positive and statistically significant. From the forgoing and on the basis of our model specifications, it is evident that petroleum income has a significant positive impact on the Nigerian economy for the period under review. In other words, the findings of this study indicate that the abundance of petroleum and its associated income has been beneficial to the Nigerian economy for the period 2000 to 2009. This conclusion therefore supports the opinions of previous studies (for example Yakubu (2008)) that income from a nation’s natural resource (e.g. petroleum) has a positive influence on economic growth and development. It is important to note that of the three explainer variables (oil revenue, petroleum profit tax/royalty, and licensing fees), oil revenue and petroleum profit tax/royalty showed more robust significant positive effect on the explained variables (GDP, PCI and INF) that measure growth and development in the Nigerian economy.

Limitations of the study and Focus for Future Research

The explained variables (GDP, PCI and INF) used in this study were chosen on the basis that they are among the common economic indicators used in previous studies and recent reports of international organisations, for example, the World Bank. It therefore implies that there are other variables, for example Gross National Product (GNP), unemployment, and balance of payment and trade, that can be used to measure the performance of an economy. The inclusion of these other variables in our models can make the findings of this study more robust and extensive. Secondly, this study did not examine the effect of each explainer variable on the explained variables when using a multi-variable model, for example multiple regression model.

From the forgoing therefore, future research should attempt to include other economic variables that are quantitative as well as qualitative and quantifiable, to ascertain the effect of petroleum income on the economy. In addition, the explanatory power of the explainer variables should be
estimated using a multi-variable model, for example multiple regression models to ascertain whether the relationship will remain consistent as is seen in the single model regression.

There should also be further empirical study that will compare the amount of petroleum income received over the past decade (i.e. 2000 to 2009) against the economic development achieved within the same period in terms of capital projects and infrastructural development. Further empirical study on the effects of Petroleum Profits Tax (PPT) accounting and payment by oil companies on the Nigerian Economy (NE) needs to be carried out.

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