Movements of Petroleum Pump Prices and Standard of Living: Evidence from Nigeria

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Abstract
In Nigeria, pump price of petroleum products have been adjusted severally by different administrations, and the burden rest more on the citizen. Hence, this study examined the movements of petroleum (PMS, AGO, DPK) pump prices and standard of living in Nigeria from 1981 to 2016. The study made use of secondary data and adopted OLS technique of analysis. The data set were subjected to preliminary test and the ADF result revealed that all the variables were integrated at I(0) indicating a long-run relationship between the independent and independent variables. Economically, none of the explanatory variables confirmed to a priori expectation. Statistically, both individual and overall results revealed that MOPPMS, MOPAGO and MOPDPK have statistical significant impact on standard of living (PCI and INFL) in Nigeria. Based on the findings, the researchers recommend that government should channel oil trade towards exportation of crude oil and finished petroleum products so as to expand oil revenue base of the economy, zero import expenditure of finished petroleum products, and reduce the domestic pump price of these products, hence, the

nation's standard of living is assured.

***Keywords**: PCI, INFL, ADF, OLS*

Introduction

Petroleum products are sub-products of refined crude oil which is used by households, manufacturing and production industries as a means of energy to increase output. It facilitates the operations of the industrial, manufacturing and households which in turn contributes to increase in the output, income, and reduces cost of production and enhance their standard of living. The position of petroleum products cannot be over emphasized and these has made its price movement (positive and/or negative) a strong determinant for industrial, manufacturing, and national output, thus, the nation's living standard (Amagoh,Odoh and Okuh2014).

On the other hand, standard of living is a broad concept because it attracts different interpretation and definition from different people, group and country. In nutshell, it has been seen as necessaries, comforts and luxuries which a person is accustomed to enjoy with respect to quantity and quality of their consumption (Ozoh, 2010). It is also seen as the level of wealth, comfort, material goods and necessities available to a certain socio-economic class, in a certain geographical area. Conventionally, while measuring standard of living; factors such as income, quality and availability of employment, poverty rate, quality and affordability of housing, gross domestic product (GDP), inflation rate, affordable access to quality health care, quality and availability of education, life expectancy, cost of goods and services, infrastructure, national economic growth, economic and political stability, political and religious freedom, environmental quality, climate, safety are considered (Ozoh, 2010).

All things been equal, petroleum products contribute to improved standard of living in several ways; firstly, Petroleum products are environmentally friendly, and it reduces cost of production and improves output and income level. Secondly, it reduces stress and improves life expectancy. They are used in hospitals and schools to ensure quality health care and education. In nations richly endowed in crude oil reserve, petroleum products conduct low price and reduce inflationary pressure. Hence, there is a strong link between movement in petroleum prices and standard of living. If price of petroleum products is high, it affects standard of living negatively and vice versa.

Nigeria is one of the countries in the world with diverse energy sources in which the most common is hydropower and fossil fuel (coal, gas, crude oil). Hydropower is the major energy source (national grid) which is expected to generate power for industrial, manufacturing and household uses in Nigeria (Adenikinju, 2005). But evidence has shown that power supply from the national grid is epileptic, and many Nigerians have resolved to use of petroleum products as alternative to power supply (Odoh, 2014). According to Ocheni (2014) petroleum products are more reliable for production in Nigeria, because power fluctuations in national grid may lead to unexpected huge loss in production chain. He added that the excessive power failure from national grid have made production, manufacturing industries, and households to depend more on petroleum products for production of goods and services and these have made its price movement a strong determinant for industrial, manufacturing and national output as well as determinant for national living standard.

The movement of petroleum pump price is creating economic anxiety and panic among households in Nigeria. This is because increase in pump price of petroleum products has the capacity to affect standard of living negatively. Continuous increase in domestic pump price of petroleum products can lead to increase in cost of production and reduction in output.

These in turn may lead to staff retrenchment (unemployment), low income, and low demand. With reduction in output coupled with low income and low demand, there may be mismatch in supply and demand conditions which may lead to high inflationary rate. All these may lead to vicious circle of poverty which may influence standard of living negatively.

Empirical Literature

Literatures on the impact of pump price of petroleum products are scanty, bulk of the literatures focused on crude oil rather than pump prices, few others examined the effect on pump price on economic growth, industrial and manufacturing sector.

