DO PETROLEUM PRODUCT PUMP PRICES INFLUENCE ECONOMIC GROWTH IN NIGERIA: QUANTITATIVE AND QUALITATIVE ANALYSIS

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Abstract

*The study evaluated petroleum product pump prices and its influence on economic growth in Nigeria using VECM Dynamics Test and Pearson Correlation Coefficient Test. The specific objectives are to: Identify the influence of petroleum product pump prices on output in Nigeria: Examine the relationship between petroleum product pump prices and capital in Nigeria: Evaluate the relationship between petroleum product pump prices and labour in Nigeria. The study used the survey approach, data extracted from the Central Bank of Nigeria annual report from 1980 – 2023 and the administration of the questionnaire. The population of the study was one thousand and forty three (1043). Two hundred and eighty one (281) staff returned the questionnaire accurately filled. The result showed that a 1% increase in the prices of PMS and AGO increased economic growth by 0.014%, 0.038% and 0.018% respectively while AGO is reduced by 0.002%. The findings also indicated: There was significance relationship between petroleum product pump prices and output (*p = 0.000*); There was significance relationship between petroleum product pump prices and capital (*p = 0.000*); There was significance relationship between petroleum product pump prices and labour (*p = 0.000*). The study concluded that petroleum product pump prices have significance relationship with economic growth. The study recommended among others that Government should come up with a controlled price with will reduce price flu auction thereby stabling businesses.*

Keywords: Petrol pump price, Economic growth, Pump price adjustment

Introduction

Economic growth is determined by economic activity. In speeding up economic activity, energy comes into play as a strong indicator. Crude oil prices and its accompanying effect on economic

growth still remain a significant subject challenging a growing number of world economies. The association between oil prices and the level of economic activity has, over the years, been the matter of much consideration as there has been widespread empirical study of the association of prices of crude oil as well as GDP, covering the last three decades. This, therefore, makes crude oil and its products outstandingly important the world over (Balouga, 2020). Nigeria is like other nations where the domestic price of oil has been on the rising side ever since 1970s. The challenges in the downstream section of the nations' petroleum sector is a serious worry to most persons in the country. This has made economists to be of the opinion that there exists a strong correlation among the prices of oil, its value chains and economic growth. Crude oil in any of its processed forms is used in the generation of energy. In spite of the abundant oil reserves in Nigeria and its neighboring countries, they still have a low capability of energy generation with its inhabitants suffering the highest form of energy poverty in the world (Ifediora, 2020). In trying to bridge the gap, residents of urban areas litter every neighborhood with generators powered by fossil fuel, thereby endangering the environment. It is, yet astonishing that for a region naturally endowed with rich fossil fuel and abundant sources of renewable energy to be suffering energy poverty. It is obvious that the scramble for fossil fuel increases its demand in Nigeria and thus it's pricing too (Ifediora, 2020; Njiru & Letema, 2018).

Petroleum has its value chain products which include premium motor spirit (PMS) literally known as petrol, dual purpose kerosene (DPK) known as kerosene, automotive gas oil (AGO) known as diesel, cooking gas, bitumen etc, which are used both domestically for personal consumption and for industrial production of goods and services (Eregha, Mesagan, & Ayoola, 2019). It is of note that the international oil price affects the domestic pricing of its products. This is because the domestic pricing of its products has been under the control of the government. The government therefore intervenes in the market, to influence the domestic market prices (Eregha et al., 2019). The interventions is termed fuel subsidy, which according to Majekodunmi in Iwuoha, Awoke, & Ubah, (*2021*) makes Nigerians to pay less for petroleum products consumption; thus, ensuring they are protected from the international price volatility of crude oil viz-a-viz its value chains – PMS (petrol), AGO (diesel) and DPK (kerosene). Despite the availability of subsidy and a bridging fund, PEF (Petroleum Equalization Fund), there still exists petroleum pump price disparity among the different regions and states in Nigeria (OzoEson & Muttaqa, 2016). Though this programme is popular in most countries that produces oil. Evidence abound that most successful countries usually take phased and gradual approach to its removal or not. As a result of in-depth and evidence-based researches before the policy formulation, effective communication and fair level of trust between government and citizens are built and sustained which guides its gradual removal (Iwuoha et al., *2021*).

