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Effect of Oil Price on Nigerian Economy

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Abstract:
The purpose of this seminar work is on effect of oil price on Nigerian economy .Specifically the study aimed to pursue the following objectives: To determine the extent at which oil price instability affect standard of living and ascertain the nature of the relationship between increase in oil price and cost of goods/service . The study has a sample size of 368 using Zigmund statistical formular at 5% error to tolerance and 95% level of confidence. Instruments used for data collection were primary questionnaires and interview. The total number of 368 copies of the questionnaire was distributed while 320 copies were returned and 48 copies were not returned. Survey research design was adopted for the study. Three hypotheses were tested using Pearson product moment correlation coefficient and simple linear regression tool. The findings indicate that oil price instability negatively affected standard of living ($r = 0.928$; $F = 1983.45$; $t = 44.531$; $p < 0.05$). There was a negative relationship between increase in oil price and cost of goods/service ($r =. 913$, $P<.05$). The study concluded that oil prices have become so important to the Nigerian economy that principal economic policy makers at the CBN and the Federal Ministry of Finance factor them into economic policy decisions. The study recommends that Nigeria should look inwards amidst the abundance of its untapped natural resources to diversify the economy of the nation, and increase export with a view to checkmating the insidious impact of the oil price fall on the economy

Keywords: *Oil price, Nigerian economy, oil price instability*

1. Introduction

In the early years of the 20th century the introduction of the internal combustion engine (engine of cars) provided a demand for petroleum products that has largely sustained the industry to this day. Since then over the 20th century scientist discovered many different products and industry inputs from oil that are important to almost all industries and manufacturers now. They range from power generators and cars to simple medicine tablets and pens. There are few industries and services left that directly or indirectly do not use oil and oil products. Not surprisingly crude oil market is the largest commodity market in the world. Throughout the last and present eras of industrialization, in different parts of the world, demand for oil never stopped to increase. In fact at the present time it is seen as impossible to stop increasing demand. A first indicator of the economic growth is considered rapidly increasing oil demand or consumption (Aarón,2009)

Oil represents one of the most important macroeconomic factors in the world economy and the crude oil market is the largest commodity market in the world. What makes oil price changes even more interesting is not only their direct impact on economic activity, but also the changes in oil prices might reflect or even forecast changes in the intercontinental stability. Hamilton (1983) concluded that the relationship is asymmetric and that only a high increase in the oil price can affect significantly the economy. In the same paper, the results indicate especially that the weakening of the effects of oil price variations on the GDP growth during the 1986 oil price collapse can be due to the fact that the decrease in the oil price has a low impact on the economy

It is generally accepted that oil has been vitally important to the global economy and the world has experienced growth in oil consumption for the majority of years since the early 1900s. Hathaway (2009) notes that the importance of oil has risen to the extent that in a world suddenly without oil, all the major distribution systems that allow economic transactions on a more than local basis would fail and the world economy would collapse

According to the Energy Information Administration (EIA) Global economic performance remains highly correlated with oil prices. Overall, an oil-price increase leads to a transfer of wealth from importing to exporting countries through a shift in the terms of trade. The magnitude of the direct effect of a given price increase depends on the share of the cost of oil in national income, the degree of dependence on imported oil and the ability of end-user to reduce their consumption and switch away from oil (IEA, 2006).

Obioma (2006) explained that Nigeria became more exposed to oil price fluctuations the moment she started importing refined petroleum products due the collapse of local refineries in the late 1980's. Thus, the country could not grapple with the enormous subsidy it committed itself to, so that between 1999 and 2010, the Federal Government had adjusted its subsidy on petroleum products back and forth approximately 8 times. This has negatively affected production, consumption, general welfare and hence the pace of economic growth.

1.1. Statement of the Problem

The upward adjustments of petroleum products have resulted in inflation, high cost of living, inequitable distribution of income in Nigeria. Between 1978 and 2007, the various Nigerian regimes increased fuel prices a total number of 18 times. Most of the increase occurred in the 1990-2007 period when petroleum products prices were adjusted upwards sometimes twice in one year. One major problem this has caused was the instability of the prices of goods and services in the country. Whenever there is an increase in prices of oil products, it affects transportation, cost of good and other services. Ewa and Agu (2003) shared their view that the dominance of petroleum in Nigerian economy has led to instability in the economy, which as a result makes price instability of oil products to be more prevalent in Nigeria than other countries

1.2. Objectives of the Study

The main objective of this study focuses on effect of oil price on Nigerian Economy.

