

Impact of Fallen Oil Prices on the Nigeria Economy

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Abstract

Nigeria has substantially lost income from oil and has to fund the 2016 budget mainly from borrowed funds and perhaps from recovered loot. Thus, this study examined the impact of fallen oil prices on the Nigeria economy. The study relied deeply on secondary data. Materials and information were obtained from the CBN Annual Report and statement of Account, CBN Financial review, National Bureau of Statistics, Budget IT and Books and Annual Reports of Nigerian National Petroleum Corporation. The methods used in analyzing the data are simple regression analysis, Pearson Product Moment Correlation and Chi-Square to determine the effect and relationship between oil price (Independent Variable) and economic growth indicators such as Foreign exchange earnings, aggregate expenditure, budget servicing and public sector employment rate (dependent variables). The study found that fallen oil price has a significant effect on the Nigerian economy and has impacted negatively on it. The study among others recommend that diversification of Nigerian economy is most imperative given the economic recession in the country now.

Keywords: Oil, Economy and Nigeria

1.1 Background of the Study: In the world over, the sustainability of any economic growth is to a large extent depend on the diversification of such economy. In the developed society fallen oil prices is not a threat as several measures are in place to upturn such occurrences. Ayoola (2013) argues that Nigeria as a mono-product economy, remains susceptible to the movements in international crude oil prices. Yusuf (2015) also contends that oil plays a critical role in Nigeria in the conduct of fiscal and monetary policies because it accounts for average of 80% of government revenue, 90-95% of the foreign exchange earnings and 12% of the real gross domestic product. Despite such windfall, Nigeria has an increasing proportion of impoverished population and experienced continued stagnation of the economy (Okonjo-Iweala and Osafo-Kwaako, 2007).

In 2008-2009, the last global economic crisis occurred which also led to the crash of oil price of commodities. Oil prices crashed from over 140 dollars per barrel to a low of 40 dollars per barrel in a matter of days. Luckily Olusegun Obasanjo, Ngozi Okonjo-Iweala and Chukwuma Soludo had accumulated foreign reserves in excess of 53 billion dollars and had plenty of money in excess crude account despite the resistance by the state Governors. Thus while revenue dropped significantly, Nigeria was able to go through the period without the economy going into spin. All kinds of measures were suggested and some were adopted to help Nigeria reduce this regular boom and burst cycle. When prices rebounded, the country again relaxed and went back to business as usual.

Within the last three years upstream oil companies have faced over 70 percent dip in their revenues as barrel prices dipped from \$100 to below \$30 per barrel. And for the commodity producers that depend on import of raw materials seem to struggle with the exchange rate dilemma orchestrated by falling oil prices. For a country like Nigeria that depend heavily on crude oil, the negative impact of recent oil prices cannot be overemphasized in views of sustainable economic development and survival of domestic industries. The country has seen crude oil prices increase from \$113 to \$147 per barrel and then retreat to current levels under \$70 per barrel. Government established the Petroleum Support Fund (PSF) to reduce the shock from the oil price decline in 2006. The main objective is to stabilize the domestic effect of movement of crude oil prices in international crude and products markets. But how well the PSF has performed this objective remains to be seen.

It is also argued that the attendant problems associated with fallen oil prices in Nigeria is inability of the government to finance its fiscal projects, decrease in standard of living and exchange rate volatility. The current living standard in Nigeria showed that about 60% of her citizen live below one dollar per day. The resulting decline in the non-oil sector reinforces sharp decline in the economic growth rate when the price of crude oil falls (Ibrahim, Ayodele, Hakeem, Yinka, 2014). Consequently, consistent fall in incomes and devalued standards of living amongst Nigerians cannot be avoided in an economy that depends heavily on oil proceeds. There is no gainsaying that the problems associated with Nigeria economy include excessive dependence on imports for consumption and capital goods, dysfunctional social and economic infrastructure, unprecedented fall in capacity utilization rate in industry and neglect of the agricultural sector, among others. Considering the macroeconomic factors that subject Nigeria masses to hardship, effect of fallen oil prices seem to be very significant and destabilizing especially in the area of savings and budget implementation. This study therefore examines the impact of fallen oil prices on the Nigeria economy.

