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Petroleum Product Price Adjustment and Nigeria's Economic Performance (1984-2023)

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ABSTRACT: *This study investigated the Petroleum Product Price adjustment and Nigeria's Economic Performance during the period 1984-2023. Employing secondary data and an Ex-post facto research design, the Auto-regressive Distributed Lag method for multiple regressions was utilized for analysis due to the stationarity characteristics of the variables. The petroleum products considered in this study were Premium Motor Spirit (PMS), Automotive Gas Oil (AGO), and Dual Purpose Kerosene (DPK), while economic performance was assessed through the Gross Domestic Product (GDP) in Nigeria. Through the application of both descriptive and inferential statistics on the generated data, the findings unveiled robust positive relationships between PMS and GDP, AGO and GDP, and a semi-strong positive relationship between DPK and GDP in Nigeria. The study suggested that variations in petroleum prices, especially PMS and AGO, could positively and significantly impact economic growth represented by GDP. However, variations in DPK prices may not have a similar positive and significant effect on economic growth represented by GDP. The study concluded that upward adjustments in petroleum product prices are crucial for favorable economic performance. Recommendations were made for the Nigerian government to explore alternative sources of public revenue, implement a progressive taxation system, adopt austerity budgets for prudent public expenditure, diversify economic sectors, and invest in sustainable industries and services. Additionally, citizens were encouraged to focus on hard work and embrace science as a source of wealth, emphasizing the need to move beyond dependence on depleted resources for revenue generation.*
KEYWORDS: adjustments, petroleum, product, price, economic

INTRODUCTION

In the nations of the world, the significance of crude oil and petroleum products for sustaining a nation's standard of living and fostering economic growth is contingent upon various factors, with energy playing a pivotal role. Nigeria, much like other nations, has hinged its economic prosperity on petroleum, a crucial commodity and primary energy source since its discovery in the 17th century (Nwanna & Eyedayi, 2016). The prominence of petroleum has become so pronounced that its abrupt disappearance would have profound implications for the world economy (Suleiman, 2013). Over the years, the Nigerian government has implemented various trade policies to enhance foreign trade and mitigate volatility in export earnings, dating back to the commodity marketing board era in the 1940s and encompassing austerity measures in the 1980s (Ojo, 1994; Onayemi & Akintoye, 2009; Eleje & Okafor, 2010).

Historically, prior to the discovery of crude oil in Nigeria, the agricultural sector was the primary revenue source, contributing 68% to the Gross Domestic Product (GDP) before 1970. However, with the advent of crude oil exports in 1958, the contribution of oil to the federal government revenue surged from 26.3% in 1970 to 82.1% in 1974 due to increased oil prices on the international market (Ogundipe, Ojeaya, & Ogundipe, 2014). Yet, the unpredictability and volatility of crude oil prices, exacerbated by events like the 1973 oil crisis, have posed challenges for the Nigerian economy growth (Johnny, Timpere, Ayunku & Peter, 2018; Oyeyemi, 2013)

The 1973 oil price surge significantly increased Nigeria's national income, leading to an economic dependence on the oil sector, transforming the nation into a mono-product economy. Despite subsequent adjustments in petroleum product prices to eliminate fuel consumption subsidies and align with free market principles, the rising fuel prices present challenges for industries relying heavily on fuel for production (Dike, 2007). The upward trend in Petroleum Motor Spirit (PMS) pump prices since 1970, coupled with recent increases, including the 2023 adjustment by the government of President Buhari, has implications for businesses and the general populace (Vanguard news, 2023).

The relationship between oil prices and economic performance has been a subject of considerable research, with early studies suggesting a significant impact on GDP during economic recessions (Darby, 1982; Hamilton, 1983). However, more recent empirical studies challenge this notion, indicating a lesser impact of oil prices on economic growth (Nwanna & Eyedayi, 2016; Vitor, Amanhyia & Bonney, 2018; Odhiambo & Nyasha, 2019).

Despite challenges posed by the COVID-19 pandemic and socio-political issues, Nigeria remains a major hydrocarbon producer in Africa. Oil and natural gas revenue constitute the primary source of foreign exchange, and fluctuations in crude oil prices have noticeable effects on the economy. Recent disruptions in crude oil production due to theft and vandalism underscore the fragility of Nigeria's oil sector (CBN, 2023). Against this backdrop, this study seeks to explore the relationship between petroleum price adjustments, exacerbated by COVID-19, the 2023 fuel subsidy removal, and the impact on Nigeria's economic performance.

CONCEPTUAL REVIEW

Petroleum: Petroleum, commonly known as crude oil, is a naturally occurring, flammable liquid composed mainly of hydrocarbons. It is a vital natural resource with diverse applications. Primarily, petroleum is a key source of energy, providing the raw material for the production of various fuels such as gasoline, diesel, and jet fuel. Additionally, it serves as a fundamental component in the manufacturing of a wide range of products, including plastics, chemicals, and lubricants.