The study has the following specific objectives

- To determine the extent at which oil price instability affect standard of living
- To ascertain the nature of the relationship between increase in oil price and cost of goods/service

1.3. Research Questions

For this study to accomplish the desired objectives, these research questions were formulated

- To what extent does oil price instability affect standard of living
- What is the nature of the relationship between increase in oil price and cost of goods/service?

1.4. Research Hypotheses

The following hypotheses were formulated for this study

- Oil price instability negatively affects standard of living
- There is a negative relationship between increase in oil price and cost of goods/service

1.5. Conceptual Framework

The price of oil, or the oil price, generally refers to the spot price of a barrel of benchmark crude oil—a reference price for buyers and sellers of crude oil such as West Texas Intermediate (WTI), Brent ICE, Dubai Crude, OPEC Reference Basket, Tapis Crude, Bonny Light, Urals oil, Isthmus and Western Canadian Select (WCS).

1.6. Causes of Oil Price Instability

Oil prices traditionally have been more volatile than many other commodity or asset prices since World War II. The trend of demand and supply in the global economy coupled with activities of OPEC consistently affects the price of oil. The recent changes in oil prices in the global economy are so rapid and unprecedented.

Oil prices have witnessed profound fluctuations and this has implications for the performance of macroeconomic variables, posing great challenges for policy making. The transmission mechanisms through which oil prices have impact on real economic activity include both supply and demand channels. The supply side effects are related to the fact that crude oil is a basic input to production and consequently an increase in oil price leads to a rise in production costs that induce firms to lower output. Oil price changes also entail demand side effects on consumption and investment. Crude oil prices have increased on average from US $25 per barrel in 2002 to US $55 per barrel in 2005. An increase in petroleum prices tends to have a contractionary impact on world demand and growth in the short term

1.7. Theoretical Framework

1.7.1. RBC Theory

RBC Theory or Real Business Cycles sustains that business cycle fluctuations to a large extent are subject to real shocks which affect market dynamics. They consider that economic crisis and fluctuations are a consequence from an external shock, such

as technology shocks. Previous research found out that many cyclical events cannot be explained by a model driven only by technology shocks. This lead to models where additional disturbances are included such periods of bad weather, natural disasters, oil shocks, stricter environmental and safety policies, etc. (George 1994). According to George (1994) another way to classify RBC models is through differentiating the strongest impulses driving the cycle: Do they arise from a demand shock or a supply shock in the economy? Some economist attributes the latest oil shock to OPEC supply constraints and some other to demand by Asian economies. The basic idea that lies in RBC theory is that if and an external shock occurs that directly changes the effectiveness of capital and/or labor. This in turn has an effect on workers and firms decisions, which in turn change their consumption and production patterns and thus eventually affect output in a negative way.

1.8. Empirical Review

Amaira (2012) conducted a study on the causal relationship between oil prices and economic growth in Tunisia over a period from 1960 to 2009. The empirical analysis starts by analyzing the time series properties of the data which is followed by examining the nature of causality among the variables. Tunisian is not oil producing rather oil-importing country. An increase in oil price decrease economic growth. The rising oil prices are the major concern for all the developing economies and Tunisian is suffering from it too. The increase in oil price has further effect the daily consumption pattern of households badly. This study analyzes that, how change in real crude oil price effects the real GDP of Tunisia negatively and many other factors differently. The results show that both series are integrated of order one (I(1)), the existence of a long-term relationship between energy prices and economic growth and Granger pair wise causality test revealed unidirectional causality from real GDP to oil prices.

Sahbi (2012) conducted a study on Impact of Oil Price Increases on U.S. Economic Growth: Causality Analysis and Study of the Weakening Effects in Relationship. The two oil shocks of the 1970s reduced the GDP growth rate, and since that period, sudden oil price increases have been considered as a major source of economic slowdown in the world. We thus estimate simple linear regression model (SLRM), dynamic regression model (DRM) and VAR model to evaluate the impact of oil price increases on the U.S economic growth. Our results indicate strong weaknesses on the relation between these two factors in what way that the relation has had a low significant effect caused by the existence of breakpoints and the asymmetric effects of the oil price variations

Hamilton (1983) in investigating the effect Of oil price shocks on levels of gross domestic product the Focus of this paper is primarily on the relationship between oil Price changes and economic development via industrial production A vector auto regression model is employed on some macroeconomic variables from 1980 through 2004.