Nigeria has refineries that are able to give a refined daily output of about 445,000 petrol barrels. This volume of production should be adequate to take care of the daily domestic consumptions in

addition to a surplus for exports. Unfortunately, despite the production capacity, the investments and the attendant negative implications on balance of payments and capital expenditures, Nigeria is by the day, becoming a large net importer of petroleum products. Nigeria's international financial market keeps bleeding; her exchange rate continues to weaken with the naira continually weakening against all known major currencies (Adelabu, 2021; Majekodunmi, 2018). Owing to this dismal outing of the economy, many businesses are unable to cope doing business in Nigeria, hence they are closing shops (Iwuoha et al., *2021*). It is, therefore, certain that the pressure on government expenditures and balance of payment makes each government to tarry with the pump pricing of petroleum products, to enable it make available more money to cover its expenditure profile**.**

Since the ongoing debate for the government to allow for the total deregulation of the oil industry, each successive government has been faced with strong resistance each time they remove fuel subsidy. The government, therefore, has continued to channel funds that should be used for infrastructural development to payment of oil subsidy. Every incoming administration, while pledging transparency in the execution of fuel subsidy, has identified the lack of transparency and corruption in the administration of fuel subsidy as the reasons for not fixing the nations refineries and poor growth of the economy (Smith, 2021). For the past few months in Nigeria, there have been fluctuations in the prices of food stuffs due to their level of production; this has undermined its contribution to trade and economic growth. There has been increase in cost of goods and services in the country, poor funding, low managerial skills, illiteracy and lack of access to modern technology. In fact, most businesses and industries in Nigeria have crumbled due to unfriendly business environment

With each government's inability to get the refineries working despite huge maintenance, operating and overhead costs, Nigeria as a major oil producing country still imports refined fossil fuel for its domestic consumption needs. The refining sector obviously is avoided by investors citing unfriendly pricing as an excuse, leaving fuel marketers with low margins that had to force the government into increased subsidy payments that really hurt the economy While crude oil price fluctuations on the growth of the economy is transmitted via demand and supply channels, increases in international price of crude oil are transmitted into the Nigerian domestic economy through domestic prices of petroleum products (Awunyo-Vitor, Samanhyia, & Addo Bonney, 2018). Petroleum products being a major source of productive sector inputs in the Nigerian economy, increase in prices do have effects on the country's economic growth. Therefore this study explores the influence of petroleum product pump prices on economic growth in Nigeria.

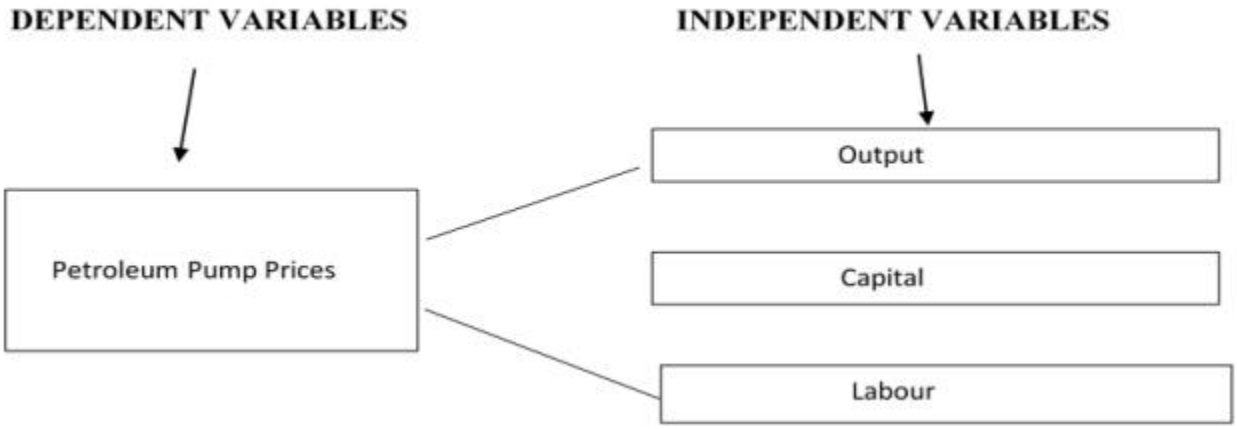
The general objective of this study is to explore the influence of petroleum product pump prices on economic growth in Nigeria. Specifically, the researcher intends to: Identify the influence of petroleum product pump prices on output in Nigeria: Examine the relationship between petroleum product pump prices and capital in Nigeria: Evaluate the relationship between

petroleum product pump prices and labour in Nigeria. The following null hypotheses guided the study:

1) Petroleum product pump prices has no significance relationship with output in Nigeria
2) Petroleum product pump prices has no significance relationship with capital in Nigeria.
3) Petroleum product pump prices has no significance correlation with labour in Nigeria.

Review of the Related Literature

Conceptual framework



Source: Author's field work 2024

The phenomenon of "rocket and feather", proposed by Bacon (1991), on the response of gasoline price to crude oil price changes has continued to generate an ongoing debate among researchers and policymakers in the energy sector across the globe. The phenomenon rests on the proposition that refined petroleum product prices increase faster to an increase in crude oil prices like "rockets", while petroleum prices decrease slowly like "feather" when there is a fall in the price of crude oil. It has been observed that petroleum dealers and energy companies alter (increase) their pump prices immediately after a surge in crude oil prices. On the other hand, to maintain their margin, they are reluctant to reduce their prices when there is a slump in the oil market. In the literature, two major themes have been extensively discussed on petroleum price-crude oil price nexus, albeit with mix and inconclusive results. These are the magnitude and speed of adjustment with which petroleum price reacts to changes in crude oil prices (Sun, Zhang, and Hong (2018); Wang (2019) 2018; Kang, Gracia, Ratti, 2018).

The Cobb-Douglas production function productivity incorporates the assumption of constant return to scale. It can also be easily shown that the marginal products are positive but diminish

as one factor is increased when the other is held constant. Thus technical change should be assumed to be embodied in new investment. In an alternative model, the effect of assuming all technical change to be embodied in new capital. Evidently, if technical change is disembodied, an increase in the rate of capital growth will have little effect on the growth of output. But if the benefits of advanced technology accrue to the system by being embodied in new capital a larger contribution to the rate of growth of output can be realized by raising the rate of capital formation. One of the purposes of attempts to assign quantitative weights to the sources of growth is to provide a basis for prescribing policy alternative designed to affect the growth rate (Iwuoha and Awoke, 2019).

There are researchers whose arguments have been in support of pump price of petroleum products impacting on economic growth (Nwaoha, Onwuka, Obisike, Yahaya, & Nwambe, 2018). While Orlu (2018) using ECM found that premium motor spirit prices impact negatively on economic growth, he argued that the increase in the price of premium motor spirit will negatively affect production by firms thus reducing gross domestic product (GDP) growth. Furthermore, there are researches supporting that fuel price changes does not positively impact the Nigerian economy even though these prices are fallout of exchange rate fluctuations. Muktari, Muhammad, Rabiu & Kabiru, (2023) investigated the Effect of Petroleum Subsidy Removal on Standard of Living Amidst Rising Poverty in Nigeria. Nigeria, as an oil-dependent economy has long relied on petroleum subsidy to ensure affordable fuel prices for its citizens. The country provided subsidy on petroleum products to mitigate the effects of rising fuel prices on the population. However, in recent years, the country has faced numerous challenges including the rising rate of inflation, unemployment and increase in poverty rates. Based on these challenges, the decision to remove petroleum subsidy has had a significant impact on the standard of living.

Wale-Awe and Sulaiman (2020) examined the effect of PMS pricing on inflationary dynamics in Nigeria for the period 1980-2018. Their result showed the existence of inflationary tendencies occasioned by PMS price increase and absence of causality between PMS pricing and inflation in Nigeria. They hence called for the aligning of wage rate and pricing of PMS for economic stabilization. Hassan and Meyer (2020) in analysing the non-linear effect of petrol price changes on inflation in South Africa, argued that short run price increase does not impact significantly on economic growth and inflation, meaning that the continued increases in the price of petrol have had negative but significant impact on economic growth and inflation.