Petroleum Price: Petroleum prices refer to the market value assigned to crude oil and its derived products. These prices are influenced by various factors, including global supply and demand dynamics, geopolitical events, production levels, and economic conditions. The pricing of petroleum products is crucial on both national and international scales, impacting energy costs for consumers, production expenses for businesses, and overall economic stability.

Petroleum Price Adjustment: Petroleum price adjustment involves changes made to the prices of petroleum products, particularly in response to shifts in market conditions. Governments or market forces may adjust prices to reflect changes in the cost of production, fluctuations in global oil prices, or to align with economic policies. Price adjustments can impact various sectors, including transportation, manufacturing, and households, influencing inflation rates and consumer spending patterns.

Economic Performance: Economic performance refers to the overall health and vitality of an economy. It is assessed through various indicators such as Gross Domestic Product (GDP), employment rates, inflation, and trade balances. The performance of an economy is influenced by numerous factors, including government policies, international trade, investment levels, and the stability of key sectors such as energy. The relationship between petroleum prices and economic performance is intricate, as changes in energy costs can have cascading effects on production, consumption, and overall economic activity. Petroleum, as a crucial resource, plays a significant role in economic activities worldwide. Changes in petroleum prices, influenced by a myriad of factors, have ripple effects throughout the economy, impacting costs for businesses and influencing consumer behaviors. Petroleum price adjustments are mechanisms used to adapt to changing market conditions or policy objectives. Ultimately, these dynamics collectively contribute to shaping the economic performance of a nation or region. Understanding these concepts is essential for policymakers, businesses, and individuals alike as they navigate the complexities of energy markets and their impact on broader economic landscapes.

Definition of GDP: GDP is a key economic indicator that quantifies the total market value of all goods and services produced within a country's borders during a specific time period. It serves as a comprehensive measure of a nation's economic activity and is often used to assess its overall economic health and performance.

Components of GDP: GDP is typically divided into three main components:
Consumption (C): The total expenditure by households on goods and services.
Investment (I): Deals with spending on capital goods, such as machinery and buildings, and changes in business inventories.

Government Spending (G): Expenditure by the government on public goods and services.
Net Exports (Exports - Imports): The value of a country's exports minus its imports

GDP in the Context of Nigeria: In Nigeria, GDP is a crucial metric for evaluating the country's economic performance. Nigeria has a diverse economy with sectors including oil and gas, agriculture, services, and manufacturing. The composition of Nigeria's GDP has evolved over the years. Historically, the agricultural sector played a dominant role, but with the discovery of oil in the 17th century, the oil and gas sector became a major contributor.

Role of Oil in Nigeria's GDP: The oil and gas sector significantly influences Nigeria's GDP. The country is one of the largest oil producers in Africa and relies heavily on oil exports for revenue. Fluctuations in global oil prices directly impact Nigeria's economic performance, as evidenced by the

oil boom in the 1970s and subsequent economic challenges during periods of oil price volatility. Economic Diversification Efforts: Recognizing the vulnerability of an economy overly dependent on oil, Nigeria has made efforts to diversify its economic base. Initiatives to promote agriculture, manufacturing, and the service sector aim to reduce reliance on oil revenue and create a more resilient and balanced economy

Challenges and Opportunities: Nigeria faces challenges such as infrastructure deficits, political instability, and fluctuating oil prices, which can impact GDP growth. However, the country also has significant potential for growth, given its large population, natural resources, and the ongoing efforts to diversify the economy.

Social and Developmental Implications: Changes in GDP have social and developmental implications. GDP growth can lead to improved living standards, increased employment opportunities, and enhanced public services. However, if growth is unevenly distributed or if certain sectors dominate, disparities in income and development may persist.

Monitoring and Policy Implications: Policymakers in Nigeria closely monitor GDP trends to inform economic policies and strategies. Efforts to stabilize the economy, promote sustainable growth, and address social challenges are often guided by an understanding of GDP dynamics. GDP is a critical metric for assessing the economic health of Nigeria. The country's reliance on oil exports makes it particularly sensitive to global oil market dynamics, emphasizing the need for economic diversification. Understanding GDP trends and the factors influencing its components helps policymakers make informed decisions to foster sustainable economic development in Nigeria.

Theoretical Review

This research analyzes the Linear/Symmetric

Symmetric Theory

The Symmetric relationship theory of growth, originally proposed by American economic historian Walt Rostow in the early 1960s, has been further developed by scholars such as Gasser (1985), Goodwin (1985), Hooker (1986), and Laser (1987). According to this theory, a linear negative relationship exists between oil prices and real economic activity, particularly for countries that import oil. In simpler terms, an unexpected increase in the real price of oil is expected to lead to a proportional decrease in aggregate income, while an unexpected decline in oil prices would result in an equivalent increase in aggregate output. The foundation of this theory is drawn from observations of the oil market's behavior between 1948 and 1972 and its repercussions on both oil-exporting and oil-importing economies.