The results indicate that oil price changes affect real exchange rates, which, in turn, affect industrial production. However, this in direct effect of oil prices on industrial production is not statistically significant. Therefore, the implication of the results presented in this paper is that an increase in oil prices does not lead to an increase in industrial production in Nigeria.

Peter (2011) conducted a study on the impact of oil price on the Nigerian Economy. This study contends that upward adjustments of petroleum products prices have resulted in inflation, high cost of living, and inequitable distribution of income in Nigeria. Between 1978 and 2007, the various Nigerian regimes increased fuel prices a total of 18 times. Most of the increase occurred in the 1990-2007 period when prices were adjusted, sometimes twice a year. The objectives of the study were to examine the economic impacts of price instability and identifying the causes of increase in prices of oil products. The assumptions of the study are that the rise in price of petroleum products has contributed significantly to inflation in Nigeria, using simple regression analysis of data to find out the relationship between dependent and independent variables. The study revealed that whenever petroleum increases, the inflation rate also increases. The explanation for the above result is that the relationship between the inflation rate and the price of petrol is significant. The study recommended that more resources should be tapped to diversify the economy.

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Eric, Giovanni and Gabriel (2014) conducted a study on Oil Price Fluctuations and it Impact on Economic Growth: A Dsge Approach. Ghana's discovery of oil in commercial quantities in 2007 and its commencement of production in 2010 are expected to have an impact on the economy. To investigate these, we estimated a dynamic stochastic general equilibrium (DSGE) model based on the features of the Ghanaian Economy. We then examined the persistent effects of world oil price and monetary policy shocks (money supply-interest rate induced) on economic growth in Ghana. We realized that, a shock on interest rate leads to a sharp fall in prices which reflects the impact of the decrease in interest rate on the marginal cost. There is a paradoxical effect of a negative interest rate on total money supply. We also showed that a positive output shock has the same effect on consumption, investment, prices and wages as in the case of interest rate shock.

Ebele (2015) carried out a study to investigate the impact of crude oil price volatility on economic growth in Nigeria from 1970 to 2014. The study aims at extending the frontier of knowledge by estimating the impact of the oil price volatility on the Nigerian economic growth using aggregate demand framework that theoretically connect analytical variables, rather than just

explaining output behaviour by oil price and host of arbitrarily variables as done by earlier studies. The study adopted Engel-Granger co-integration test and Granger Representation theorem in testing the long run and short run relationships between crude oil volatility and economic growth respectively. The study found that, oil price volatility (OPV) has negative impact on the economic growth while other variables such as crude oil price, oil revenue and oil reserves have positive impact on the Nigerian economy. Based on the findings, the study recommended that- the country should diversify its export revenue base as a means of minimizing reliance on crude oil outputs. The study further proffered that government should adopt a prudent fiscal policy in relation to oil prices. This could be done through the elimination of some taxes on crude oil and the gradual removal of oil price subsidies

GUNU (2010) conducted a study on Oil Price Shocks and the Nigeria Economy: A Variance Autoregressive (VAR) Model. The volatility becomes even more serious in recent time. This has implications for the economies of oil exporting countries, particularly oil dependent countries like Nigeria. The paper examined the impact of these fluctuations on macroeconomic of Nigeria. Using VAR, the impact of crude oil price changes on four key macroeconomic variables was examined. The results show that oil prices have significant impact on real GDP, money supply and unemployment. It impact on the fourth variable, consumer price index is not significant. This implies that three key macroeconomic variables in Nigeria are significantly explained by exogenous and the highly volatile variable. Hence, the economy is vulnerable to external shocks. Consequently, the macroeconomic performance will be volatile and macroeconomic management will become difficult. Diversification of the economy is necessary in order to minimize the consequences of external shocks.