Olomola and Adejumo (2006) examined the effect of oil price shock on output, inflation, real exchange rate and the money supply in Nigeria using quarterly data from 1970 to 2003. The VAR method was employed to analyze the data. Their findings were contrary to previous empirical findings in other countries; oil price shock does not affect output and inflation in Nigeria. However, oil price shocks did significantly influence the real exchange rates.

Olusegun (2008) investigated the impacts of oil price shocks on the macroeconomic performance in Nigeria using Vector Autoregression (VAR) approach. Forecast error variance decomposition is estimated using 7 key Nigerian macroeconomic variables, which are; real gross domestic product, consumer price index, real oil revenue, real money supply, real government recurrent expenditure, real government capital expenditure and real oil price. An annual data between the periods 1970-2005 were employed. The result reveals that oil price shock does not have substantial effects on money supply, price level and government expenditure in Nigeria over the period covered by the study.

Aliyu (2009) assessed the impact of oil price shock and real exchange rate volatility on real economic growth in Nigeria on the basis of quarterly data from 1986Q1 to 2007Q4 using a vector error correction model. Results from ADF and PP tests show evidence of unit root in the data and Granger pairwise causality test revealed unidirectional causality from oil prices to real GDP and bidirectional causality from real exchange rate to real GDP and vice versa.

Arinze (2011) focused on the impact of oil price on the Nigerian economy. The study contends that upward adjustments of petroleum products prices have resulted in inflation, high cost of living, and inequitable income distribution in Nigeria between 1978 and 2007. The study also revealed that petroleum price increase spur inflation rate to increase also.

Nwosa (2013) examined the effect of gasoline price on economic sectors in Nigeria from 1980 to 2010. The objectives of the study are to examine the long and short run relationship between gasoline price and sectoral output in Nigeria. Six sectors (agriculture; manufacturing; building and construction; wholesale and retail; transportation and communication) of the economy were examined. The long run regression estimate showed that gasoline price is a significant determinant output in all sectors examined with exception to the building and construction sector while the short run error correction estimate revealed that only output of the agriculture and the manufacturing sectors of the Nigerian economy is affect by gasoline price increase in the short run.

Bobai (2012) analysed the relationship between petroleum prices and inflation in Nigeria. The focused was on the impact of petroleum product price increase on the Nigerian economy from 1990 to 2011. Employing the empirical econometric analysis approach and using variables like inflation rate and petroleum prices, the results shows that positive relationship exists between PMS, AGO and inflation. However, it was also found that PMS exert higher effect on inflation than AGO, while negative relationship exists between inflation and DPK.

The overall effect clearly indicates that increase in petroleum product price contributes significantly to the rate of inflation in Nigeria.

Onwuka, Chiekezie and Igweze (2013) examined the relationship between Petroleum Product Prices and the Growth of Nigeria Economy. This study asserted that the causes of price instability is attributed to scarcity caused by refinery maintenance and rehabilitation problem, low capacity utilization, supply, and demand inequality. The political change that Nigeria went through, which turned over the administration and endured a lingering economic down turn is enough reason to cause price instability of oil products in Nigeria.

Amagoh, Odoh and Okuh (2014) in their multivariate study of the implications of pump prices of petroleum products change on some economic variables reveals that PMS has significant impact on all economic variable studied. The AGO also has significant impact on only GDP and Per capita GDP while DPK only has significant impact on GDP per capita.

Ocheni (2015) examined the impact of fuel price increase on the Nigerian economy in 2014. The study adopted a survey research design approach to evaluate the level of effect the fuel price increase has on the Nigeria economy. Finding revealed that there is a significant relationship between the recent increases in fuel prices and economic growth in Nigeria. It was also discovered that the Nigeria economy is not developing because of the effect of fuel price hike on purchasing power and finally the finding showed that there is significant relationship between increase in pump price of petroleum and food security.
Otalu and Anderu (2015) assessed the determinants of industrial sector growth in Nigeria using Cointegration and error correction model approach. The result shows that all the identified determinants like domestic pump price of petroleum products have more of permanent effect on industrial output than transitory effect. Both labour and capital have significant impact, exchange rate shows a positive and significant impact indicating that currency appreciation might be inimical to the growth of the industrial sector.

Cunnado and Gracia (2005) based their argument on the classical supply side effect. An increase in oil price, pushes up production cost leading to a decline in output growth and productivity. It impacts negatively on the trade of oil importer countries. It also leads to increases in money demand to meet extra cost which subsequently creates inflation, wage increases, with consequent decline in investment and ultimately in gross decline in domestic product.