Various government regimes in Nigeria always point at the international price of crude as the reason for the incessant domestic price changes of petroleum products. Hence, Popp, Oláh,

Farkas, Lakner, and Máté (2018) in their study titled the effect of bioenergy expansion: food, energy, and environment found that economic growth and inflation have a non-linear relationship with petrol price changes while causality runs from petrol price to economic growth. Roeger (2019) using a number of European countries as case study, analysed the impact of changes of petrol prices on the economic performance of developed countries from 1980 to 2011 using samples from 26 OECD countries confirmed the existence of a relationship between GDP, inflation and employment with petrol prices negatively impacting on GDP. After reviewing literature, it was discovered that most research conducted previously on the influence of petroleum product pump prices on economic growth in Nigeria used data till 2018 as revealed in the works of Wale-Awe and Sulaiman (2020). . Furthermore, these reviewed literatures were mainly qualitative studies but the present study will also adopt the quantitative and qualitative methods and further be analysed using statistical tools. These were the gap in literature identified which this present study intend to cover.

METHODOLOGY

Time series secondary data from 1981 to 2023 and Descriptive Survey Research were used in this analysis. Time series secondary data were sourced from various editions of the Central Bank of Nigeria (CBN). The rate of growth of gross domestic product was estimated using simple production function transformed into the Cobb Douglas production function. VECM Dynamics Test and Pearson Correlation Coefficient Test were employed in analysing the data. To prevent loss of observation as against ADF test because of its non-parametric method, 1988 Phillips-Perron unit root test was also applied. This method recognizes the lagged difference terms in the dependent variables by allowing heteroskedasticity error terms possibility, hence maintaining a correlation of higher order (Awunyo-Vitor et al., 2018; Hamilton, 2009). We therefore specify a lag model. The model will show how the changes in fuel price affect GDP. The three products PMS, AGO and DPK were adopted because they are the most commonly used directly or indirectly by every household in Nigeria. Exchange rate became the control variable. Economic growth is proxied by growth rate of gross domestic product.

The endogenous growth theory forms the theoretical underpinning of this study. Van Zon and Yetkiner (2003) employed energy as input in the intermediate goods sector. As modified by Rebelo (1991) and Barry (1996) the endogenous growth model in this case consumables segment of the economy uses energy as an input capital. The simple production function is thus:

$$Q = f(K, L) \quad (1)$$

From (1)

$Q = Output$

$K = Capital$

$K = Labour$

Assuming Q to be real output (Economic growth or GDP), K is total capital - capital here includes the prices of the petroleum products (PMS, DPK and AGO), and L is index of labour input. Thus, if Labour productivity is a dynamic measure of economic growth, competitiveness, and living standards within an economy, hence it is a revealing indicator of several economic indicators. If we mathematically derive it as.

$$LP = \frac{OV}{LIU} \qquad (2)$$

From (2)

$LP = Labour\ Productivity$

$OV = Output\ Volume$

$LIU = Labout\ Input\ Use$

Therefore, Output measure = Net output, which is the value added by the process, i.e. value of outputs – (less) value of intermediate inputs, all valued in monetary terms. Therefore, L is index of labour input, here represented by (EXR).

We transform it into a linear function in (3),as

$$GDP = f(PMS, DPK, AGO, EXR) \qquad (3)$$

But from (3), GDP is proxied by Yg, hence, we specify the model as:

$$Yg_t = f(PMS, DPK, AGO, EXR) \qquad (4)$$

Wherefrom (4).

$Yg_t = growth\ rate\ of\ real\ gross\ domestic\ product\ defined\ by$:

$$Ygt = \frac{RGDPc - RGDPp}{RGDPp}$$

Where

$Ygt = Growth\ Rate$

$RGDPc = RGDP current\ year$

$RGDPp = RGDP previous\ year$

PMS is the domestic price of premium motor spirit; DPK is the domestic price of dual purpose kerosene; AGO is the domestic price of automotive gas oil, EXR is the rate of exchange of Naira to the US dollar while, '*ect'* represents the residual adjustment and '*u'* is the stochastic error term.

