Petroleum Product Pricing and Inflation in Nigeria: An Autoregressive Distributive Lag (ARDL) Approach

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Abstract
This study examined the effect of petroleum product pricing on inflation in Nigeria from 1990 to 2023. The study proxy petroleum product pricing by premium motor spirit price, household kerosene price and automotive gas oil price while inflation was measured by inflation rate. The study made use of annual time series data and the data were sourced mainly from Central Bank of Nigeria (CBN) statistical bulletin, World Bank Commodity Price Data and National Bureau of Statistics (NBS) report. The major techniques of data analysis adopted include: Augmented Dickey-Fuller (ADF) approach, bounds cointegration test and Autoregressive Distributive Lag (ARDL) approach. The findings of the showed that premium motor spirit price and household kerosene price have positive and significant effect on inflation rate in Nigeria while automotive gas oil price has a positive and non-significant effect on inflation rate in Nigeria. The study therefore concluded that petroleum product pricing contributes positively to inflation in Nigeria. It was recommended among others that Nigerian government should restructure fuel subsidies to reduce the fiscal burden while implementing targeted assistance programs to shield the most vulnerable households from sudden price hikes in premium motor spirit price, household kerosene price and automotive gas oil price. Through direct cash transfers, fuel vouchers, or subsidized transportation services for low-income families, the government can mitigate the impact of fuel price changes on household expenses and inflationary pressures.

Keywords: *petroleum product pricing, inflation premium motor spirit price, household kerosene price, automotive gas oil price*

Introduction

The pricing of petroleum products is a crucial factor in economic stability, particularly in economies that rely heavily on petroleum imports or production, like Nigeria. Petroleum products, including gasoline, diesel, and kerosene, are integral not only to the transportation and industrial sectors but also to a broad range of economic activities. Fluctuations in petroleum prices impact production costs, transportation expenses, and, consequently, consumer prices for various goods and services. This link between petroleum product prices and the overall inflation rate has been a subject of extensive research, as understanding these dynamics is essential for implementing effective economic and fiscal policies (Hamilton, 2021). In recent years, the global oil market has experienced volatility driven by supply chain disruptions, geopolitical events, and policy

interventions aimed at energy transition. These fluctuations influence domestic petroleum prices in oil-importing and oil-exporting countries alike, creating inflationary pressures that can hinder economic growth and erode purchasing power, especially in developing economies. Studies such as those by Akinlo (2022) and Oseni and Afolabi (2023) have demonstrated that in economies heavily dependent on petroleum, even minor adjustments in petroleum prices can lead to significant changes in inflationary trends.

However, the relationship between petroleum pricing and inflation is rooted in the foundational structure of many modern economies, where petroleum fuels are essential for the production and distribution of goods. Petroleum product pricing affects inflation in direct and indirect ways. Directly, higher petroleum prices increase transportation costs, which are then passed on to consumers in the form of higher prices for goods and services. Indirectly, rising petroleum costs lead to increased production expenses across various sectors, resulting in higher consumer prices, thus creating inflationary pressures (Mohammed & Ibrahim, 2022).

In Nigeria, the oil sector contributes significantly to government revenue and foreign exchange earnings, making it a pivotal sector. The volatility in global petroleum prices affects the country's economic policies, as significant price increases lead to upward adjustments in the prices of petroleum products domestically. For instance, when international oil prices rise, the cost of imported refined petroleum products also increases, which subsequently affects local markets. This transmission of global petroleum prices to domestic inflation rates is exacerbated by Nigeria's dependency on imported refined petroleum products, despite being a major oil producer (Aluko, 2021; Omobola, 2023). Historically, attempts by the Nigerian government to regulate petroleum prices through subsidies have influenced inflation. Subsidies, aimed at maintaining lower prices for consumers, have been a major fiscal policy tool, but they carry a high budgetary cost and can distort market dynamics. Removal of subsidies has frequently led to sharp increases in inflation as petroleum product prices rise suddenly. Studies have shown that when subsidies are reduced or removed, the inflationary impact is immediate and affects various sectors, particularly food and transportation, which are highly sensitive to fuel prices (Ogundipe & Adeniyi, 2021).

Statement of the Problem

Despite Nigeria's status as an oil-producing country, the reliance on imported refined petroleum products has exposed the nation's economy to global oil price volatility. This dependence, coupled with a weak refining infrastructure, makes the Nigerian economy vulnerable to price shocks. While the Nigerian government has periodically implemented subsidy policies to mitigate the impact of rising petroleum prices, such policies have proven unsustainable, leading to fiscal strain and necessitating subsidy reductions. The resulting price adjustments have had profound effects on inflation, making it challenging to maintain economic stability. Furthermore, the recent trend towards deregulation has amplified the impact of global oil prices on domestic inflation, leaving policymakers with limited tools to address the inflationary pressures that arise from petroleum price volatility. The inflationary impact of petroleum product prices has implications for purchasing power, household welfare, and overall economic growth. Hence, there is a need to explore the specific channels through which petroleum product prices influence inflation in

Nigeria, as well as to identify potential policy interventions that could mitigate these effects. Therefore, this study aimed to investigate the effect of petroleum product pricing on inflation, in Nigeria. Specifically, the study aimed to examine the effect of premium motor spirit price, household kerosene price and automotive gas oil price on inflation rate in Nigeria.

