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Research Paper

Impact of Petroleum Product Pricing On Nigerian Economy

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ABSTRACT
The research investigated the impact of petroleum product pricing on Nigerian Economy for the period of 1986-2015. The most important issue confronting a growing number of world economies today is the price of oil and its attendant consequences on economic output. Basically, we investigated and analyzed the prices ofAutomotive Gas Oil (AGO), Dual Purpose Kerosene (DPK) and Premium Motor Spirit (PMS) on Real Gross Domestic Product (RGDP), Unemployment and Inflation. Time series data for these variables were extracted from Central Bank of Nigeria (CBN) statistical bulletin. The econometric methods of Co-integration and Error Correction Mechanism (ECM) were applied to establish the extent of relationship between the variables used subject to the result of the unit root test based on the Augmented Dickey Fuller (ADF) specification. The finding shows that RGDP is significantly related to prices of Dual Purpose Kerosene (DPK) and Premium Motor Spirit (PMS), Inflation has an insignificant relationship with price of Dual Purpose Kerosene (DPK) and price of Premium Motor Spirit (PMS) respectively while unemployment has a significant relationship with price ofAutomotive gas oil (AGO) and price of Premium Motor Spirit (PMS) and also price of Dual Purpose Kerosene (DPK). On the basis of our findings, the study recommended that oil prices of DPK, AGO and PMS as important economic variables should be strictly monitored in order to achieve a stable petroleum product market in Nigeria and the government should diversify the economic base from oil to non-oil sector as a necessary condition for sustainability and growth.
KEY WORDS:*Petroleum Product Pricing (PPP), Economy, Premium Motor Spirit (PMS), Dual Purpose Kerosene (DPK), Automotive Gas Oil (OGO)*

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I. INTRODUCTION

Nigeria, OPEC's sixth largest crude oil producer imports and pays the international prices for a natural resource it has in abundance due to provocative policies made by her incentive leaders. In addition and as a consequence, the price of fuel was increased between 1986 and 2017 in the country. The reasons advanced to justify the increase ranges from discouraging the activities of smugglers at the Nigeria boarders by pricing the product correctly or appropriately to reducing the huge amount of money government spent on subsidy with the ultimate objective of improving people's standard of living.

Other reasons put forward include; attracting investors into (Oil and Gas sector) the downstream and upstream sectors and engendering competition, which would in turn bring down the prices of petroleum products. Also, that the cost of subsidizing importation has become unbearable for government to sustain. This is because Nigeria exports crude oil and uses the proceeds to import refined fuel for local consumption. Increases in the petroleum pricing have also been argued as a basis for recouping costs, including escalating production costs, overheads and transportation.

Other reasons include disciplined consumption of the products and reduced gross domestic products handling and more efficiently and profitability in the oil industry.The IMF and the World Bank also believed that increasing price of petroleum products has the capacity to enhance the country's domestic earnings and reduces recurring budget deficits. The activities of Bretton wood institutions have influenced Nigeria's domestic pricing of the products more than anything else. Evidence abound that the incessant upward adjustment of the products prices have always left the people more socially dislocated and vulnerable.

By these reasons, it can be concluded that the main intention of increasing the prices of petroleum product by the government is to stabilize the economy in the face of international shocks, raise enough fund to offset budget deficits and implement development programmes. These have led to instability and socio-economic problems as manifested in the realm of fiscal federation both by the inter-governmental struggle for greater share of monthly allocations, and the perpetual dependence of lower levels of governments on the federal government for development of finance.

There has been a strong deficit and debt bias stemming from government, spending primary deficit and debt in Nigeria between 1980 and 2005. The oil windfall as a result of increase in oil price between 1990 and 1992 was following the rapid growth in government spending with an average of about 2 percent of GDP during that period. However, as the oil market weakened in the subsequent years, oil receipts were not adequate to meet increasing levels of demand and expenditure being rationalized. Government resorted to borrowing mainly from the central bank to finance the huge deficits. The CBN absorbs deficits through seignwrage, "the so called "fiscal discipline". And when government prints money (or use seignwrage) it increases the money supply and this in turn causes inflation.

Absence of suitable fiscal rules and a proper finance management framework for oil related risks over the past two decades in Nigeria have led to boom-and-bust-type fiscal policies that have generated large and unpredictable movement in government finance. Consequently, this has a recurrent source of destabilizing effect of fiscal surprises in the domestic prices and exchange rate as well as financial system.Gas prices affect all Nigerians, both the wealthy and the poor and the CIA world fact book estimates that as at 2000, 60 percent of Nigerians live on less than a dollar a day.