Lescaroux and Mignon (2008) in their study investigated the links between oil prices and various macroeconomic and financial variables for a large set of countries, including both oil importing and exporting countries. Both short-run and long-run interactions are analyzed through the implementation of causality tests, evaluation of cross-correlations between the cyclical components of the series in order to identify lead/lag relationships and cointegration analysis. The results highlight the existence of various relationships between oil prices and macroeconomic variables and the causality generally running from oil prices to the other variables.

Labys (2006) observes that higher oil prices can lead to higher inflation, lower corporate profits, higher unemployment and reduced national economic growth. Higher price volatility can lead to a reduction in investment, leading in turn to a long term reduction in supply, higher prices, and even reduced macroeconomic activity.
Raymond (2010) which looked at the effect of price changes of petroleum products in the

short and long run and the factors responsible for the changes itself also found that petroleum products prices have significant effect on the economy in the long run.

Nwosu (2009) researched into the impact of fuel price on inflation. The study employed the variance Autoregressive analysis to assess the relative contribution of fuel price on inflation. Available quarterly data series spanning a period of 1995 to 2008 was analysed. Result showed a positive relationship between fuel price and inflation.

Apkan (2009) analyses the dynamic relationship between oil price shocks and major macroeconomic variables in Nigeria by applying a VAR approach. The study pointed out the asymmetric effects of oil price shocks; for instance, positive as well as negative oil price shocks significantly increase inflation and also directly increases real national income through higher export earnings.

Methodology

The estimation technique employed in this study is Ordinary Least Squares (OLS). The models for this study are specified as;

PCI=f (MOPPMS, MOPAGO,MOPDPK)..... (1)

INFL = f (MOPPMS, MOPAGO, MOPDPK)..... (2)

The functional relationships between independent variables (MOPPMS, MOPAGO, MOPDPK) and dependent variables (PCI and INFL) in the study are stated as follows:

PCI = f (MOPPMS, MOPAGO, MOPDPK) + μ_i..... (3)

INFL = f (MOPPMS, MOPAGO, MOPDPK) + μ_i.....(4)

Therefore, the mathematical forms of the models are thus:

Model 1

$PCI = \alpha_0 + \alpha_1 MOPPMS + \alpha_2 MOPAGO + \alpha_3 MOPDPK + \mu_i$..... (5)

Model 2

$INFL = ß_0 + ß_1\ MOPPMS + ß_2\ MOPAGO + ß_3\ MOPDPK + e_t$.....(6)

Where:

PCI = Per Capita Income

INFL = Inflation Rate

MOPPMS = Movements of price of Premium Motor Spirit.

MOPAGO = Movements of price of Automotive Gas Oil.

MOPDPK = MOPDPK of price of Dual Purpose Kerosene.

PCI and RINF represent Standard of living in Nigeria.

$ß_1$, $ß_2$, $ß_3$ and α_1, α_2,α_3 are parameters to be estimated.

$ß_0$, α_0 = Constants

μ_i ,e_t= error terms

The a priori expectation in **model 1**is that MOPPMS, MOPAGO, MOPDPK should have a positive impact on PCI. That is, $\alpha_1 > 0$; $\alpha_2 > 0$; $\alpha_3 > 0$. While MOPPMS, MOPAGO, MOPDPK are expected to have negative impact on INFL in the **model 2**. That is, $ß_1 < 0$; $ß_2 < 0$; $ß_3 < 0$.

Results and Discussion

This part covers the unit root test result, regression results, evaluation of estimates and discussion.

i. Unit Root Test

Unit root test is a test to determine the suitability of the variables for a time series regression. This test is necessary because most economic time series have proved empirically to be non-stationary in nature. In other to achieve this, Augmented Dickey-Fuller (ADF) was adopted.

Table 1: Augmented Dickey-Fuller (ADF) unit root test

Variables	ADF Stats	5% Critical values	Order of integration	Lag
DEPENDENT VARIABLES				
PCI	-5.117622	-2.976263	I(0)	9
INFL	-3.879173	-2.948404	I(0)	9
INDEPENDENT VARIABLES				
MOPPMS	-4.099047	-2.948404	I(0)	9
MOPAGO	-4.708229	-2.948404	I(0)	9
MOPDPK	-5.302603	-2.948404	I(0)	9

Source: Authors' Compilation 2018 with E-views 9.