1.2 Statement of the Problem

It is an acceptable fact that decline in oil price in the international market affects different countries differently depending on whether the country in question is an exporter of crude oil or an importer. In the developed society, oil price deep has little or no significant impact on the diversified economy as adequate measures are already in place to cushion its effect on fiscal and monetary policies. Today, Nigeria has substantially lost income from oil and has to fund the 2016 budget mainly from borrowed funds and perhaps from recovered loot. It is also argued that Nigeria is faced with consistent devalued standards of living. The current living standard in Nigeria showed that about 60% of her citizen live below one dollar per day. There are instances where the economic activities become stagnated due to government's inability to implement its fiscal and monetary policies. In a bid to avert oil price shock orchestrated by movement of crude oil at the international market, government established Sovereign Wealth Fund (SWF) but the benefits of SWF in the event of oil price dip is yet to be seen. Consequently, jobs are being lost on daily bases, public sector struggle to pay salaries and government consistently face the challenge of foreign exchange volatility and budget deficit. In all of these glaring problems, it becomes imperative to investigate the impact of fallen oil prices on the mono-economy such as Nigeria.

1.3 Objectives of the Study

The broad objective of the study is to examine the impact of fallen oil price on the Nigeria economy. However, the specific objectives of the study are to:

- i. Examine the effect of fallen oil price on foreign exchange earning
- ii. Determine the relationship between oil price and public sector employment rate
- iii. Investigate the relationship between oil price and debt servicing.
- iv. Ascertain the effect of fallen oil price on aggregate expenditure

1.4 Relevant Research Questions

The following research questions are relevant to the study:

- i. What is the effect of fallen oil price on foreign exchange earning?
- ii. What is the relationship between oil price and public sector employment rate?
- iii. What is the relationship between oil price and debt servicing?
- iv. What is the effect of fallen oil price on aggregate expenditure?

1.5 Research Hypotheses

- i. H_1 : Fallen oil price has a significant effect on foreign exchange earning
- ii. H_1 : There is a significant relationship between oil price and aggregate expenditure
- iii. H_1 : Oil price has a significant effect on public sector employment
- iv. H_1 : There is a significant relationship between fallen oil price and debt servicing.

1.6 Significance of the Study

The study will be useful to policy makers, employers of labour and the Nigerian populace. For instance, policy makers would find this research work very relevant by having a clear understanding of implications of fallen oil prices. It shall also provide them with a framework within which they can initiate policies to stimulate the economy in the face of oil price boom and burst cycle.

The findings in this study would also assist employers of labour to envisage the likelihood of employees requesting for pay raise as a result of hardship that might be orchestrated as a result of decline in fiscal and monetary policy implementation. In addition, captains of industry especially manufacturing industry will also benefit from this study by developing appropriate tactics to cope with foreign exchange volatility. Research Experts/Consultants, the findings of this research work will serve as an important source of knowledge that is capable of assisting them in providing qualitative consultancy services on various issues concerning crude oil prices at the international market. It will also equip the government with relevant information on the need for diversified economy and ensure that the benefits of the Nigerian oil industry are broadly shared and that sustainable revenues from these natural deposits elevate the Nigerian society. For students and future

researchers, this study will constitute an important body of knowledge. It will also enhance their understanding of the subject and provide a good basis for further researches on the topic. This study will not only serve as a foundation upon which divestment policy is implemented but also provides a clear understanding to policy makers about implications of fallen oil prices on the economy.