With the deep-knowledge of the stated problems, the study aims: To ascertain the effect of prices of Automotive gas oil (AGO), dual purpose kerosene (DPK), premium motor spirit (PMS) on Real Gross Domestic Product in Nigeria. Toexamine the impact of prices of Automotive Gas oil (AGO), dual purpose kerosene (DPK) and premium motor spirit (PMS) on unemployment level in Nigeria. To find out the nature of the relationship between inflation and price of petroleum products like Automotive Gas Oil (AGO), Dual Purpose Kerosene (DPK) and Premium Motor Spirit (PMS).The study focuses on impact of petroleum product pricing on Nigerian economy. It will therefore take an in-depth view of the economic importance of crude oil, the role of petroleum product in Nigeria.

II. REVIEW OF RELATED LITERATURE

MODERN THEORIES OF INFLATION

The modern approach to inflation follows the theory of price determination. The pricetheory tells us that, in a competitive market, price of a commodity is determined by the market demand for and the market supply of the commodity and that the variation in the price of the commodity, if any, is caused by the variation in the demand and supply factors. Likewise, the aggregate price level is determined by the aggregate demand and aggregate supply and variation in the aggregate price level is caused by the variations in the aggregate demand and aggregate supply (Dwivedi 2007).

THE STRUCTURALIST'S APPROACH TO INFLATION

Dwivedi, (2007 p. 428) notes that, inflation is inevitable in the less developed countries embarking on ambitious development programmes and is caused mainly by the characteristic structural imbalance in such countries. Major structural imbalance include: scarcity in the supply of some major goods and services, resource imbalance, foreign exchange bottleneck, infrastructural bottleneck and social and political constraints. The implication of the scarcity of petroleum products on the growth of output and price level in the economy cannot be overemphasized.

MONETARIST APPROACH TO INFLATION

Abah (2000) emphasizes that the monetarist approaches to inflation seek to ascribe observed rates of inflation in different countries to the respective growth rates of money supply per unit of the national product. This school of thought believes that inflation is mainly a monetary phenomenon (Friedman 1968). It may not be concluded that Nigeria's inflation palaver is purely monetary issue as it is influenced by other factors apart from changes in money supply. Variants of monetary theories are;

FISHER'S QUANTITY THEORY OF MONEY

The quantity theory of money states that the quantity of money is the main determinant of the price level or the value of money. In the words of Fisher, "other thing remaining unchanged, as the quantity of money in circulation increases the price level also increases in direct proportion and the value of money decreases and vice versa". If the quantity of money is doubled, the price level will also double and the value of money will be

one half. On the other hand, if the quantity of money is reduced by one half, the price level will also reduce by one half and the value of money will be twice (Dwivedi 2007).

IMPORT APPROACH TO INFLATION

Another theory of inflation is known as imported inflation. For a country that engages in world trade, a number of channels have been identified whereby inflation can betransmitted from one country to another. Given a fixed exchange rate, these include price effects by which inflation is transmitted directly through goods entering international markets, demand effects in which excess demand spills over from one country to another, and liquidity effects where change in foreign reserves if not sterilized may lead to rise in money supply, consequently prices, thereby creating liquidity effects. Nigeria is highly susceptible to this type of inflation because of large volume of imports (Awerbuch and Sauter, 2004).

THE THEORY OF PRICE DETERMINATION

The demand and supply of a commodity are both affected by the price of a commodity.But another interesting feature is that the demand and supply of a commodity both also influence the price of a commodity. The buyers of a commodity demand more of it at lower price and less of it at a higher price whereas the sellers of the commodity supply more of it at higher price and less of it at a lower price (Samuelson, 2004).

PRICE CONTROL MECHANISM: MAXIMUM PRICE THEORY

Price controls are government rules or laws that forbid the adjustment of price to clear markets. Price controls may be floor prices (minimum prices) or ceiling price (maximum prices). A price ceiling is government imposed limit on how high a price can be charged on a product. Price ceilings are often intended to protect consumers from certain conditions that could make necessities unattainable. But they can also cause problems if they are used for a prolonged period of time without controlled rationing (Abedi, 1997).

CAPITAL REPLACEMENT THEORY

In a fundamental sense, capital consists of any product that can enhance a person's power to perform economically useful work; therefore capital is an input in the production function. In Marxist political economy, capital is money used to buy something only in order to sell, to realize a financial profit, (Henning's, 1987). For Marx, capital forms the basis of the economic system of capitalism.

EXHAUSTIBLE RESOURCES THEORY

This theory was propounded by Hotelling in 1931. He advocated the need to price oil and other fossil resources in a way that recognizes the temporariness of their availability. According to this theory, the price becomes a user cost or depletion charges which compensate for the fact that future generation are denied access to the commodity. This price may or may not be consistent with the equilibrium outcome of demand and supply.