Hooker (2002) provided confirmation that, during the period from 1948 to 1972, the level and changes in oil prices significantly influenced GDP growth. Laser (1987) also affirmed the symmetric relationship between adjustments in oil prices and economic growth. Through her empirical study, she asserted that a rise in oil prices is associated with a reduction in GDP, while the impact of a decrease in oil prices on GDP is less clear, varying among different countries (Mgbame, 2013).

However, by the mid-1980s, the originally posited linear relationship between oil prices and real

economic activity began to lose its explanatory power. Instances of oil price declines in the second half of the 1920s were found to have smaller positive effects on economic activity than anticipated by linear models. Recognizing the limitations of the linear specification, researchers such as Lee et al. (1995) and Hamilton (1996) introduced non-linear transformations of oil prices, thereby establishing an asymmetric relationship between oil prices and economic growth (Killen and Vigfusson, 2011).

Empirical Review

Numerous investigations have been conducted in the bid to understand the impact of fluctuations in crude oil prices on the growth rate of the Nigerian economy;

In the study by Richard & Dodo (2023), the focus was on examining how changes in petroleum product prices affect food prices in Nigeria. The findings suggested a noticeable imbalance between food items and petroleum price variations, with each change in petroleum prices resulting in increasedfood prices and heightened poverty. The study utilized annual time series data from 1991 to 2021, employing the ARDL approach to analyze the long-run and short-run relationships between premiummotor spirits' prices and food prices in Nigeria. While short-term impacts were positive and significant,the long-term effects were positive but insignificant. Toda and Yamamoto (1995) causality tests revealed a unidirectional causality from food prices to premium motor spirit prices and from the exchange rate to food prices. The study recommended implementing policies to enhance agricultural productivity and reduce food prices, mitigating inflationary trends associated with timely increases inpetroleum prices.

In the study by Odido, Effiong, & Eneje (2023), the focus shifted to determining the effects of crude oil price fluctuations on the growth rate of the Nigerian economy. Employing an ex-post facto research design with data spanning from 1997 to 2022, the study found no significant relationship between crude oil price fluctuations and the growth rate of the Nigerian economy. The results suggested a potential imbalance arising from the effects of crude oil exports and refined oil imports. Recommendations included diversifying the economy into sectors like agriculture, manufacturing, and tourism to reduce dependence on the oil sector.

Uchechi, Iheukwumere & Ogbonna (2022) investigated the impact of petroleum product pricing on the Nigerian economy from 1986 to 2015. Focusing on Automotive Gas Oil (AGO), Dual Purpose Kerosene (DPK), and Premium Motor Spirit (PMS), the study found significant relationships between Real Gross Domestic Product (RGDP), unemployment, and specific petroleum product prices. While RGDP was significantly related to DPK and PMS prices, inflation had an insignificant relationship with DPK and PMS prices. Unemployment showed a significant relationship with Automotive Gas Oil (AGO), PMS, and DPK prices.

Mohammed (2022) examined the impact of oil price fluctuations on food prices in Iraq from 2001 to 2020. Using Johansen cointegration and Autoregressive Distributed Lag bound tests, the study provided evidence of a long-run relationship between crude oil prices and food prices in Iraq.

Sakanko, Adejor, and Adeniji (2021) investigated the impact of petroleum pump prices on the consumer price index in Nigeria for the period 1980 to 2020. Employing the Nonlinear Auto-regressive distributive lag method, the study revealed a long-run equilibrium relationship between the consumer price index and petroleum pump prices, indicating an asymmetric relationship.

Babalola and Salau (2020) explored the impact of petroleum pump prices on the consumer price index in Nigeria from 2000 to 2019. Utilizing the panel pooled mean/ARDL co-integration technique, the study found significant short-run direct impacts of petrol prices on the consumer prices of food items, while kerosene prices exhibited a significant inverse impact in the short run but a positive impact in the long run.

Wale-Awe and Suleiman (2020) examined the effect of Premium Motor Spirit (PMS) pricing on inflationary dynamics in Nigeria from 1980 to 2018. Utilizing ARDL and causality techniques, the study found that PMS pricing increased inflationary tendencies in the short run, although no causality was observed between PMS pricing and inflationary dynamics in Nigeria.

Kanu, et al (2019) investigated the relationship between automotive gas oil, premium motor spirit, dual-purpose kerosene prices, and consumer product prices in Nigeria. Using the multiple linear regression (OLS) technique and data from 1996 to 2018, the study revealed positive and significant impacts of automotive gas oil, petroleum motor spirit, and dual-purpose kerosene prices on consumer product prices.