From unit root test result above, it is obvious that all the variables (independent and dependent) are stationary at order I(0), therefore, there is no need to go ahead with co-integration test because it is assumed that all the variables are co-integrated, indicating a long-run relationship between the dependent and independent variables without error.

ii. Regression results

Table 2: Regression result of model 1

Dependent Variable	PCI			
Independent Variables				
Variable	Coefficient	Std. Error	t-Statistic	Probability
C	1.323408	5.873741	21.16894	0.0000
MOPPMS	-0.125711	0.178804	2.003064	0.0071
MOPAGO	-0.444597	0.203914	-4.029108	0.0034
MOPDPK	-1.005706	0.133389	-2.042774	0.0061
Other test statistic				
Variables	Values			
R-squared	0.632587			
Adjusted R-squared	0.458108			
F-statistic and Prob(F-statistic)	4.359303 (0.002760)			
Durbin-Watson stat	1.774884			
Information criteria				
Akaike info criterion	9.869703			
Schwarz criterion	8.704565			
Hannan-Quinn criterion	9.931113			

Source: Authors' Compilation 2018 with E-views 9.

Economically, the **model 1** result in **table 2** shows that a unit increase in MOPPMS will decrease PCI by approximately 0.13 unit and a unit increase in MOPAGO will decrease PCI by 0.44 unit, while a unit increase in MOPDPK will decrease PCI by a unit. On the other

hand, individual statistical test shows that MOPAGO and MOPDPK have negative significant influence on PCI, while MOPPMS shows positive significant influence on PCI. The overall test statistics shows that MOPPMS, MOPAGO and MOPDPK significantly impact on PCI.

Table 3: Regression result of model 2

Dependent Variable	INFL			
independent Variables				
Variable	Coefficient	Std. Error	t-Statistic	Probability
C	16.47662	2.896701	5.688062	0.0000
MOPPMS	1.140184	0.088179	3.589754	0.0017
MOPAGO	1.535030	0.100563	-2.348336	0.0009
MOPDPK	0.806470	0.065782	-2.098361	0.0023
Other test statistic				
Variables	Values			
R-squared	0.719642			
Adjusted R-squared	0.512120			
F-statistic and Prob(F-statistic)	4.607797 (0.008627)			
Durbin-Watson stat	1.960352			
Information criteria				
Akaike info criterion	8.455865			
Schwarz criterion	8.631811			
Hannan-Quinn criterion	8.517275			

Source: Authors' Compilation 2018 with E-views 9.

The **model 2**result in **table 3** above shows economically that a unit increase in MOPPMS will increase INFL by 1.14 units; and a unit increase in MOPAGO will increase INFL by 1.54 units, while a unit increase in MOPDPK will increase INFL by 0.8 unit. On the other hand, individual statistical test shows that MOPAGO and MOPDPK have negative significant influence on INFL, while MOPPMS shows positive significant influence on RINF. The overall test statistics shows that MOPPMS, MOPAGO and MOPDPK significantly impact on INFL in Nigeria.

iii. Evaluation of Estimate.

In this study, the estimated results are evaluated based on economic criteria (a priori expectations) and statistical criteria.

Economic Criteria (a priori expectation)

Table 4:Model1 a priori expectation

Independent variables	Exp. signs	Obtained results	Remarks
MOPPMS	+	-0.125711	Did not conform to a-priori
MOPAGO	+	-0.444597	Did not conform to a-priori
MOPDPK	+	-1.005706	Did not conform to a-priori

Source: Authors' Compilation 2018 with E-views 9.

Economically, **table 4** shows that all the explanatory variables did not conform to a priori expectation. This means that movement of petroleum pump price which should contribute to increase in CPI in Nigeria as an oil endowed nation is contributing to decline in PCI and standard of living in Nigeria at large.

Table 5 Model 2 a priori expectation

Independent variables	Exp. Signs	Obtained results	Remarks
MOPPMS	–	1.140184	Did not conform to a-priori
MOPAGO	–	1.535030	Did not conform to a-priori
MOPDPK	–	0.806470	Did not conform to a-priori

Source: Authors' Compilation 2018 with E-views 9.

From economic point of view, **table 5** shows that all the explanatory variables do not conform to a priori expectation. This means that movement of petroleum pump price which should contribute to decrease in RINF in Nigeria as an oil endowed nation is contributing to increase in RINF and standard of living in Nigeria.

Statistical Criteria (First order test).
This stage includes; t-statistic, F-statistic, coefficient of determination (R^2) and adjusted coefficient of determination (R^{-2}).