Transforming this (4) into lag model, then we have (5) thus;

$$\Delta \log_{Yg_t} = \beta_0 + \beta_1 \Delta \log PMS_{t-1} + \beta_2 \Delta \log DPK_{t-1} + \beta_3 \Delta \log AGO_{t-1} + \beta_4 \Delta \log EXR_{t-1} + \beta_5 ect + \mu_t \quad (5)$$

Where in (5), all the variables remain as explained in (4), while log is the logarithm value of the variables, β_0 is the constant of the model, β_1 - β_5 are all slopes of the estimates, t is the time (yearly trend) and t-1 is the yearly lag period (one year).

$$Apriori\ \beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0\ where\ \beta_1, \beta_2, \beta_3, \beta_4, are\ parameters\ in\ the\ model$$

In addition, the survey questionnaire was used to collect both quantitative and qualitative data. The aim is to identify, describe and compare variables to ascertain differences and relationships of the dependent and independent variables used for hypotheses with appropriate and amenable test statistics. The study was limited to Business Studies, Economics and Vocational Studies Departments of the five (5) state universities in the South East of Nigeria. The universities include: Enugu State University of Science and Technology, Ebonyi State University, Imo State University, Anambra State University of Science and Technology, and Abia State University. The population of the study is three thousand two hundred and fifty (3250) which consists of lecturers and final year students.

Table 1 Universities and the Population for the Study.

S/N	NAME OF UNIVERSITY	LOCATION	LECTURERS	STUDENTS
1	Abia State University, Uturu, Okigwe,	Abia State	192	458
2	Anambra State University, Igbariam,	Anambra State	189	421
3	Ebonyi State University, Abakaliki,	Ebonyi State	177	482
4	Enugu State University of Science &Technology	Enugu State	167	531
5	Imo State University, Owerri.	Imo State	178	455

	Total		903	2347

Source: Field survey, 2024.

Considering the relative large size of the population, using the entire population was cumbersome, hence the need for sampling. To determine the sample size for small populations, we use the normal approximation to the hyper geometric distribution. Conchram (1977) the sample size formula includes:

$$n = \frac{Z^2Npq}{Ne^2 (N-1) + Z^2pq}$$

Where:

n = the required sample size

N = the population size

P and q = the population proportions. It is set at 0.5

Z = the value that specifies the level of confidence. Typical levels of confidence for surveys sets are 95%, in which case z is set to 1.96.

e = Error margin. In this study e is set with an accuracy of plus or minus 5%, that is, E is set to 0.05.

$$n = \frac{1.96^2 \times 3250 \times 0.5 \times 0.5}{3250 (0.05^2) + 1.96^2 \times 0.5 \times 0.5} = \frac{3.8416x3250x0.5x0.5}{\frac{3121}{9.085}} = \frac{3.8416x3250x0.5x0.5}{\frac{3121}{9.085}} = 343.5$$

Therefore, the sample size for the study is 344. To ensure that the sample is represented of each University, the proportionate stratified random sampling technique was used to determine the number of respondents from each Universities. This was to ensure a fair representation of the respondents in each stratum of the sample for the study. Bowley's (1937) proportional allocation statistic was utilized to ensure equitable representation of the Universities. Bowley's (1937) fomular:

$$Nh = \frac{nxNh}{N}$$

Where nh = number of questionnaire allocated to each of the institution

n = Total sample size

Nh = Number of proposed lecturers to be used from the selected Universities

N = Population size.

Table 2: Questionnaire Allocation to Each University

S/N	Institutions	Population	Calculation	Sample size
1.	Abia State University, Uturu Okigwe,	650	$\frac{650 \, x \, 344}{3250}$ $\frac{650 \, x \, 344}{3250}$ =	69
2.	Anambra State University, Igbariam,	610	$\frac{610 \, x \, 344}{3250}$ $\frac{610 \, x \, 344}{3250}$ =	64
3.	Ebonyi State University, Abakaliki,	659	$\frac{659 \, x \, 344}{3250}$ $\frac{659 \, x \, 344}{3250}$ =	70
4.	Enugu State University of Science and Technology	698	$\frac{698 \, x \, 344}{3250}$ $\frac{698 \, x \, 344}{3250}$ =	74
5.	Imo State University, Owerri.	633	$\frac{633 \, x344}{3250}$ $\frac{633 \, x344}{3250}$ =	67
	Total	**3250**		**344**