Shahriyar, Jeyhun, and Fariz (2019) explored the relationship between inflation, oil prices, and exchange rates in Azerbaijan from 1995 to 2017. Using the vector error correction model (VECM), the study found a positive and statistically significant impact of oil prices and exchange rates on inflation in the long run.

Eleje (2015) evaluated trade liberalization and petroleum price adjustments in developing nations, focusing on Nigeria. Using time series annualized data on Nigeria's GDP and petrol pump prices over a 25-year period, the study found a positive and significant effect of petrol pump price adjustments on GDP.

Eregha, Mesagan & Olawale (2015) empirically examined petroleum products' prices and inflationary dynamics in Nigeria. The study found a high positive relationship between the prices of PMS and AGO and inflation in Nigeria, concluding that rises in petroleum product prices, especially PMS and

AGO, significantly impact inflation. The study recommended the government shelve the idea of removing subsidy on PMS for now and focus on deregulating the downstream sector to attract private investment for local refining of petroleum products instead of importing them. Nwanna & Eyedayi (2016) analyzed the impact of crude oil price volatility on the economic growth of Nigeria, using secondary data from various sources covering the period from 1980 to 2014. Multiple regressions revealed a positive and significant relationship between oil prices and economic growth.

Aimer (2016) investigated the effect of fluctuations in oil prices on Libya's economic growth, using VAR modal and co-integration techniques. The study, based on annual data from 2000 to 2015, suggested that both series were integrated of order one I (1), indicating a long-term relationship between crude oil prices and growth. The estimates suggested that higher oil prices had a positive and statistically important impact on Libya's economic growth.

Gap in the Empirical Review

While the comprehensive review explores various aspects of the impact of oil-related factors on economic indicators in different countries, there is a notable absence of explicit recommendations or insights on policy measures to address the identified issues in several studies. Many studies highlight relationships and imbalances without providing specific guidance on actionable policies or strategies for policymakers and stakeholders this study is suited to address the empirical gap.

Methodology

This study focus on the ***Petroleum Product Price adjustment and Nigeria's Economic Performance*** petroleum product price adjustment and Nigeria's economy performance over the periods 1984 to 2023, based on the above empirical consideration, the study employed ex-post facto research design and tempted to ascertain the relationship between adjustments in the petroleum products prices and Nigeria economy performance, the works of Eregha, (2015) we specify as our empirical model thus:

$GDP = f(PMS, AGO, DPK,)$ ..... eqn (1)

Where;

GDP = Gross domestic products (Proxy for economy performance)

PMS = price of Premium motor spirit

DPK = price of dual purpose kerosene

AGO = price of automotive gas oil

The econometric form of the function is stated as follows;

$GDP = \beta_0 + \beta_1 DPK + \beta_2 PMS + \beta_3 AGO + \varepsilon$ ---------- *eqn (2)*

Where Y represents economy performances level; β_0 is the intercept; β_1-β_3 represent the coefficients of the independent variables in respective order, while X_1, X_2, X_3, represent PMS, AGO, DPK, BL, PRC and EGR respectively.

The a priori expectation;

$\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$

The slopes are all expected to be positive as they are in the same direction with the level of the Nigeria economy Performance.

Analytical Techniques To facilitate the estimation of the time series data generated for the investigation, the Auto-regressive Distributed Lag method for multiple regressions was employed. This method of analysis is employed because some of the variables are stationary at level and some of them are stationary at first difference.

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DATA ANALYSES AND DISCUSSION OF THE FINDING

The data generated for the empirical analysis of the study are Gross Domestic Product (GDP) at current basic price, prices of Premium motor spirit (PMS), dual purpose kerosene (DPK) and automotive gas oil (AGO) in Nigeria respectively from 1984 to 2023

Descriptive Statistics			
	Mean	**Std. Deviation**	**N**
GDP	**191.3100**	**169.45509**	**39**
PMS	**45.8300**	**46.03146**	**39**
AGO	**57.7959**	**73.70242**	**39**
DPK	**52.3197**	**78.57245**	**39**

Source; Author's Computational output (2023)

Results of Augmented Dickey-Fuller (ADF) Unit Root Test

Variables	**ADF (@ level & 1st Difference)**	**Decisions**
	Mackinnon Approx. P-value for Z(t)	
GDP	**0.3358****	**1(0)**
PMS	**0.0224***	**I (0)**
AGO	**0.008****	**I (1)**
DPK	**0.006***	**I (1)**