Oriakhi, and Iyoha (2013) examined the consequences of oil price volatility on the growth of the Nigerian economy within the period 1970 to 2010. Using quarterly data and employing the VAR methodology, the study finds that of the six variables employed, oil price volatility impacted directly on real government expenditure, real exchange rate and real import, while impacting on real GDP, real money supply and inflation through other variables, notably real government expenditure. This implies that oil price changes determine government expenditure level, which in turn determines the growth of the Nigerian economy. This result seems to reflect the dominant role of government in Nigeria. Considering the destabilizing effects of oil price fluctuations on economic activity and government spending in Nigeria, the study makes some recommendations. Some of these include; fiscal prudence, reform in budgetary operations, export diversification, revival of the non-oil sector of the economy, accountability and corporate governance.

Emmanuel (2015) examined the effect of oil price movements on USD-Naira exchange rate pair using 420 observations from monthly time series data for the period January 2008 to December 2014. An ordinary least squares (OLS) model and a vector auto regression (VAR) model were estimated for analyzing respectively, the impact of oil price movements on exchange rate and the nature of causal link between them. Empirical results show that oil prices on a relative basis significantly affect exchange rate compared to imports. Also, there is evidence of unidirectional Granger causality from oil prices to exchange rate and from oil prices to foreign reserves. Based on the findings, policy recommendations were made in favour of a change in the current structure of our international trade to reduce and gradually eliminate import dependence in order to enhance the ability of the monetary authorities to manage both exchange rate and foreign reserves Arinze (2011) conducted a study on t*he* impact of oil price on the Nigerian Economy

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2. Method and Material

The study was carried out primarily through the survey method and interview of citizens of Enugu North in Enugu state in Nigeria which include: Ogui and Agangwu village. Secondary data were obtained through books, journals, and internet. A sample size of 368 was obtained from the population of 368 at 5% error tolerance and 95% degree of freedom using Taro Zigmund statistical formular. 320 (90%) of the questionnaire distributed were returned while 48 (10%) of the questionnaire distributed were not returned / mutilated. The questionnaire was designed in Likert scale format. The researcher conducted a pre-test on the questionnaire to ensure the validity of the instrument. The reliability test was done using test-retest method with the help of spearman ranking correlation coefficient. The result gave a reliability coefficient of 0.76, indicating a high degree of internal consistency. Data collected were presented in frequency tables. Simple linear regression and Pearson product moment correlation coefficient statistical tools were used to test the hypotheses.

3. Data Analysis and Discussion

The data obtained from the field were presented and analyzed with descriptive statistics to provide answers for the research questions while the corresponding hypotheses were tested with Pearson's Correlation and Linear regression at 0.05 alpha levels.

To what extent does oil price instability affect standard of living

s/no	Questionnaire Items	S.Agree/Agree	Disagree/S.Disagree	Undecided	
		Freq	Freq	Freq	Total (Freq)
1	oil price instability have negatively affect citizens well being	285	15	20	320
2	Standard of living become a thing of nightmare for citizens when there is oil price instability	316	2	2	320
	Total	601	17	22	640

Table 1: Coded Responses on Oil Price Instability and Standard of Living
Source: Fieldwork 2017

According to table (1) based on aggregate response 601 (94%) indicated strongly agree, 17(3%) indicated disagree while 22 (3%) indicated undecided. This implies that oil price instability negatively affects standard of living

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.928[a]	.862	.861	.29030	.228

Table 2: Model Summary[b]
a. Predictors: (Constant), Oil Price Instability
b. Dependent Variable: Standard of Living

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167.122	1	167.122	1983.045	.000[b]
	Residual	26.800	318	.084		
	Total	193.922	319			

Table 3: ANOVAa
a. Dependent Variable: Standard of living
b. Predictors: (Constant), Oil price Instability

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.048	.039		-1.245	.214
	Oil price Instability	1.017	.023	.928	44.531	.000

Table 4: Coefficients[a]
a. Dependent Variable: Standard of Living

$R = 0.928$
$R^2 = 0.862$
$F = 1983.45$
$T = 44.531$
$DW = 0.228$

3.1. Interpretation

The regression sum of squares (167.122) is greater than the residual sum of squares (26.800), which indicates that more of the variation in the dependent variable is not explained by the model. The significance value of the F statistics (0.000) is less than 0.05, which means that the variation explained by the model is not due to chance.

R, the correlation coefficient which has a value of 0.928, indicates that there is negative relationship between oil price instability and standard of living. R square, the coefficient of determination, shows that 86.2% of the standard of living is explained by the model.