2.0 Literature Review

2.1 Oil Production and the Nigerian Economy: Sodipe (2008), posits that Oil production usually accounts for a large share of the GDP of oil-exporting countries and oil price increases directly the country's currency value which has a significant effect on the income. Nigeria gained an extra US\$390 billion in oil-related fiscal revenue over the period 1971-2005 (Budina and Wijnbergen, 2008; Alley, Asekomeh, Mobolaji, Adeniran, 2014). Exchange rate is the most important price variable in an economy and performs the twin role of maintaining international competitiveness and serving as nominal anchor to domestic price. The exchange rate is subjected to variations when it is not fixed, thus floating exchange rate tends to be more volatile (Mordi 2006; Oyetunji, 2013). Swings or fluctuations in the exchange rates over a period of time or deviations from an equilibrium exchange rate is referred to exchange rate volatility. Where there is multiplicity of markets parallel with the official market there could be deviations from the equilibrium exchange rate. Volatility over any time period interval tends to increase when supply, demand or both are likely to respond to large random shocks (Obadan 2006; Oyetunji, 2013).

However, the total effect of oil price shocks on economic performance mostly depends on what the oil producers (mostly governments) do with this additional revenue. Thirdly, even if appreciation of currency hurts the competitiveness of non-energy sectors, appreciated local currency that stems from higher oil revenues may stimulate investment and provide lower-priced imported intermediary products, which may stimulate production. Lastly, higher oil prices will also likely increase the profitability of the energy sector (Hakan, Nildag and Nukhet, 2010). The rise in global oil prices observed since September 2010 resulted in part from the social and political instability (Barrell, Delannoy and Holland, 2011). Barrell, et al. (2011) contends that the structural shift on the demand side of the market has tightened demand and supply balances. Consequently, aggravates a situation of low spare capacity in crude oil production and refining, resulting from low investments during the 1990s, sluggish increases in OPEC supplies though this pressure eased from June 2011 and persistent geopolitical tensions as witnessed in Venezuela, Nigeria, and Iraq. Oil prices affect economic performance through fiscal policy. Secondly, high oil prices increase real national income through higher export earnings, and create the terms-of-trade effect (Koronen et al., 2007; Husain, Tazhibayeva and Ter-Martirosyan, 2008; Hakan, et al., 2010).

Adebiyi and Olowookere, (2013) also noted that debt is an important component of fiscal policy. Debt is created by the act of borrowing. The debt holding of government far above certain healthy threshold has negative effect on economic growth. It can lead, not only, to capital flight but can also discourage private investment (Adebiyi and Olowookere, 2013). The origin of Nigeria external debt was dated back to 1958 when a sum of US\$28 million was used to finance the Nigeria Railway Corporation (Abdullahi, Aliero and Abdullahi, 2013; Adebiyi and Olowookere, 2013). The dramatic growth in the domestic Debt/GDP ratio has raised many doubts about fiscal sustainability of the current economic policy (Adebiyi and Olowookere, 2013).

Unemployment has a debilitating effect on the economy. This informs the reason why a drive for fuller employment is one of the major goals of any economy. More earnestly, economies of developing countries face a greater challenge for attainment of this objective as they are usually laden with high-level poverty and growth rates of unemployment. Unemployment leads to low or no income which leads to poor for the welfare status with attendant social, political and economic implications. This in part is because there are little or no unemployment benefits in developing countries of the world today. Economic growth should be employment generating for it to translate to improved welfare for the labour force of the economy. It is good for both developed and developing societies because of its supposed influence on poverty and inequality (Sodipe, 2008). In spite of the huge public expenditure employed in the execution of various reforms and programmes over the years the employment situation has not improved substantially. Poor management of resources and high level of corruption have accounted for the low impact of government expenditure (as well as development aid received from donor countries) on the employment and economic welfare (Fofana 2001; Sodipe, 2008). Also, public expenditure has been inadequate to commensurate with the magnitude of the unemployment problem in the economy (Sodipe, 2008).