Source; Author's Computational output (2023) *Notes*: *(a)* & ** Indicate that the corresponding null hypothesis is rejected at 1% and 5% significance levels respectively (b)The stochastic time series properties are integrated of order one, I* (1) *and; order zero I* (0) *(c)The test is performed using Statistic Data Analysis (STATA) version 10*

Stationarity Test for Unit Root

The statistical properties of the above presented data were diagnosed due to the large scope of the variables (39 years) with the aid of econometric statistics. The concern basically was to check the stationarity status of the data since time series regression analysis assumes that the underlying time series data are stationary. Consistently, all the four (4) time series variables employed in this research were individually subjected to unit root test of stationarity using the Augmented Dickey-Fuller (ADF) test statistic. The ADF test assumes that if the hypothesis that $p = 1$ (i.e., $\delta = 0$) is rejected, the time

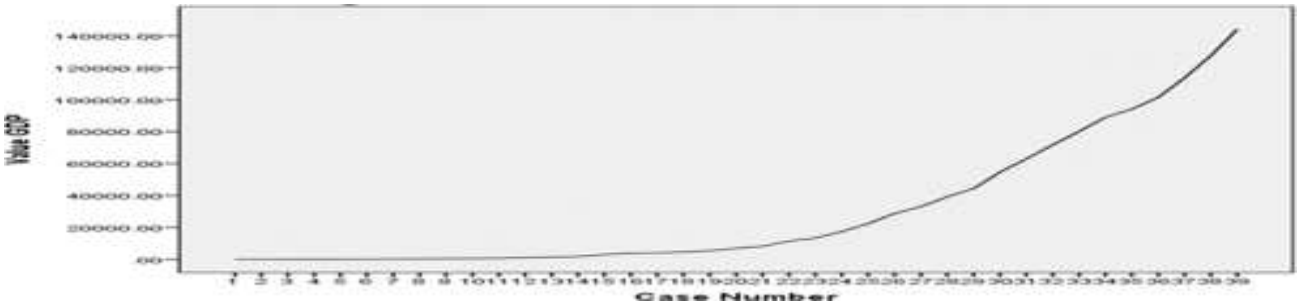
series is stationary. Aided by STATA econometric package, this study tested to see if p = 1 (δ = 0); that is, if p is a unit root. Out of the four research variables, two were confirmed non-stationary at level but became stationary at first difference, that is, the variables were integrated of order I (1); the remaining two variables were stationary at their levels, that is, the variables were integrated of order I (0), as showed in the results of the ADF econometric output above.

Descriptive Trend Analysis

The values of GDP in Nigeria over the period of this investigation are shown below and a cursory view of the graph reveals gentle and upward movement of GDP over the research period. This implies that GDP in Nigeria has been on the increase at least in monetary terms over the period of study.

Behavior of GDP in Nigeria (1984-2023)

GDP @ Current Basic Price in Nigeria, 1984-2023

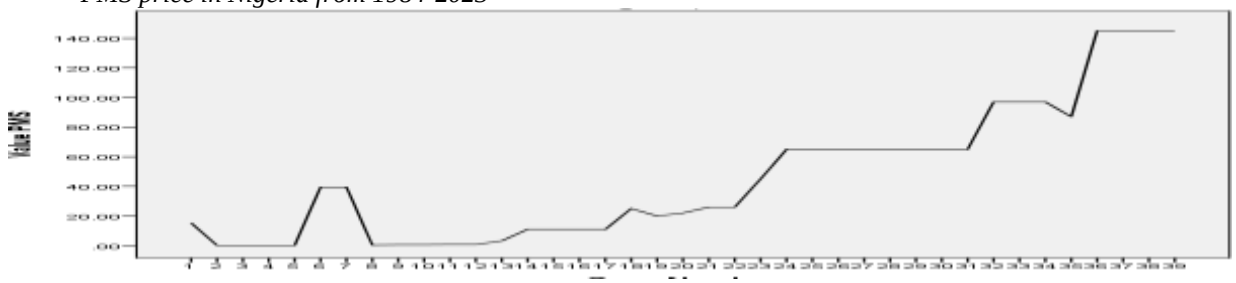


Source: Author's Computational output (2023)

The behavior of PMS prices over the period of 1984 to 2023 in Nigeria is shown below and a Contrary to the GDP, the graph of PMS exhibited high upward fluctuation with occasional visible sharp falls (1984, 1988) and jumps (1984, 1995, & 2023) as well as several occasional flat movements within the periods covered.