ECONOMIC VIEW POINT ON PRICE

Hicks (2009) stated that the price consumers pay to fill their tanks can be broken down into several entities such as distribution cost, logistic and profit margin. Like any other consumer product, supply chain of several groups is responsible for setting the price of the product taken into consideration all the available entities. From the economic point of view, price is considered to act as a rate of exchange. That means, price is the amount of money that is charged by the manufacturers for the products they produce. Exchange occurs when the buyer is willing to spend that amount of money to obtain the product. In this case, the transaction between buyer and seller represent the law of demand.

CONCEPTUAL REVIEW

MARKETING VIEW POINT ON PRICES

From a marketing point of view, the demand curve which the economist much relies on cannot remain the same under different market conditions. And it is not applicable to all types of products. The traditional standpoint fails to take into account prices and their relationship to consumer behaviour.

PMS PUMP PRICES REDUCTION AND THE ECONOMY

Alison-Madueke(2014), in announcing the reduction of fuel pump price, states that the reasons for the Government's decision in her own words as follows: "As you may be aware, there has been a lot of volatility in the price of petroleum products, particularly crude oil, over the last few months. Invariably, this has meant that the price of the product in Nigeria has also been greatly impacted." When addressing journalists she added: "After watching the price per barrel drop over the last few months, we have finally achieved parity… therefore this would be the best time to actually reduce the price. We have been watching very carefully over the last two

weeks to ensure that the volatility did not destabilize this reduction in price and we think it's safe to implement it at this time.

Okonjo-Iweala, (2014), while defending the oil budget benchmark of $65 for the 2015 budget which some observers felt was too ambitious, she said: "This is what we have done by proposing a benchmark of $65pb. We recognize that prices might still fall further but we do not intend to revise the price further down as price intelligence indicates that prices might average between $65 and $70pb in 2015." If the Finance Minister expects oil prices to get to $70 and the Petroleum Minister says we have "achieved parity," there seems to be inherent contradictions within the same Government. As I concluded this intervention, my attention was brought to a response by Governor Peter Obi to a contribution I had made, in which he said in This Day Newspaper that: "The president showed that the sound economic policies of his government have brought about macro-economic stability.

Alibi (2015) further has it that in April 2000, the Nigerian government set up a committee to reform the oil and gas industry with a focus on deregulation and privatization of the NNPC – under this arrangement, seven subsidiaries were to be Limited. On 30th September, 2003 the federal government through the Petroleum products Prices regulatory Agency (PPPRA) announced the deregulation of the downstream sector of the oil industry in Nigeria. Since the announcement of the deregulation of the downstream sector of the oil industry, the Nigeria economy did not witness any rapid development but an increase in pump price, smuggling price hikes are imminent every year. The effect affects real income of individuals and cripples demand. This therefore affects domestic demand and reduces standard of living and by extension increases the poverty level of the people.

ECONOMIC IMPORTANCE OF CRUDE OIL

Bourguigrion and Monorigson (2015) argue that as the drivers of change summary report suggests economic growth is "pro-poor" when it creates job opportunities for unskilled workers oil and gas industries are not themselves pro-poor, since they typically employ few unskilled workers. Manufacturing and agriculture, by contrast are more "pro-poor" than the petroleum industry.Owens and Wood (2014) deduce that this would matter little if growth in the petroleum sector had a significant multiplier effect, producing growth in other sectors of the economy. Although this issue has not been well studied, petroleum industries are usually seen as failing to produce growth in other economic sectors.

Ramirez (2015) discourses that the market contribution and the foreign investment (FDI) effect is very important. Oil activity often leads to inflow of foreign resources such as FDI and Portfolio investment. Indeed, the bulk of FDI into majority of the countries that export oil are concentrated in the oil sector. The various channels through which FDI impacts growth and development in the recipient countries have been extensively discussed in the literature, specifically, FDI inflows to developing countries may not help in increasing their stock of capital but may also assist in boosting labour productivity of the host country. Consequently, the level of output, employment creation and potential tax revenues are enhanced in the host countries

GROSS DOMESTIC PRODUCT (GDP)

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 product. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources data are in constant 2000 U.S dollars. Dollars figures for GDP are converted from domestic currencies using 2000 official exchange rates for a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions; an alternative conversion factor is used.

REAL GROSS DOMESTIC PRODUCT (RGDP)

Real Gross Domestic Product (RGDP) is an inflation adjusted measure that reflects the value of all goods and services produced by an economy in a given year expressed in base-year prices, and is often referred to as "Constant-Price", "Inflation-Corrected", or "Constant Dollar GDP". Unlike nominal GDP, real GDP can account for changes in price level and provide a more accurate figure of economic growth.