Source: Author's field work 2024

Given the objectives and the nature of the study, the study made use of questionnaire administration. The responses generated were used thereafter for data analysis. Face and content validities of the instruments were ensured by experts. The instrument was validated by experts in Economics Department, Enugu State University of Science and Tech and Measurement and Evaluation from Ebonyi State University, Abakaliki. The application of Statistical Package for Social Sciences (SPSS) version 23.0 using Cronbach Alpha reliability method to obtain the reliability index which yielded a score of 0.88. To determine the nature and strength of relationship between the research variables, Pearson correlation was used to test the hypotheses. The correlation coefficient r determines the strength of correlation between two variables x and y and is calculated by using the formula *below*:

$$r = \frac{\Sigma (xi - x) \quad (yi - y)}{}$$

$$\sqrt{\Sigma (x_i - \bar{x})^2 \quad (y_i - \bar{y})^2}$$

Where: r =Pearson correlation coefficient

x_i= values of the x-variable in a sample

$\bar{x}$ =mean of the values of the x-variable

y_i =values of the y-variable in a sample

$\bar{y}$ = mean of the values of the y-variable

Σ = Summation

Decision Rule:

The decision rule is to accept the null hypothesis if the computed r is less than the tabulated r otherwise reject the null hypothesis. The hypothesis were tested at 0.05, level of significance.

Data Presentation

Table 3. Distribution and Return of the Questionnaire

Cities	Distributed	No Returned	%	No not Returned	%
Abia State	69	50	15	19	6
Anambra State	64	46	13	18	5.3
Ebonyi State	70	62	18	8	2.4
Enugu State	74	63	18	11	3,3
Imo State	67	60	17	7	2
Total	344	281	81	63	19

Source: From the questionnaire administration, 2024

Three hundred and forty four (344) copies of the questionnaire were distributed to the respondents and two hundred and eighty one (281) copies were returned representing 84%, while sixty three (63) copies of the questionnaire were not returned representing 16%.

VECM DYNAMICS TEST RESULT

Table-4. VECM dynamics (Ygt as dependent variable).

Variables	Coefficient	T-Statistics	Probability
D(PMS(-1))	0.014	0.036	0.319
D(DPK(-1))	0.038	0.065	0.587
D(AGO(-1))	-0.002	0.038	-0.065
D(EXR(-1))	0.018	0.024	0.745
ECTt-1	-0.535	0.146	-3.665
C	0.516	1.084	0.476
R^2 =0.574 ;Adj R^2=0.323 ;F-Statistic =2.282			

Source: Author's computation

From Table 6, ECT is negative, meaning it is rightly signed and non-explosive. That is to say that the previous year's deviation from long-run equilibrium is corrected in the current period at an adjustment speed of 53%. However, a percentage change in the price of premium motor spirit, (PMS), dual purpose kerosene, (DPK) and exchange rate, (EXR) is associated with a 0.011%; 0.038% and 0.018% increase in economic growth respectively, *cetirus paribus*. Also a percentage change in the price of automotive gas oil, (AGO) is associated with a 0.002% decrease in economic growth, all things being equal. This means that for every unit (1%) increase in the price of automotive gas oil, (AGO) there will be a reduction of 0.002% in economic growth while a unit increase in the price of premium motor spirit (PMS), dual purpose kerosene (DPK), and exchange rate (EXR) causes the economy to grow by 0.011%, 0.038% and 0.018% respectively. The value of R^2 (R squared) which is 0.574 is an indication that about 57.4% of the changes in the level of economic growth in the country are explained by the pump price of petroleum products and exchange rate within this study timeframe with *(*p = 0.000*)*. This result supports the findings of Hassan and Meyer (2020) and Du, Yanan, and Wei (2010) who claims that petroleum prices impact on economic growth, though in the latter's case it significantly affects economic growth.