Behavior of PMS Prices in Nigeria (1984-2023)

PMS price in Nigeria from 1984-2023

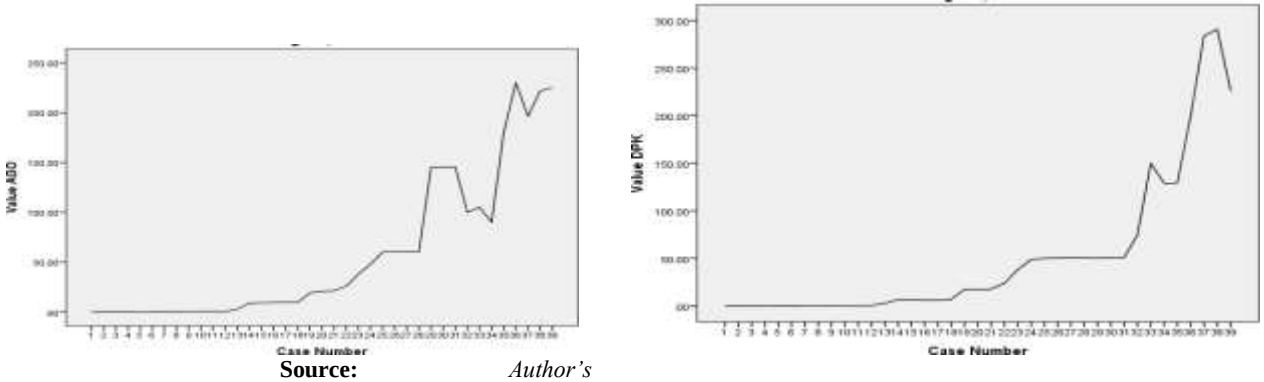


Source: *Author's Computational output 2023*

Again, the behavior of AGO and DPK prices over the period of 1984 to 2023 in Nigeria are shown below and similar to PMS, AGO graph exhibited upward fluctuation with occasional sharp falls and jumps as well as several occasional flat movements within the periods covered in the study. However, Unlike the PMS, AGO prices exhibited very gentle and gradual upward movement especially at the early stage of the research period up to 1999 when it had the first steep jump and sharply fluctuated in that order to the end of the research period. Similarly, DPK exhibited gentle upward fluctuation with occasional sharp falls and jumps as well as several occasional flat movements within the periods covered. But unlike PMS and AGO prices, DPK manifested more gentle and gradual upward swing especially at the early stage of the research period up to 2013 when it had a major steep jump and sharply fluctuated in that order to the end of the research period.

Behavior of AGO and DPK Prices in Nigeria (1984-2023)

AGO price in Nigeria, 1984-2023 & *DPK Price in Nigeria 1984-2023*

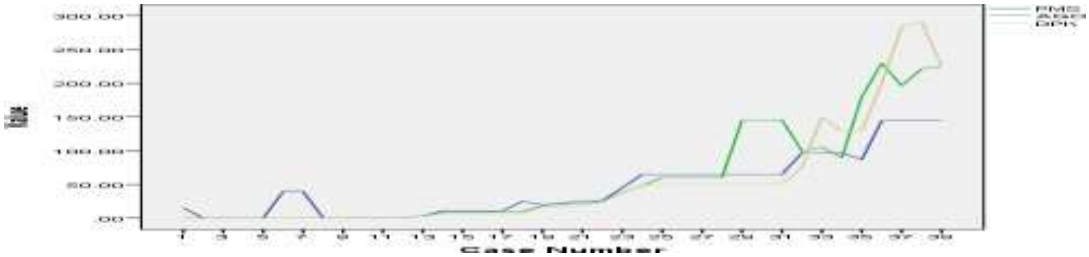


Source: *Author's Computational Output (2023)*

In addition, below is a one spot view of the three variables studied and It can be therefore be inferred that the respective behavior or trend among the three variables is implicative of government inconsistent subsidy policies on petroleum products within the research period and which has continued till date.

Behavior of PMS, AGO and DPK Prices in Nigeria (1984-2023)

Petroleum Products Price in Nigeria 1984-2023



Source: Author's Computational Output (2023)

Inferential Analysis

Analysis of the SPSS Result for Hypotheses one, two, & three of regression model specified for hypotheses one, two & three is translated from the SPSS result output in the following form:

Correlations

		GDP	PMS	AGO	DPK
Pearson Correlation	GDP	1.000	.855	.845	.765
	PMS	.855	1.000	.924	.927
	AGO	.845	.924	1.000	.897
	DPK	.765	.927	.897	1.000
Sig. (1-tailed)	GDP	.	.000	.000	.000
	PMS	.000	.	.000	.000
	AGO	.000	.000	.	.000
	DPK	.000	.000	.000	.
N	GDP	39	39	39	39
	PMS	39	39	39	39
	AGO	39	39	39	39
	DPK	39	39	39	39

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.874[a]	.765	.745	85.64459	.765	37.921	3	35	.000	.669

a. Predictors: (Constant), DPK, AGO, PMS

b. Dependent Variable: GDP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	834446.188	3	278148.729	37.921	.000[b]
	Residual	256724.855	35	7334.996		
	Total	1091171.043	38			

a. Dependent Variable: GDP

b. Predictors: (Constant), DPK, AGO, PMS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	43.614	21.819		1.999	.053					
	PMS	2.678	.972	.727	2.755	.009	.855	.422	.226	.096	10.374