2.0 LITERATURE REVIEW

Theoretical Framework

This study is anchored on Asymmetric Price Transmission (APT) theory. This theory is discussed in this section as follows:

Asymmetric Price Transmission (APT) theory

Asymmetric Price Transmission (APT) theory was developed primarily through the work of economists such as Houck (1977) and Meyer and von Cramon-Taubadel (2004). Houck introduced the theory in 1977, examining how changes in prices of agricultural products were transmitted asymmetrically along the supply chain. Later, Meyer and von Cramon-Taubadel refined and expanded the theory, exploring how input cost changes are unevenly reflected in output prices across different markets and products. The Asymmetric Price Transmission (APT) theory has since been applied across sectors, including petroleum markets, to explain how changes in production or input prices influence consumer prices asymmetrically (Houck, 1977; Meyer & von Cramon-Taubadel, 2004). Asymmetric Price Transmission (APT) theory explains that price changes, especially in commodities like petroleum, do not transmit uniformly. In Nigeria, increases in international crude oil prices typically lead to a quick rise in domestic petroleum product prices, while decreases often result in slower or minimal price reductions. This asymmetric transmission impacts inflation in two significant ways:

1. Direct Impact on Consumer Prices: When international crude oil prices rise, costs of petroleum products like Premium Motor Spirit (PMS) or diesel increase almost immediately, which drives up transportation costs, production costs, and, subsequently, consumer prices across a range of goods and services. This “cost-push” inflation disproportionately affects Nigeria, where transportation and energy are heavily reliant on petroleum products (Aliyu, 2009).
2. Indirect Inflationary Pressures: Asymmetric Price Transmission (APT) theory also explains how reluctance to reduce prices after an international crude price drop creates sustained inflationary pressures. Since energy costs remain high, businesses do not experience the intended relief from lower input prices, causing inflation rates to remain elevated despite global price drops. In Nigeria, this is compounded by factors like limited refining capacity and heavy reliance on imported refined petroleum products, which accentuate the asymmetry (Odusola, 2006; Olomola & Adejumo, 2006).

In summary, Asymmetric Price Transmission (APT) theory highlights how the asymmetric transmission of petroleum prices contributes to persistent inflation in Nigeria, where price reductions from lower crude oil prices are often delayed or avoided. This results in ongoing inflationary pressure on consumer goods and services, adversely impacting purchasing power and economic stability (Houck, 1977; Meyer & von Cramon-Taubadel, 2004; Aliyu, 2009).

Empirical Review

Ibrahim, Nteegah and Kalu (2024) employed the Autoregressive Distributed lag (ARDL) technique to investigate the effect of petroleum products pricing on price level in Nigeria over the period 1990 – 2022. In order to achieve the purpose of the study, data on inflation rate, price of premium motor spirit, price of automotive gas oil, price of household kerosene, price of compressed natural gas and price of crude oil were sourced from secondary source. The results of our analysis revealed that: in the long run, prices of Premium motor spirit and compressed natural gas retarded inflation level marginally while prices of automotive gas oil, dual purpose kerosene and crude oil spurred general price level marginally. Prices of premium motor spirit and compressed natural gas fueled inflation in the short run significantly while prices of automotive gas oil and crude retarded general price level. Price of dual-purpose kerosene had mixed but significant effect on price level. The study also found that a long run nexus existed between petroleum product prices and price level in Nigeria. Petroleum product prices had serious implications on the Nigeria's economy in the short run than long run.

Kyarem and Felix (2023) examine the impact of petroleum product price changes on the prices of food items in the Nigerian economy. Annual time series data from 1991 to 2021 are employed and the study adopt ARDL approach to determine the long-run and short-run relationship between the price of premium motor spirits and the price of food items in Nigeria. However, as it is reported by the unit root test there is a mixture of 1(0) and 1(1) order of cointegration. With these results, it is more suitable to apply the ARDL approach. The results showed that the price of premium motor spirit has a positive and significant impact on food items during the short run but in the long run, the prices of premium motor spirits have a positive and insignificant impact on the food items in Nigeria. The results of the Toda and Yamamoto (1995) causality tests showed that there is a unidirectional causality running from the price of food items to the price of premium motor spirit and from the exchange rate to the price of food items.

Oyegun and Omo-Ojugo (2022) determined the impact of petroleum products price regulation on inflation rate in Nigeria using secondary data extracted from the Central Bank of Nigeria annual report and National Bureau of Statistics publications spanning from 1980 - 2021. Descriptive statistics, unit root test, Johansen cointegration test and error correction model were employed to analyse the collected data. The result showed that a 1% increase in the prices of PMS and AGO increased inflation rate by 0.073985 and 0.021989 respectively. Although, PMS recorded the highest positive value, the prices of PMS and AGO have no statistical significant impact on inflation rate in Nigeria within the period of this study.