PEARSON CORRELATION COEFFICIENT TEST RESULT

Hypothesis One

Table 5 Correlation analysis of Petroleum Product Pump Prices on Output

		Crude oil price fluctuations is transmitted via demand and supply channels of goods and services.	Increases in international price of crude oil are transmitted into the Nigerian domestic economy	Increase in the price of premium motor spirit will negatively affect production	Oil revenue shocks marginally raises price levels in the short run & in the long run impedes growth	Negative effect on output occasioned by petrol price increases and inflation
Crude oil price fluctuations is transmitted via demand and supply channels of goods and services.	Pearson Correlation	1	.841**	.723**	.806**	.749**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	281	281	281	281	281
Increases in international price of crude oil are transmitted into the Nigerian domestic economy.	Pearson Correlation	.841**	1	.764**	.781**	.830**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	281	281	281	281	281
Increase in the price of premium motor spirit will negatively affect production	Pearson Correlation	.723**	.764**	1	.866**	.725**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	281	281	281	281	281
Oil revenue shocks marginally raises price levels in the short run and in the long run impedes growth	Pearson Correlation	.806**	.781**	.866**	1	.821**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	281	281	281	281	281
Negative effect on output occasioned by petrol price increases and inflation	Pearson Correlation	.749**	.830**	.725**	.821**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	281	281	281	281	281
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: **SPSS, ver. 23.0**

Table 5, the correlation coefficient shows .749 < .841. This value indicates that the correlation is significant at 0.05 level (2 tailed) and implies that there was significance relationship between Petroleum Product Pump Prices and Output in Nigeria. Since the computed (r =.749 <.841) is greater than the table value of .000, we reject the null hypothesis. Therefore, we concluded that there was significance relationship between Petroleum Product Pump Prices and Output in Nigeria as reported in the probability value of 0.000.

Hypothesis Two

Table 6: Correlation analysis between Petroleum Product Pump Prices and Capital

Correlations						
		Increase in the prices of Petroleum Product Pump Prices reduces investment	Increase in Petroleum Product Pump Prices reduces purchases power of money	Relationship exist between Petroleum Product Pump Prices and exchange rates	Increases in international price of crude oil are transmitted into the domestic economy	Relationship exist between wage rate, pricing of PMS and economic stabilization.
Increase in the prices of Petroleum Product Pump Prices reduces investment	Pearson Correlation	1	.828**	.708**	.796**	.766**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	281	281	281	281	281
Increase in Petroleum Product Pump Prices reduces purchases power of money	Pearson Correlation	.828**	1	.753**	.769**	.854**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	281	281	281	281	281
Relationship exist between Petroleum Product Pump Prices and exchange rates	Pearson Correlation	.708**	.753**	1	.857**	.781**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	281	281	281	281	281
Increases in international price of crude oil are transmitted into the Nigerian domestic economy	Pearson Correlation	.796**	.769**	.857**	1	.871**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	281	281	281	281	281

Relationship exist between wage rate, pricing of PMS and economic stabilization.	Pearson Correlation	.766**	.854**	.781**	.871**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	281	281	281	281	281
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: **SPSS, ver. 23.0**

Table 6, showed the Pearson correlation matrix on Petroleum Product Pump Prices and Capital in Nigeria showing the correlation coefficients, significant values and the number of cases. The correlation coefficient shows .708 <.828. This value indicates that the correlation is significant at 0.05 level (2 tailed) and implies that there was significant relationship between Petroleum Product Pump Prices and Capital in Nigeria (r= 708 <.828). Since the computed (r = .708 <.828) is greater than the table value of .000, we reject the null hypothesis. Therefore, we concluded that there was significant relationship between Petroleum Product Pump Prices and Capital in Nigeria as reported in the probability value of p = 0.000.

Hypothesis Three

Table 7: Relationship between Petroleum Product Pump Prices and Labour in Nigeria.

		Petroleum Prices are fallout of exchange rate fluctuations and businesses growth	Reviving the refineries will promote competition and trade	Increases in fuel prices affect transportation subsector negatively.	Oil price fluctuations affect macroeconomic performance	Increase in oil prices on oil exporting nations crate employment opportunities
Petroleum Prices are fallout of exchange rate fluctuations and businesses growth	Pearson Correlation	.390**	.485**	.471**	.463**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	281	281	281	281	281
Reviving the refineries will promote competition and trade	Pearson Correlation	.574**	.509**	.707**	1	.463**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	281	281	281	281	281
Increases in fuel prices affect transportation subsector negatively.	Pearson Correlation	.390**	.485**	.471**	.463**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	281	281	281	281	281