ECONOMIC GROWTH

Economic growth is the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national income. Economic growth should be seen as an increase in output arising from the growth of capacity. The increase in output must be seen in real a term that is, eliminating the effect of price level changes.

ECONOMIC DEVELOPMENT

Economic Development is seen as a process by which an economy achieves this greater increase in the output of goods and services plus other positive changes in the various aspects of a country's national life. Some of these changes include: Technological progress, improvement in income distribution, greater job creation to reduce unemployment, reduction in poverty level, and other institutional and attitudinal changes. This is why economic development is said to be a multi-dimensional process.

INFLATION

Inflation is the rate at which the general level of prices for goods and services is rising and consequently, the purchasing power of currency is falling. Central banks attempt to limit inflation and avoid deflation, in order to keep the economy running smoothly.

UNEMPLOYMENT

Unemployment is a phenomenon that occurs when a person who is actively searching for unemployment is unable to find work. Unemployment is often used as a measure of the health of the economy. The most frequently measure of unemployment is the number of unemployed people divided by the labour force.

PREMIUM MOTOR SPIRIT (PMS)

Premium Motor Spirit, also known as petrol or gasoline, is used to power internal combustion engines mostly in vehicles and generators. Generated from crude distillation, our PMS consists of organic compounds and additives that enhance engine performance. It is compatible with all fuel vehicles. It is a superior quality fuel tanks to the additives included in its composition.

AUTOMOTIVE GAS OIL (AGO)

Automotive Gas Oil also known as diesel, is ideal for road vehicles (Trucks, buses, vans, and cars) powered by diesel engines. It can also be used to power generators. It is generated from crude distillation process.

DUAL PURPOSE KEROSENE (DPK)

Dual Purpose Kerosene (DPK) also called Paraffin or Paraffin oil is a flammable pale yellow or colorless oily distillate fraction with characteristic odour intermediate in volatility between motor spirit and gas oil that distills between 150^0c and 300^0c. It has a flash point of about 45^0c and is suitable for use as an illuminant when burned in a wide lamp. It is also used for cooking and other industrial use. It is also referred to as House Hold Kerosene to achieve satisfactory combustion of Kerosene used in domestic burners, it is necessary to increase the evaporation rate considerable. This is done by increasing the surface area of the oil to be burned and increasing its temperature.

PETROLEUM SECTOR AND THE NIGERIAN ECONOMY:

Iwayemi (2015) observes that Nigeria is well endowed with a variety of energy sources which are grouped into conventional and non-conventional. Conventional energy includes crude oil, natural gas, coal; nuclear bitumen and hydro-electricity, while the non-conventional sources include geothermal energy, biomass, and oil shock.

Akinosho (2014) opines that Crude oil which is most dominant source of energy in Nigeria was discovered in 1956 with an initial output of 51,000 barrel per day (dpd). Okonkwo (2015) has it that by the 1970s, a sporadic increase in output and earnings was witnessed. Thus tagging the period of the oil boom era, with crude oil constituting about 70% of the total commercial energy consumption and providing more than 90% of Nigeria foreign exchange income in 1999, the crude oil output was 778,900 barrel while the earning was #724, 422.5 million (CBN, 2011).

EMPERICAL FRAMEWORK

Raymond (2010) in his paper entitled:"The Relationship among petroleum prices" evaluates in a multivariate framework the relationship among the spot prices of fuel, gasoline, heating oil and diesel. The author examined the relationship among the petrol prices with focus on assessing whether or not the direction of price information flow was predicated on derived demand theory. The econometric results provided strong evidence that the price of oil and its refinery products are co integrated. The author argued that in terms of long run adjustment, the oil price is found to be weakly exogenous and many factors are responsible for the adjustment towards the long-run equilibrium.

Ehinomeri and Adeleke (2012) shared their views that the distribution of petroleum products in the Nigerian economy is fraught with complex problems resulting sometimes in products outages, inflated price of products and contentions on the pump price of products. Their research examines the various issues regarding the distribution of products and recommends that the downstream activities of the industry be completely deregulated to allow private sector and entrepreneur's full participations in the distribution of the products. Their findings hypothesized that the participation of entrepreneurs will drive effectiveness into the sector.