2.2 Theoretical Framework: Growth economic theory by Lucas (1988) which further augmented the neoclassical Solow model added human capital to it. This becomes imperative given the fact that it stresses the effect of education and acquired skills of workers on output. Previously this factor was ignored and there was no distinction among agents in the labour force with respect to human capital. Lucas argues that there are two types of capital: physical capital in the form of machines, buildings and resources and human capital in form of highly

skilled and educated workers. Paul Romer (1986), an influential economist proposed alternative view on economic growth and its sources. Thus, he launched the idea that technological advancement; education and research & development may be all that is needed to sustain long-term growth. Hence, he adopts the idea of endogenous growth of the economy, namely that economic advancement can occur from within the economy without the need of an external factor. By combining physical capital stock with human capital in a better and more effective way, an economy may find itself on a sustainable long-term growth path (Boris, 2012).

Influenced by the neo-classical arguments of economic growth, Stiglitz and Hoff (2000) support the fact that the Solow model incorporates key determinants of economic growth. In particular, the effect of public debt on economic growth poses interesting questions and gives good ground for research and analysis. Based on the endogenous growth models, the key role of governments is strongly emphasized particularly their ability to manage properly debt. In this sense, debt can be beneficial for countries under the crucial assumption that the debt proceedings are directed towards R&D, education and appropriate growth investments. However, mismanagement of debt usually leads to adverse effects on the economy and has a negative effect on growth from a theoretical point of view. Their research suggests that advanced and emerging economies have a similar threshold for public debt. Their analysis produced evidence that debt-to-GDP ratio of 60% leads to a decline in growth of around 2% p.a. Another important hypothesis which they developed is related to "debt intolerance" and the fragility of some economies as foreign borrowers, highly dependent on their previous default history. Cohen (1993) expresses his view that rising debt levels have a positive effect on growth until a certain level but afterwards become detrimental for the growth path. External debt can also be very dangerous for countries if not managed properly. Another channel through which debt can have an influence on economic growth is total factor productivity (TFP). This idea has been expressed by Patillo, Helene and Luca (2004). The theory links external debt and growth. It has been stated that as a country funds its deficits by foreign external debt, it dedicates a larger fraction of the future output to foreign entities. This in turn can reduce the incentives for higher productivity as people will not be motivated to innovate and become more efficient because foreign investors would benefit most. With dangerously high levels of debt, investments decrease and uncertainty increases. This change in expectations has a structural change in investments, which become predominantly short-term rather long-term. Those changes have a negative effect on the sustained capital accumulation since the investments bear a higher risk and uncertainty. Intuitively no investor would like to tie a big portion of capital in an investment that may be risky. This may have a negative effect on productivity in the economy (Boris, 2012).

2.3 Empirical Review: Hakan, Nildag and Nukhet (2010) carried out a study on the impact of oil price shocks on the economic growth of selected MENA countries. The study examined how oil price shocks affected the output growth of selected MENA countries that are considered either net exporters or net importers of this commodity, but are too small to affect oil prices. That an individual country's economic performance does not affect world oil prices is imposed on the Vector Autoregressive setting as an identifying restriction. The study found that oil price increases have a statistically significant and positive effect on the outputs of Algeria, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Syria, and the United Arab Emirates. However, oil price shocks do not appear to have a statistically significant effect on the outputs of Bahrain, Djibouti, Egypt, Israel, Jordan, Morocco, and Tunisia. Positive oil shocks such as oil demand and oil supply for Bahrain, Djibouti, Egypt, Israel, Jordan, Morocco, and Tunisia are associated with lower output growth but the effect of oil demand shocks on output remain positive. It is important to note that real exchange rate was affected by its own lags but not affected by the contemporaneous shocks of inflation and growth.

Clarida and Gali (1999) carried out a study on the sources of real exchange-rate fluctuations: how important are nominal shocks. Using quarterly data from 1974 to 1992 comparing the United States of America to four different countries (Germany, United Kingdom, Japan and Canada), they found that more than 50% of the variance of real exchange rate changes over all the horizons was caused by real oil shocks. Amano and Norden (1998) using data on real effective exchange rates for Germany, Japan and United States of America discovered that real oil price is the most important factor in determining real exchange rates in the long run.