	AGO	1.071	.515	.466	2.082	.045	.845	.332	.171	.134	7.453
	DPK	-.706	.492	-.327	-1.436	.160	.765	-.236	-.118	.129	7.728

a. Dependent Variable: GDP

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	PMS	AGO	DPK
1	1	3.382	1.000	.02	.00	.01	.01
	2	.518	2.554	.60	.00	.01	.02
	3	.066	7.138	.04	.00	.65	.62
	4	.034	9.999	.34	1.00	.33	.34

a. Dependent Variable: GDP

Casewise Diagnostics[a]

Case Number	Std. Residual	GDP	Predicted Value	Residual
34	3.034	568.50	308.6901	259.80987

a. Dependent Variable: GDP

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	44.1862	537.0718	191.3100	148.18607	39
Residual	-132.42181	259.80988	.00000	82.19439	39
Std. Predicted Value	-.993	2.333	.000	1.000	39
Std. Residual	-1.546	3.034	.000	.960	39

a. Dependent Variable: GDP

Source: *Author's Computational Output (2023)*

The analysis of Regression Results on Petroleum Products Price Adjustments & GDP (1984-2023)

GDP = 43.614 + 2.678**PMS** + 1.071**AGO** - 0.706**DPK**

The above equation shows a constant value of 43.614. The value is positive but not statistically significant as its significant value is 0.053. The constant value is the intercept of the regression line. It indicates that GDP in Nigeria would be approximately N43.614 billion if other variables are zeros. The coefficient of PMS is 2.678. The value is positive and significant (0.009) at both 95% and 99% confidence level. The meaning is that in every N1 increase in PMS price holding other variables constant, GDP will increase by N2.678. This suggests that PMS improved GDP in Nigeria within the studied period. In similar vein, AGO showed both positive and significant signs; a N1 increase in AGO holding other variables constant, significantly increased GDP by N1.071 within the defined period.

But DPK results were inconsistent with PMS and AGO. DPK results showed negative but insignificant signs. A N1 increase in DPK holding other variables constant, insignificantly decreased GDP by N0.706 within the defined period.The analyzed results were further verified. Testing the acceptability of the model from the statistical point of view, the analysis of variance (ANOVA) was adopted. Gujarati and Porter (2009) state that ANOVA can test for the acceptability of models from statistical viewpoint by looking at the goodness of fit from the F-statistics. If the significant value of the F-statistics is less than 0.05, the independent variables did a good job in explaining the variation in the dependent variable. Checking from the ANOVA table for hypothesis one, two and three is a significance value of 0.000. This value is less than 0.05, an indication that the model did a good job. Verifying for the nature of the relationship between the variables, the Pearson correlation coefficient was applied. The coefficient showed a strong positive relationship (85.5%) between GDP and PMS,

strong positive relationship (84.5%) between GDP and AGO, and a strong positive association (76.5%) between GDP and DPK in Nigeria.

The multiple correlation coefficient (R) defines the correlation between the predicted and the observed values of the dependent variable. The values for R range from 0 to 1. The larger value for R suggests strong relationship between the predicted and the observed values of the dependent variable. Inferring from the model summary for hypotheses one, two, and three, the R value is 0.874. This indicates that there is a strong positive relationship between the predicted and the observed values of the dependent variable.The R^2 statistics is 0.765. This implies that 76.5% of the variations in the dependent variable is explained by the independent variables in the regression model. The remaining 23.5% is due to other factors not accounted for in the model.

Test of Hypotheses

Testing the three (3) stated hypotheses of this study, the *sig*-value (*p-value*) was employed. The essence was to capture both the magnitude and direction as contained in the stated hypotheses. The two hypotheses are here under re-stated and tested below accordingly:

Hypothesis One:

The null and the alternate forms of hypothesis one are stated thus:

H_0: PMS Price adjustments do not have significant positive impact on economic growth in Nigeria.H_1: PMS Price adjustments have significant positive impact on economic growth in Nigeria.

Decision Rule: The decision rule is to reject the null hypothesis and accept the alternate hypothesis when the significant value (p-value) is less than 0.05 otherwise, accept the null.

For hypothesis one, the sig-value is 0.009<0.05. Based on the above decision rule, we reject the null hypothesis and accepted the alternate hypothesis which states that; PMS price adjustments have significant positive impact on economic growth in Nigeria.

Hypothesis Two:

The null and the alternate forms of hypothesis two are stated thus:

H_{02}: AGO Price adjustments do not have significant positive impact on economic growth in Nigeria.