Oil price fluctuations affect macroeconomic performances	Pearson Correlation	.907**	1	.700**	.509**	.485**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	281	281	281	281	281
Increase in oil prices on oil exporting nations crate employment opportunities	Pearson Correlation	1	.907**	.715**	.574**	.390**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	281	281	281	281	281
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: **SPSS, ver. 23.0**

Table 7 showed the correlation coefficient shows .390 < .907. This value indicates that the correlation is significant at 0.05 level (2 tailed) and implies that there was significance positive relationship between Petroleum Product Pump Prices and Labour (r=.390 < .907). Since the computed (r =.390 < .907) is greater than the table value of .000, we reject the null hypothesis. Therefore, we concluded that there was significance positive relationship between Petroleum Product Pump Prices and Labour in Nigeria as reported in the probability value of p = 0.000.

Discussion of Findings

The empirical results show that a percentage increase in economic growth causes the price of premium motor spirit (PMS), dual purpose kerosene (DPK) and exchange rate (EXR) to increase by 0.011%, 0.038% and 0.018% respectively. Also a percentage change in the price of automated gas oil (AGO) is associated with a 0.002% decrease in economic growth. Also about 57.4% of the changes in the level of economic growth in the country are explained by the pump price of petroleum products and exchange rate within this study timeframe. The previous year's deviation from long-run equilibrium is corrected in the current period at an adjustment speed of 53%.

From the result of hypothesis one, the computed (r =.749 <.841) is greater than the table value of .000, Therefore, we concluded that there was significance relationship between Petroleum Product Pump Prices and Output in Nigeria. as reported in the probability value of (p = 0.000). This implies that Crude oil price fluctuations is transmitted via demand and supply channels of goods and services and into the Nigerian domestic economy, negatively affecting production, raises price levels in the short run and in the long run impedes growth thereby increases inflation. This result agreed with Orlu (2018) that the increase in the price of premium motor spirit will negatively affect production by firms thus reducing gross domestic product (GDP) growth.

From the result of hypothesis two, the computed (r =.631 <.869) is greater than the table value of .000, we reject the null hypothesis. Therefore, we concluded that there was significance relationship between Petroleum Product Pump Prices and Capital in Nigeria. This implies that Increase in the prices of Petroleum Product Pump Prices reduces investment, purchases power of money thereby increases exchange rates. In the support of the result, in the literature review, Muktari, Muhammad, Rabiu & Kabiru, (2023) investigated the Effect of Petroleum Subsidy Removal on Standard of Living Amidst Rising Poverty in Nigeria. Nigeria, as an oil-dependent economy has long relied on petroleum subsidy to ensure affordable fuel prices for its citizens.

From the result of hypothesis three, the computed (r =.390 < .907) is greater than the table value of .000, Therefore, we concluded that there was significance relationship between Petroleum Product Pump Prices and labour in Nigeria as reported in the probability value of 0.000. This implies that Petroleum Prices are fallout of exchange rate fluctuations which will affect businesses growth, promote competition and trade thereby affecting transportation subsector and macroeconomic performances negatively In the support of the result, in the literature review, Roeger (2019) using a number of European countries as case study, analysed the impact of changes of petrol prices on the economic performance of developed countries

Summary of Findings

1. There was significance relationship between Petroleum product pump prices and output (p = 0.000).
2. There was significance relationship between Petroleum product pump prices and capital in south east Nigeria (p = 0.000).
3. There was significance relationship between Petroleum product pump prices and labour in south east Nigeria (p = 0.000).

Conclusion

The study concluded that Petroleum Product Pump Prices influence economic growth in Nigeria. Thus, Petroleum Product Pump Prices affect output that is production of goods and services, capital both financial and non-financial capital including labour. This will affect businesses growth, promote competition and trade thereby affecting transportation subsector and macroeconomic performances negatively in Nigeria. Any macroeconomic policy that affects economic growth should be pursued independent of fuel pump prices as any policy aimed at influencing economic growth through pump price adjustments seems to be ineffective.

Recommendations

Based on the findings of the study, the following recommendations were proffered.

1. Government should come up with a controlled price with will reduce price flu auction thereby stabling businesses.
2. Alternative source of revenue and diversification of the economy and subsidy provision for emerging businesses should be the priority of Nigeria government.
3. There is need for all levels of government to construct at least one industry that can promote business and develop other subsectors.

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