SPECIFICATION OF THE MODEL

A discussion on Petroleum Product Pricing could be based on economic variables such as Premium Motor Spirit, Real Gross Domestic Product, Automotive Gasoline Oil, and Dual Purpose Kerosene. The functional relationship between dependent and the independent variables in our study are established as follows.Real Gross Domestic Product is the dependent variable while premium motor spirit, Automotive Gasoline Oil and Dual Purpose Kerosene are explanatory. Given that

X_1, X_2 and X_3 respectively

Implicit form expression:

RGDP= f (p) (AGO, DPK, PMS)

UNEMPL= f (p) (AGO, DPK, PMS)

INFLTN= f (p) (AGO, DPK, PMS)

The explicit form on which our econometric model is based is given as:

RGDP = $b_0 + b_{1p}AGO + b_{2p}DPK + b_{3p}PMS + \mu$

UNEMPL= $b_0 + b_{1p}AGO + b_{2p}DPK + b_{3p}PMS + \mu$

INFLTN= $b_0 + b_{1p}AGO + b_{2p}DPK + b_{3p}PMS + \mu$

Where,

RGDP = Real Gross Domestic Product

INFLTN= Inflation

UNEMPL= Unemployment

(P)PMS = Price of Premium Motor Spirit

(P)AGO = Price of Automotive Gasoline Oil

(P)DPK = Price of Dual Purpose Kerosene

P= price

b_o= is the constant intercept

b_1, b_2 & b_3 are the regression lines

μ is the error term/stochastic

PRESENTATION OF DATA

Data for this study are presented in the table below

YEAR	RGDP ₦(BL)K	INFLTN ₦(BL)K	UNEMP ₦(BL)K	AGO ₦(BL)K	DPK ₦(BL)K	PMS ₦(BL)K
1986	23.61	5.7	5.3	0.40	0.30	0.50
1987	17.09	11.3	7.0	0.40	0.30	0.50
1988	4.83	54.5	5.3	0.40	0.30	0.50
1989	7.57	50.5	4.5	0.50	0.40	0.60
1990	63.87	7.4	3.5	0.50	0.40	0.60
1991	41.97	13.0	3.1	0.50	0.50	0.70
1992	19.63	44.6	3.4	0.55	0.50	0.70
1993	19.05	57.2	2.7	3.00	2.75	3.25
1994	24.56	57.0	2.0	9.00	6.00	11.00
1995	39.94	72.8	2.0	9.00	6.00	11.00
1996	37.62	29.3	1.8	9.00	6.00	11.00
1997	492.85	8.5	3.4	9.00	6.00	11.00
1998	398.95	10.0	3.2	9.00	6.00	11.00
1999	708.97	6.6	3.2	19.00	17.00	20.00
2000	972.98	6.9	3.1	21.00	17.00	22.00
2001	364.83	18.9	4.7	21.00	17.00	22.00
2002	604.32	12.9	4.2	26.00	24.00	26.00
2003	708.11	14.0	3.0	41.50	41.00	39.50
2004	760.74	15.0	14.8	48.00	48.00	48.00
2005	816.25	17.9	13.4	60.00	50.00	50.00
2006	2263.97	8.2	11.9	60.00	50.00	65.00
2007	3825.43	5.4	13.7	60.00	50.00	65.00
2008	2094.51	11.6	14.6	80.00	70.00	70.00
2009	2154.02	11.5	19.7	110.00	95.00	65.00
2010	3986.30	13.7	21.4	140.00	105.00	65.00
2011	5831.52	10.8	21.4	150.00	105.00	65.00
2012	5878.19	12.2	23.9	150.00	65.00	86.00
2013	9422.65	8.5	25.7	150.00	65.00	86.00
2014	10993.04	8.1	29.5	150.00	65.00	97.00
2015	10460.55	9.0	24.0	145.00	65.00	97.00

Source: CBN Bulletin, World Development Index

TABLE 1: Table Showing OLS Result Of RGDP on prices of AGO, DPK and PMS

Dependent Variable: RGDP
Method: Least Squares
Date: 08/14/17 Time: 12:38
Sample: 1 30
Included observations: 30

Variable	Coefficnt	Std. Error	t-Statistic	Prob.
C	-206.1044	248.4808	-0.829458	0.4144
AGO	80.41077	10.31192	7.797849	0.0000
DPK	-90.46015	12.30775	-7.349853	0.0000
PMS	37.15609	14.91324	2.491483	0.0194

R-squared	0.933904	Mean dependent var	2101.264
Adjusted R-squared	0.926277	S.D. dependent var	3237.394
S.E. of regression	879.0161	Akaike info criterion	16.51905
Sum squared resid	20089403	Schwarz criterion	16.70588
Log likelihood	-243.7857	Hannan-Quinn criter.	16.57882
F-statistic	122.4549	Durbin-Watson stat	2.084384
Prob(F-statistic)	0.000000		

Source: Author's computation

The table above shows that there is a linear relationship between real gross domestic product and price of automotive gasoline oil, price of dual purpose kerosene and price of premium motor spirit. Prices of AGO and PMS were found to be positively related to RGDP. This implies that an increase in the unit prices of AGO or PMS or both will cause an increase in RGDP. The variables are also significant at 5% level of significant. Price of DPK has an inverse relationship with RGDP meaning that increase in price of DPK has negative impact or leads to reduction in RGDP. The variable is also significant. The coefficient of determination is high and shows that about 93.4% of the total variation in RGDP is explained by the predictors (AGO, DPK and PMS). There is no presence of autocorrelation as the DW test is approximately 2 as stated in the rule of thumb. The

result is not spurious as the rule of thumb of R^2 is not greater than the DW value. The overall regression is significant.