Table 6: Model 1 t-test statistic

Independent Variables	T-computed	Probability
MOPPMS	2.003064	0.0071
MOPAGO	-4.029108	0.0034
MOPDPK	-2.042774	0.0061

Source: Authors' Compilation 2018 with E-views 9.

Statistically, the t-test which measures individual statistical relationship between the dependent and independent variables shows that MOPAGO and MOPDPK have negative statistical impact on PCI in Nigeria. While MOPPMS has positive statistical impact on PCI in Nigeria within this study period.

Table 7: Model 2 t-test statistic

Independent Variables	T-computed	Probability	Remarks
MOPPMS	3.589754	0.0017	Reject H_0
MOPAGO	-2.348336	0.0009	Reject H_0
MOPDPK	-2.098361	0.0023	Reject H_0

Source: Authors' Compilation 2018 with E-views 9.

Statistically, the t-test in **table 7** shows that MOPAGO and MOPDPK have negative statistical impact on INFL in Nigeria. While MOPPMS has positive statistical impact on INFL in Nigeria within this study period.

Table 8 F-test statistic

F-computed	F-tabulated 5%	Probability
MODEL 1		
4.359303	3.32	0.002760
MODEL 2		
4.607797	3.32	0.008627

Source: Authors' Compilation 2018 with E-views 9.

The F-test which measures overall statistical relationship between the dependent and independent variables shows that MOPAGO, MOPDPK and MOPPMS have significant statistical impact on standard of living (PCI and INFL) in Nigeria within this study period.

Coefficient of determination (R^2)

From the estimated results, the coefficient of determination (R^2**)** in Model 1 and 2are 0.632587 and 0.7196452 respectively, which means that 63.2% and 72% of changes in the dependent variables (PCI, INFL) are explained by MOPPMS, MOPAGO and MOPDPK respectively.

Adjusted coefficient of determination (R^{-2}):

The results from R^{-2} indicate that the explanatory variables in this study are not perfectly related. Evidence to that effect in model 1 and 2are the values of estimated R^{-2} which are 0.458108 and 0.5121120 respectively. By implication, there are about 54.2% and 48.8% non-collinearity respectively among MOPPMS, MOPAGO and MOPDPK.

iv. Discussion

The economic findings of this study revealed that MOPPMS, MOPAGO and MOPDPK have contributed to decline in PCI and increase in RINF in Nigeria within the study period. Statistically, individual test shows that MOPAGO and MOPDPK have negative statistical impact on standard of living (PCI and RINF), while MOPPMS has positive statistical impact on standard of living (PCI and RINF) in Nigeria. The overall statistical results revealed that MOPPMS, MOPAGO and MOPDPK have statistical significant impact on standard of living (PCI and RINF) in Nigeria within this study period. By implication, rate of change (movements) in petroleum pump is greater than the rate of change in income level per citizen in Nigeria and inflationary pressure in Nigeria is well connected with the rate of change (movements) in petroleum pump. These two factors have the capacity to contribute to poverty in Nigeria. According to Lawal (2014), the pump price of petroleum product was reviewed upwards several times for various reasons which include attracting investors to build private refineries, improvement of infrastructure, provision of welfare facilities for the people and reduction of poverty. By implication it means that economically the increase in pump price of PMS, AGO and DPKare expected to increase PCI and reduce INFL. But from the results obtained in this study, they have contributed negatively to standard of living in Nigeria within the study period.

Despite the difference in study approach, the finding of this study agrees with the findings of Amagoh, Odoh and Okuh (2014), Akpan (2009), Otalu and Anderu (2015), Ocheni (2015), and Ajudua and Ojima (2016). These studies observed that petroleum pump price increase have statistical significant impact on economic growth in Nigeria.

Conclusion

The objective of this study is to examine movements of petroleum pump price and standard of living in Nigeria from 1981 to 2016. The ADF test revealed that there exist stationarity among the variables at I(0), thus, there exist a long-run relationship between MOPPMS, MOPAGO, MOPDPK and PCI and RINF. The study adopted the Ordinary Least Square method of analysis; the estimates were evaluated based on economic and statistical criteria. It was discovered that the relationship between these explanatory variables and the explained variables did not conform to a priori expectations. Individual and overall statistics revealed that MOPPMS, MOPAGO and MOPDPK have statistical significant impact on standard of living (PCI and RINF)in Nigeria.Hence, the economic and statistical results of this study

nullified a priori expectations in Nigerian contest which stated that movement of petroleum pump price ought to improve standard of living in Nigeria, rather, it has contributed to its deterioration over time. Therefore, in order to improve the standard of living in Nigeria, the researchers recommend that Government should channel oil trade towards exportation of crude oil and finished petroleum products so as to expand oil revenue base of the economy, zero import expenditure of finished petroleum products, and reduce the domestic pump price of these products.