H_{a2}: AGO Price adjustments have significant positive impact on economic growth in Nigeria.

Hypothesis two sig-value is 0.045<0.05. Consistent with the above decision rule, we rejected the alternate hypothesis and accepted the null hypothesis which states that; AGO price adjustments have significant positive impact on economic growth in Nigeria.

Hypothesis Three:

The null and the alternate forms of hypothesis three are stated thus:

H_{02}: DPK Price adjustments do not have significant positive impact on economic growth in Nigeria.

H_{a2}: DPK Price adjustments have significant positive impact on economic growth in Nigeria.

Hypothesis two sig-value is 0.160>0.05. Consistent with the above decision rule, we rejected the alternate hypothesis and accepted the null hypothesis which states that; DPK price adjustments do not have significant positive impact on economic growth in Nigeria.

DISCUSSION OF THE FINDINGS

The findings from the above two hypotheses validated some existing studies and It also did not agree with some others. The significant and positive results agree with Eleje (2015) who found significant positive effect of PMS subsidy on GDP. Consistently, it agreed with Nwanna & Eyedayi (2016) whose study found a positive and significant relationship between oil price and economic growth.Other corroborated finding includes Aimer (2016), Gummi, Buhari & Muhammad (2017), etc. But the study did not agree with Nwoba, Nwonu & Agbaeze (2017) who found negative and significant effect of fallen oil price on GDP. It also did not agree with the result of Trang, Tho & Hong, (2017), Victor & Ogbonna, (2018) among other researchers.

The above findings can further be compared with the initial objectives sought out in in the study to examine the impact of premium motor spirit (PMS) price adjustments on Nigeria economic growth. Results from descriptive statistics and test of hypothesis one confirm that this objective was achieved. The sig-value was used to validate the stated hypothesis at 95% confidence level. Consistent with the decision rule, the study rejected the null hypothesis and accepted the alternate hypothesis that; PMS Price adjustments have significant positive impact on economic growth in Nigeria. This decision is substantiated by the Durbin Watson statistic value of approximately 2 (1.669) and significance value of 0.000 in the ANOVA in the above regression out put. Results arising from descriptive statistics and test of hypothesis two also confirmed that the objective was also achieved. The stated hypothesis was validated at 95% confidence level. Consistent with the above decision rule, the study again rejected the null hypothesis and accepted the alternate hypothesis that; AGO price adjustments have significant positive impact on the economic growth in Nigeria. This decision was also substantiated by the Durbin Watson statistic, the significance value and the ANOVA statistics. Furthermore, results arising from descriptive statistics and test of hypothesis three also confirmed that the objective was also achieved. The stated hypothesis was also validated at 95% confidence level. Consistent with the decision rule, the study conversely rejected the alternate hypothesis and accepted the null hypothesis that; DPKs price adjustments do not have significant positive impact on economic growth in Nigeria. This decision was also substantiated by relevant statistics.

CONCLUSIONS AND RECOMMENDATIONS

This research examined the impact of Petroleum product price adjustments on Nigeria economic performance. Petroleum products were profiled by premium motor spirit (PMS), automotive gas oil (AGO) and dual purpose kerosene (DPK) while economic performance was viewed from the lens of the gross domestic product (GDP) in Nigeria. By applying both the descriptive and inferential statistics on data generated for the study, the following conclusions are drawn from the findings of the research: Strong positive relationship existed between PMS and GDP in Nigeria. Strong positive relationship existed between AGO and GDP in Nigeria. Semi-strong positive relationship existed between **DPK and GDP in Nigeria. Petroleum price variations measured from the lens of PMS could positively and significantly affect economic growth proxy by the GDP. Petroleum price variations measured from the lens of AGO could positively and significantly affect economic growth proxy by the GDP. But petroleum price variations measured from the lens of DPK may not positively and significantly affect economic growth proxy by the GDP. The findings of this study revealed that upward adjustment in petroleum product prices is sine quo non to favorable economic performance. However, Nigeria should not think that decline in oil prices both at local and international markets are impossible. In fact, such is unprecedented and inevitable as oil is exhaustible commodity. To that effect, Nigeria Government should

look for new sources for public revenues through developing a sound progressive taxation system where tax collection will be from the wealthy not from the poor for fairness purposes. Secondly, amending budgets to austerity budgets with the purpose of rationalizing the public expenditure, to the extent possible will pay. Thirdly, Nigeria should diversify economic sectors and develop convertible industries and services through financing them from the accumulated surpluses from oil windfalls. Moreover, Nigerian citizen are also invited to work hard and depend extensively on science as a source of wealth and income. Nigeria should not restrict her revenues on depleted resources, even if their usage is necessary otherwise, the country will not achieve progress unless they go through the way the developed countries went through in the past.

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