TABLE 2: Table Showing the OLS of Inflation on prices of AGO, DPK and PMS

Dependent Variable: INFLTN
Method: Least Squares
Date: 08/14/17 Time: 12:39
Sample: 1 30
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	31.04513	4.997931	6.211596	0.0000
AGO	0.153839	0.207413	0.741703	0.4649
DPK	-0.151838	0.247558	-0.613343	0.5450
PMS	-0.377773	0.299964	-1.259392	0.2191

R-squared	0.234028	Mean dependent var	20.43333
Adjusted R-squared	0.145647	S.D. dependent var	19.12827
S.E. of regression	17.68049	Akaike info criterion	8.706366
Sum squared resid	8127.593	Schwarz criterion	8.893193
Log likelihood	-126.5955	Hannan-Quinn criter.	8.766134
F-statistic	2.647937	Durbin-Watson stat	0.978189
Prob(F-statistic)	0.070006		

Source: Author's computation

In the table above, there is a linear relationship between inflation and price of Automotive gas Oil, price of Dual purpose kerosene and price of Petroleum Motor Spirit. Price of AGO is positively related but not significantly with Inflation. This implies that increase in the unit price of AGO will trigger off inflation. The price of DPK and price of PMS are inversely and not significantly related with inflation. Increase in the prices of either DPK or PMS or both will reduce the rate or level of inflation. The coefficient of determination is poor and not a good fit since the explanatory variables explain about 23% of the variation in inflation. There is also the presence of autocorrelation as the DW is not close to 2 as stated by the rule of thumb. The result is not spurious and the overall regression is not significant at 5% level of significance.

TABLE 3: Table Showing the OLS Result of Unemployment On prices of AGO, DPK and PMS

Dependent Variable: UNEMPL
Method: Least Squares
Date: 08/14/17 Time: 12:39
Sample: 1 30
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.516339	0.705224	3.568144	0.0014
AGO	0.142132	0.029267	4.856459	0.0000
DPK	-0.038264	0.034931	-1.095417	0.2834
PMS	0.048372	0.042326	1.142857	0.2635

R-squared	0.926537	Mean dependent var	9.980000
Adjusted R-squared	0.918061	S.D. dependent var	8.715361
S.E. of regression	2.494772	Akaike info criterion	4.789837
Sum squared resid	161.8210	Schwarz criterion	4.976664
Log likelihood	-67.84756	Hannan-Quinn criter.	4.849605
F-statistic	109.3072	Durbin-Watson stat	1.331419
Prob(F-statistic)	0.000000		

Source: Author's computation

The table above shows that there is a linear relationship between unemployment and price of AGO, DPK and PMS. Prices of AGO and PMS are positively related with unemployment. Increase inthe prices of any or both of the variables will lead to increase in unemployment level. Price of AGO is significant in influencing unemployment while price of PMS is not significant. Price of DPK is inversely related with unemployment, though not significant. Increase in the price of DPK will reduce the level of unemployment. The coefficient of determination is high and shows that prices of AGO, DPK and PMS explain about 92.7% of the variation in unemployment. There is the presence of autocorrelation as the DW value is far below as stated in the rule of thumb. The result is not spurious. The overall result is significant.

STATIONARITY TEST

TABLE 4: Table Showing the Result of the Augmented Dickey Fuller Unit Root Test of Stationarity

Variables	ADF	Order of Stationarity	Remark
RGDP	-4.364822	1(1)	Stationary
INFLATION	-5.619882	1(1)	Stationary
UNEMPLOYMENT	-5.778228	1(1)	Stationary
AGO	-2.992127	1(1)	Stationary
DPK	-3.836402	1(1)	Stationary
PMS	-5.705088	1(1)	Stationary
Critical values: 1%	-3.699871		
5%	-2.976263		
10%	-2.627420		

Source: Author's computation

The table shows that the variables are stationary at their first difference ie integrated of order one, I(1).

CO-INTEGRATION RESULT

TABLE 5: Table Showing the Co integration Result of RGDP on prices ofAGO, DPK and PMS

Date: 07/03/17 Time: 15:43
Sample (adjusted): 1988 2015
Included observations: 28 after adjustments
Trend assumption: Linear deterministic trend
Series: RGDP AGO DPK PMS
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.843766	108.7852	47.85613	0.0000
At most 1 *	0.758654	56.80603	29.79707	0.0000
At most 2 *	0.449161	17.00337	15.49471	0.0294
At most 3	0.010890	0.306599	3.841466	0.5798

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's computation

The result above shows 3 co-integrating equations at 5% level of significant. This implies that there is a long-run relationship between the dependent and the independent variables.