References

Adenikinju, A.F. (2005). Petroleum, gas pricing and macroeconomic dynamics: An\ Application of recursive- dynamic energy CGE Model to Nigeria; Challenges, Constraints and Strategies.

Aigbedion, I., & Iyayi, S.E. (2012). Diversifying Nigeria's petroleum industry. *International Journal of Physical Sciences, 2*(10), 263-270.

Ajudua, R., & Ojima, H. J.(2016). Determinants of output in the Nigerian manufacturing sector. *Middle Eastern Finance and Economics Journal,13*(11), 1450-2889.

Akpan, E. O. (2009). Oil Price Shocks and Nigeria's Macroeconomy. *Paper published in Department of Economics, University of Ibadan*, Nigeria.

Akpanta, A, C. (2013). Statistics Steps Approach 1. Okigwe, Nigeria: Fasmen Communication Nigeria.

Aliyu, A.A (2009). Impact of oil price shock and real exchange rate volatility on real Economic growth in Nigeria. *Arabian Journal of Business and Management, 1*(9), 4567-8905

Aluko, A. (2006). Phasing out subsidies: Recent experiences with Fuel in developing countries. Public Policy for the Private Sector.

Amagoh, M. N., Odoh, C. M., &Okuh, B. A.(2014).Modelling Petroleum Product Prices and the Nigerian Economy. *IOSR Journal of Mathematics (ISOR-JM), 10*(1) *Ver. IV.*, 72-79.

Arinze, P.E. (2011). The impact of oil price on the Nigerian economy. *JORIND,9*, 211-215.

Bobai, F.D. (2012). An Analysis of the Relationship between Petroleum Prices and Inflation in Nigeria. *International Journal of Business and Commerce, 1*(12), 1-7.

Cunado, J., &Gracia, F.P. (2005). Oil Prices , Economic Activity and Inflation: Evidence from Some Asian Countries. *The Quarterly Review of Economics and Finance,45*, 65-83.

Labys,W.C. (2006). Globalization, Oil Price Volatility, and the U.S. Economy. *Regional Research Institute, Natural Resource Economics Program, West Virginia University Morgantown, WV*, 26506-6108.

Lescaroux, F., & Mignon, V. (2008). On the Influence of Oil Prices on Economic Activities and Other Macroeconomic and Financial Variables. *CEPII, Working Paper.*

Nwosa, P.I. (2013). The effect of gasoline price on economic sectors in Nigeria.*International Journal of Energy Economics and Policy,3*(1), 2146-4553.

Nwosu, C.P. (2009). Import of Fuel Prices on Inflation: Evidences from Nigeria. *Research Department, Central Bank of Nigeria,*http://ssm.com/abstract=1365820.

Ocheni, S. I. (2014). Oil price fluctuations and the Nigerian Economy: *OPEC Review, 2*(9),199-217.

Ocheni, S. I. (2015). Impact of fuel price increase on the Nigerian economy. *Mediterranean Journal of Social Sciences*, *6*(51), 2039-9340

Odoh, F. U. (2014). The impact of oil revenue on economic growth in Nigeria. *Journal of Sustainable Development*, *23*(4),7682-7564.

Olomola, P. A., &Adejumo, A.V. (2006). Oil price shock and macroeconomic activity in

Nigeria. *International Research Journal of Finance and Economics, 3*(11), 28-34.

Olusegun,O.A. (2008). Oil price shock and Nigerian economy: A Forecast error decomposition analysis. *Journal of Economic Theory, 2 (4),* 124-130.

Onwuka, E.M., Chiekezie, O.M., &Igweze, A.H. (2013). Petroleum product prices and the growth of Nigeria economy. *Journal of Business Management, 8*(4), 453-564.

Otalu, J. A., &Anderu, K. S. (2015).An assessment of the determinants of industrial sector growth in Nigeria. *Journal of Research in Business and Management, 3*(7), 2347-3002.

Ozoh, F. O. (2010). Economic implications of petroleum policies in Nigeria: An overview. *American International Journal of Contemporary Research,2*(5), 20-12.

Raymond Li (2010). The Relationship among Petroleum Prices. *International Conference on Applied Economics-ICOAE,* 459.