3.0 Methodology: This section focuses on the procedures and methods employed in collecting data used for the study.

3.1 Sources of Data and Methods of Analysis: The study relied deeply on secondary data. Materials and information were obtained from the CBN Annual Report and statement of Account, CBN Financial review, National Bureau of Statistics, Budget IT and Books and Annual Reports of Nigerian National Petroleum Corporation. The methods used in analyzing the data are simple regression analysis, Pearson Product Moment Correlation and Chi-Square to determine the effect and relationship between oil price (Independent Variable) and economic growth indicators such as Foreign exchange earnings, aggregate expenditure, budget servicing and public sector employment rate (dependent variables). The price of crude oil is the variable (X) while foreign

exchange earnings are the variable (y). The study specifically examined data on oil price variations (Independent Variable) Foreign exchange earnings, aggregate expenditure, budget servicing and public sector employment rate (dependent variables) over a five years' period (2011 – 2015).

3.2 Model Specification: For the purpose of testing the hypotheses formulated for the study, some variables, namely, Crude oil price, Foreign Exchange Earnings, aggregate expenditure, budget servicing and public sector employment rate are expressed as follows:

Hypothesis 1: $FE = f(OP)$

where: FE = change in Foreign exchange earnings as a function of Oil price (OP)

Hypothesis 2: $AE = f(OP)$

Where AE = change in Aggregate expenditure (as presented in the annual reports of CBN).

Hypothesis 3: $BS = f(OP)$

Where, BS = change in Budget Servicing = Earnings per Share (as presented in the Annual Reports of CBN)

Hypothesis 4: $ER = f(OP)$

Where ER= Change in Employment Rate (as presented in the annual reports of CBN)

4.0 Analysis of Data and Interpretation of Results:

For the purpose of testing the hypotheses formulated for this study, the data for the analyses were run using SPSS version 20 and the results are presented.

Table 4.1: Oil Revenue from 2011-2015

Year	Oil Price(\$)	Foreign Exchange Earning (\$'billion)	Aggregate Expenditure ('N trillion)	Budget servicing (N' billion)	Public Sector Employment rate
2011	100	31.74	4.484	495.1	0.9
2012	120	32.53	4.877	559.8	2.7
2013	110	49.2	4.697	581.8	2.0
2014	78.1	36.85	4.642	712	3.0
2015	70	30.02	4.454	953.6	2.3

Source: National Bureau of Statistics (2015). Nigerian Gross Domestic Product Report Quarter One, 2015.

Testing for hypotheses

The hypotheses were tested considering the dependent and independent variables. In hypothesis one, the effect of oil prices on foreign exchange earnings is tested using simple regression analysis.

Table 2: Regression of Oil Price on Foreign Exchange Earnings

Fallen oil price has significant effect on foreign exchange earning

Regression Results: Fallen oil price on foreign exchange earnings				
	B	B	t-test	
Constant	24.013		t (1.236)	P = .304
Oil Price	.126	.343	t (.633)	P = .042

$$R^2 = .118, F(1, 3) = .400, P = .042$$

The result shows that the co-efficient of regression, b is positive (b = 24.013). This implies that the two variables oil price and foreign exchange earnings tend to change in the same direction. Therefore, an increase in oil price causes increase in foreign exchange earnings. However, oil price explains 12% of the variation in foreign exchange earnings. Hence, there are other factors that affect foreign exchange earning that are not captured in this study. The above result indicates that the relationship between oil price and foreign exchange earnings is significant. Hence, we reject the null hypothesis which says that oil price has no significant effect on foreign exchange earnings.