With the linear regression model, the error of estimate is low, with a value of about 29030. The Durbin Watson statistics of 0.229, which is not more than 2, indicates there is no autocorrelation.

The oil price instability coefficient of 0.928 indicates a positive significance between oil price instability and standard of living, which is statistically significant (with t = 44. 531). Therefore, the null hypothesis should be rejected and the alternative hypothesis accordingly accepted. Thus oil price instability negatively affects standard of living

What is the nature of the nature of the relationship between increase in oil price and cost of goods/service?

s/no	Questionnaire items	S.Agree /Agree	Disagree /S.Disagree	Undecided	
		Freq	Freq	Freq	Total (Freq)
1	increase in oil price negatively affect the cost of goods and services	290	20	10	320
2	cost of goods and services are always at the high side when there is increase in oil price	300	14	6	320
	Total	590	34	16	640

Table 5: Coded Responses on Increase in Oil Price and Cost of Goods/Service
Source: Fieldwork 2017

According to table (5) based on aggregate response 590 (92%) indicated strongly agree, 34(5%) indicated disagree while 16 (3%) indicated undecided. This implies that there is a negative relationship between increase in oil price and cost of goods/service

	Mean	Std. Deviation	N
Increase in Oil price	1.5875	.77490	320
Cost of goods/services	1.5375	.80661	320

Table 6: Descriptive Statistics

		Increase in Oil Price	Cost of Goods/Services
Increase in Oil price	Pearson Correlation	1	.913**
	Sig. (2-tailed)		.000
	N	320	320
Cost Of Goods/Services	Pearson Correlation	.913**	1
	Sig. (2-Tailed)	.000	
	N	320	320

Table 7: Correlations
***. Correlation Is Significant at the 0.01 Level (2-Tailed)*

Table (6) shows the descriptive statistics of the increase in oil price and cost of goods/service with a mean response of 1.5875 and std. deviation of .77490 for increase in oil price and a mean response of 1.5375 and std. deviation of .80661 for cost of goods/services and number of respondents (320). By careful observation of standard deviation values, there is not much difference in terms of the standard deviation scores. This implies that there is about the same variability of data points between the dependent and independent variables.

Table (7) is the Pearson correlation coefficient for increase in oil price and cost of goods/services. The correlation coefficient shows 0.913. This value indicates that correlation is significant at 0.05 level (2tailed) and implies that there is a significant Negative relationship between oil price and cost of goods/service (r = .913). The computed correlations coefficient is greater than the table

value of r = .195 with 318 degrees of freedom (df. = n-2) at alpha level for a two-tailed test (r = .913, p< .05). However, since the computed r = .913, is greater than the table value of .195 we reject the null hypothesis and conclude that There is a negative relationship between increase in oil price and cost of goods/service (r =. 913, P<.05).

4. Summary of Findings, Conclusion and Recommendation

4.1. Summary of Findings

The findings at the end of this study include the following

- Oil price instability negatively affected standard of living (r = 0.928; F = 1983.45; t = 44.531; p < 0.05)
- There was a negative relationship between increase in oil price and cost of goods/service (r =. 913, P<.05).

4.2. Conclusion

The importance of oil in the Nigerian economy cannot be over emphasized. Indeed, oil prices have become so important to the Nigerian economy that principal economic policy makers at the CBN and the Federal Ministry of Finance factor them into economic policy decisions. This is due to the inevitable direct impact which oil prices have on the national budget which in turn is an instrument of fiscal policy. Oil prices matter in the economy in various ways; changes in oil price directly affect transportation costs, heating bills and the prices of goods made with petroleum products. Oil price spikes induce greater uncertainty about the future, which affects households and firms spending and investments decisions. Also changes in oil prices leads to reallocations of labor and capital between energy intensive sectors of the economy and those that are non-energy intensive sector

4.3. Recommendations

Based on the findings of this study and the conclusions drawn there- from, the following recommendations were made Nigeria should look inwards amidst the abundance of its untapped natural resources todiversify the economy of the nation, and increase export with a view to checkmating the insidious impact of the oil price fall on the economy Government should give a clear economic policy direction to develop and assist key financial industry players in stabilizing the financial economy. Also, the budget should be built based on the prevailing economic realities occasioned by the oil price fall to ensure prudency and accountability and to discourage wasteful allocation of the meager resources to non-productive expenditures

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