TABLE 6: Table Showing the Co-integration Result Of Inflation and prices of AGO, DPK and PMS

Date: 07/03/17 Time: 15:47
Sample (adjusted): 1988 2015
Included observations: 28 after adjustments
Trend assumption: Linear deterministic trend
Series: INFL AGO DPK PMS
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.839264	82.27037	47.85613	0.0000
At most 1 *	0.467787	31.08653	29.79707	0.0353
At most 2	0.367823	13.42659	15.49471	0.1001
At most 3	0.020717	0.586177	3.841466	0.4439

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's computation

The result above shows 2 co-integrating equations. This implies that there is a long-run relationship between the dependent and the independent variables.

TABLE 7: Table Showing the Co-integration Result of Unemployment On AGO, DPK and PMS

Date: 07/03/17 Time: 15:45
Sample (adjusted): 1988 2015
Included observations: 28 after adjustments
Trend assumption: Linear deterministic trend
Series: UNEMPL AGO DPK PMS
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.831878	73.70427	47.85613	0.0000
At most 1	0.415458	23.77839	29.79707	0.2099
At most 2	0.227613	8.744441	15.49471	0.3896
At most 3	0.052598	1.512903	3.841466	0.2187

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's computation

The result above shows 1 co-integrating equation. This implies that there is a long-run relationship between the dependent and the independent variables.

Parsimonious Error Correction Model of inflation on prices of AGO, PMS and DPK

Dependent Variable: D(INFLTN)
Method: Least Squares
Date: 08/03/17 Time: 08:33
Sample(adjusted): 1991 2015
Included observations: 25 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.273574	3.631856	-2.002716	0.0683
D(INFLTN(-1))	-0.721763	0.239371	-3.015241	0.0108
D(INFLTN(-2))	-0.829265	0.183118	-4.528588	0.0007
D(INFLTN(-3))	-0.281529	0.153998	-1.828131	0.0925
D(INFLTN(-4))	-0.425603	0.146377	-2.907572	0.0131
D(AGO(-1))	-0.628193	0.561886	-1.118007	0.2854
D(AGO(-2))	0.800950	0.553951	1.445884	0.1738
D(AGO(-4))	-0.250374	0.510737	-0.490221	0.6328
D(PMS(-4))	-1.350027	0.852663	-1.583307	0.1393
D((DPK))	0.451049	0.321651	1.402293	0.1862
D(DPK(-1))	0.732375	0.506091	1.447121	0.1735
D(DPK(-4))	1.086715	0.987504	1.100466	0.2927
ECM	1.025143	0.219156	4.677684	0.0005

R-squared	0.715901	Mean dependent var	0.064000
Adjusted R-squared	0.431802	S.D. dependent var	13.13062
S.E. of regression	9.897720	Akaike info criterion	7.728517
Sum squared resid	1175.578	Schwarz criterion	8.362332
Log likelihood	-83.60646	F-statistic	2.519899
Durbin-Watson stat	2.119630	Prob(F-statistic)	0.061565

Source: Author's computation

The above result show a linear relationship between inflation and inflation lags, price of AGO and lags and price of DPK and lags. Inflation at lag 1, 2 and 3 are negatively related to current inflation. Price of AGO at lag I and 4 are inversely relative to inflation while positively at lag 2. Price of DPK is positively related to inflation at current value and price of PMS at lag 4 is negatively related to current inflation. The coefficient of determination, R^2, shows that above 71.5 percent of the total variation in inflation are explained by the explanatory variables. The error correction term is not rightly signed and significant. The overall regression is not significant

Parsimonious Error Correction Model of unemployment on AGO, PMS and DPK.

Sample(adjusted): 1991 2015
Included observations: 25 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.792055	0.863323	-4.392392	0.0023
D(UNEMPL(-1))	-1.242485	0.224411	-5.536655	0.0005
D(UNEMPL(-2))	-1.102884	0.213849	-5.157302	0.0009
D(UNEMPL(-3))	-0.567169	0.267204	-2.122608	0.0666
D(UNEMPL(-4))	-0.679571	0.312619	-2.173802	0.0615
D(AGO)	0.115561	0.075307	1.534526	0.1634
D(AGO(-3))	0.281898	0.174173	1.618496	0.1442
D(AGO(-4))	0.842156	0.228288	3.688997	0.0061
D(PMS)	0.238049	0.102416	2.324343	0.0486
D(PMS(-1))	0.486309	0.110899	4.385146	0.0023
D(PMS(-2))	0.325825	0.123968	2.628307	0.0303
D(PMS(-4))	0.528526	0.207442	2.547822	0.0343
D(DPK(-1))	-0.122278	0.101256	-1.207608	0.2617
D(DPK(-2))	0.251544	0.081272	3.095083	0.0148
D(DPK(-3))	0.162609	0.080636	2.016583	0.0785
D(DPK(-4))	-1.396107	0.367307	-3.800928	0.0052
ECM(-1)	-0.044254	0.023260	-1.902545	0.0936