Table 3: Test of Hypothesis using Pearson Moment Correlation Coefficient
There is significant relationship between oil price and aggregate expenditure

Correlations			
		Oil price	Aggregate expenditure
Oil price	Pearson Correlation	1	.734
	Sig. (2-tailed)		.158
	N	5	5
Aggregate expenditure	Pearson Correlation	.734	1
	Sig. (2-tailed)	.158	
	N	5	5

*Correlation is significant at 0.05 level (2 tailed)

As evidenced on the above table, when oil price is correlated with the Aggregate expenditure, the H_0 is accepted because the P value (0.158) is greater than α (0.05). Thus $P > 0.05$. This indicates that oil price is not related to variation in aggregate expenditure

Table 4: Test of Hypothesis using T-test
Oil Price has significant effect on Public Sector Employment

Regression Results: Fallen oil price on public sector employment rate				
	B	B	t-test	
Constant	2.416		t (1.178)	P = .324
Oil Price	.054	.83	t (2.547)	P = .038

$R^2 = .684$, $F(1,3) = 6.485$, $P = .038$

The result indicates that oil price explains 68.4% of the variation in public sector employment rate which is an important determinant factor. However, there are other factors that affect public sector employment rate. Also, co-efficient of regression is positive ($b = 2.416$). Hence, the above result indicates that there is a significant relationship between oil price as a major source of government revenue and variation in government savings for public services. We, there reject H_0 and accept the alternative hypothesis.

Table 5: Test of Hypothesis using Chi-Square Tests
There is significant relationship between fallen Oil Price and Debt Servicing

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.000 ^a	16	.220
Likelihood Ratio	16.094	16	.446
Linear-by-Linear Association	.007	1	.933
N of Valid Cases	5		

a. 25 cells (100.0%) have expected count less than 5.

The minimum expected count is .20.

From the Chi-square analysis of research hypothesis four, it is discovered that the Chi-square calculated value of 20.000 is less than Chi-square tabulated value of 26.29 at 0.05 level of significance with 16 degree of freedom. Based on this result, the null hypothesis is accepted that there is no significant relationship between fallen oil prices and debt servicing

5.0 Summary, Conclusion and Recommendation

5.1 Summary of Findings: This study empirically investigated the effect of fallen oil prices on the Nigerian economy. It is evident that the Nigerian economy which runs mainly on a single commodity is dire as collapse of the world oil market will adversely affect the foreign exchange earnings and subsequently affect the economic growth and development in Nigeria. The study is vital as it portrays the extent to which decline in oil price hampers economic development. The results of the study show that.

- i. Oil price has a significant effect on foreign exchange earnings. Apparently, an increase in oil price leads to a sharp increase in foreign exchange earnings. However, a decline in oil price leads to shortened revenues in Dollars terms causing exchange rate volatility.
- ii. There is no significant relationship between decline in oil price and aggregate expenditure. This is because government can afford to borrow or rely on non-oil revenue to finance spending.
- iii. There is a significant relationship between oil price as a major source of government revenue and variation in government savings for provision of government services. It is not surprising that Oil accounts for 75% of government revenue. Apparently, due to falling oil prices, the number of new jobs will actually continue on a decline, following recent trends.
- iv. There is no significant relationship between fallen oil price and debt servicing. It is glaring that even when there is increase in oil price as we had in 2012, Nigeria serviced more debt.

5.2 Recommendations: In view of the findings in this study, it is recommends that diversification of Nigerian economy is most imperative given the economic recession in the country now. To ensure that the country closes the gap between shrinking revenue and expenditure, policy makers must diversify the economy and cuts waste in governance. The country should diversify its export revenue base as a means of minimising reliance on crude oil and petroleum product. This will further shield the economy from the impact of oil price on the economy, and thus prevent the Naira from undue pressure. It is also recommended that government should allocate more funds to capital expenditure. It is a usual trend in Nigeria that recurrent expenditure takes a chunk of the budget which is goes into salaries and allowances. Capital projects will create more jobs and reduce the unemployment rate. Also important is the cutting of overhead costs. Unless drastic reforms such as downsizing personnel and sharp cuts in overhead costs occur in the public sector, Nigeria will continue to plunge much money into recurrent expenditure.

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