R-squared	0.916386	Mean dependent var	0.820000
Adjusted R-squared	0.749159	S.D. dependent var	3.040696
S.E. of regression	1.522903	Akaike info criterion	3.899680
Sum squared resid	18.55387	Schwarz criterion	4.728515
Log likelihood	-31.74600	F-statistic	5.479884
Durbin-Watson stat	1.807948	Prob(F-statistic)	0.009980

Source: Author's computation

Unemployment and unemployment lags, price of AGO and it lags, price of PMS and its lags and price of DPK and its lags.

Unemployment at lag 1, 2, 3 and 4 are inversely related to current unemployment. Price of AGO at lag 3 and 4 are positively related to current unemployment. Price of PMS at lag 1, 2 and 4 are negatively related to current value of unemployment and price of DPK is positive at Lag 2 and 3 relative to current unemployment. The coefficient of determination is very high and shows that about 91.6% of the total variation in unemployment is explained by the prediction. The ECM is rightly signed but not significant. The overall regression is significant.

The finding shows that RGDP is significantly related to prices of Dual Purpose Kerosene (DPK) and Premium Motor Spirit (PMS), Inflation has an insignificant relationship with price of Dual Purpose Kerosene (DPK) and price of Premium Motor Spirit (PMS) respectively while unemployment has a significant relationship with price ofAutomotive gas oil (AGO) and price of Premium Motor Spirit (PMS) and also price of Dual Purpose Kerosene (DPK).

This result conforms with Odularu (2008) who concluded in his study that oil contributes positively to economic growth, this is true because increase in the prices of DPK and PMS yield more revenues to the economy thus boosting the level of economic activities via GDP.

Also decrease in the prices of AGO and DPK reduces the level of unemployment and inflation in Nigeria. Reduction in unemployment and reduction in the rate of inflation are indices of economic growth and development. This conforms with Onakoya (2013) who concluded in his study that oil is positively related to economic development in Nigeria.

It was also found out that Unemployment is positively related to price of PMS. This means that increase in the price of PMS might lead to increase cost of production; this might force firms to retrench staff via unemployment. RGDP is inversely related with AGO implying that increase in price of AGO affects the volume of production in the economy since most industries in Nigeria depend on oil as their alternative source of power supply.

Increase in the price of AGO will trigger off inflation. This is true because the increase leads to cost of inputs and these forces the prices of output up via cost push inflation. This result is in line with Ajarube (2013) who concluded in his study that oil is inversely related with the manufacturing industry in Nigeria.

III. CONCLUSION

The issue of petroleum product pricing is crucial because it affects the economic growth of a country. Based on the empirical review of various studies carried out by different researchers, this study is in agreement with the works of those scholars which reviewed that there is significant (that is positive) relationship between oil price volatility and Nigeria economic growth. This implies that oil price changes determine government expenditure level rate of inflation, level of unemployment, which in turn determines the growth of the Nigerian economy. Considering the destabilizing effects of oil price fluctuations on economic activity and government spending in Nigeria, also as alternative fuels become more popular and oil importing countries continue to discover oil deposits, there is need for the Nigerian economy to look to other, more manageable sources of foreign exchange and government revenue to spur economic growth.

IV. RECOMMENDATIONS

The study makes some recommendations which includes that, the country should diversify its export revenue base as a means of minimizing reliance on crude oil and petroleum product, budgetary operations, fiscal prudence, corporate governance and proper accountability with this it will further protect the Nigerian economy from the negative impact of oil price volatility on her growth, and thus prevent the negative effect of the shocks from attaining a statistical significance level.

From the finding, it is therefore recommended that only the removal of Petroleum Motor Spirit subsidy will be good for the Nigerian economy as increase in the price of other products studied will be detrimental to the economy.

The government should embark on the genuine anti-corruption crusade in the petroleum industry. In addition government should diversify the economy to erase its over-dependence on oil revenue, which in effect has been alleged to be responsible for constant and upward review of the oil price.

The government should diversify the economic base from oil to non-oil sector as a necessary condition for sustainability and growth. Also government should improve the security in the Niger Delta area with view to boosting output, hence, leading to increase in oil revenue and by implication growth of the economy.

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