Clement (2022) conducted a study to analyse the correlation and influence of petroleum product prices on inflation, with data spanning from 1981 to 2020. The following statistical tests were employed: unit root test, error correction mechanism, cointegration test, and Granger causality test. The author discovered that the prices of domestic kerosene and premium motor spirit contributed to inflationary pressure, but the outcome of diesel price on inflation was minimal and favourable.

There exist a reciprocal cause-and-effect link between premium motor spirit and inflation. Diesel has a unidirectional causal link with inflation.

Korgbeelo (2022) examined the relationship between the retail pump prices of petroleum products and inflation in Nigeria. Specifically, the study examines the impact of the pump prices of dual purpose kerosene (Kerosene), premium motor spirit (Petrol) and automotive gas oil (diesel) on inflation in Nigeria. Annual time – series data covering the period 1981 to 2020 were used for the study. The analytical techniques applied include the Phillips – Perron unit toot test, Johansen cointegration test, error correction mechanism (ECM), and Granger causality test. The findings indicated that the prices of Kerosene and petrol strongly aggravate inflationary pressure while the price of diesel has weak positive impact on inflation in Nigeria. The Granger causality test indicated a bidirectional causality between pump price of premium motor spirit and inflation while unidirectional causality from pump price of automotive gas oil to inflation was found.

Kabiru and Rabiu (2021) examined the causal correlation between the prices of Nigerian petroleum products, currency rates, and inflation from 1985 to 2019. The Johansen co-integration test, Vector Error Correction, and Granger Causality test were utilised. The research discovered a substantial co-integration between the prices of petroleum goods in Nigeria and the macroeconomic variables of exchange rate and inflation rate. A unidirectional causal nexus was discovered between the exchange rate, inflation rate, and the cost of petroleum items. There was no long-term connection seen between the inflation rate and the cost of petroleum products in Nigeria.

Ologbenla (2021) investigated the factors influencing energy costs in Nigeria by analysing data from 1980 to 2020. The ARDL model was utilised. A substantial correlation was discovered between the price of petroleum products and the inflation rate. Energy prices are influenced by factors such as oil prices, input costs, and production levels.

Raymond (2020) examined the stimuli of fluctuations in oil prices on the overall economic performance of Nigeria from 1980 to 2018. This study examines the stimuli of changes in oil prices on key macroeconomic indicators such as economic growth, inflation, interest rates, currency rates, and industrial production index. The analysis is conducted applying the structural vector autoregression (SVAR) method. The inquiry upshots indicate that oil price shocks have had a substantial and adverse upshot on both economic growth and industrial production. Moreover, the result indicate that oil price shocks have a noteworthy impact on inflation, likewise a favourable impact on interest rates and exchange rates. However, the result on interest rates and exchange rates is not statistically substantial.

Otoakia (2020) examined the reaction of the consumer price index to the price shock that occurred during the worldwide financial crisis of 2008. This research includes the period before and after the financial crisis. The dataset utilised spans from January 2000 (2000M01) until December 2019 (2019M12). The data was analysed applying a structural vector autoregressive model. Prior to the financial crisis, studies showed that the spike in crude oil prices boosted the CPI. But after the

crisis, the impact was constant and lasted for a long time. However, there had little effect on price stability in the long run.

In their study, Manasseh (2018) examined the influence of oil prices and oil income on the well-being of Nigerians. They analysed data from the years 1981 to 2014. The data was analysed applying multi-variable regression, descriptive statistics, and co-integration. The research concluded that oil price variations did not have a substantial effect on the wellbeing of Nigerians. However, it found that money from oil had a large and beneficial influence on the welfare of Nigerians.

3.0 METHODOLOGY

The research design that was adopted for this study is ex-post facto research design. Also, annual time series data which ranged from 1990 to 2023 were used. These data were obtained from Central Bank of Nigeria (CBN) statistical bulletin, World Bank Commodity Price Data and National Bureau of Statistics (NBS) reports.

Model Specification

Theoretically, the analytical framework of this study was built on the Asymmetric Price Transmission (APT) theory because of its relevance to this study. Empirically, the model of this study was built on the model of Ibrahim, Nteegah and Kalu (2024) with slight modification. Based on the above, the study specifies a functional relationship between petroleum product pricing on the inflation in Nigeria in Nigeria thus:

The functional model is specified as follows:

$$IFR = f(PMS, HHK, AGO) \quad (3.1)$$

The functional relationship in equation 3.1 is stated in explicit form to enhance its estimation thus:

$$IFR = \delta_0 + \delta_1 PMS + \delta_2 HHK + \delta_3 AGO + U_i \quad (3.2)$$

The log linear form of the above estimation is stated thus:

$$IFR = \delta_0 + \delta_1 \ln PMS + \delta_2 \ln HHK + \delta_3 \ln AGO + U_i \quad (3.3)$$

The long-run Autoregressive Distributed Lag (ARDL) model is stated thus:

Expressing the model in its ARDL form, we have:

$$\Delta \ln(IFR_t) = \delta_0 + \delta_{1i}\Delta(IFR_{t-1}) + \delta_{2i}\Delta(PMS_{t-1}) + \delta_{3i}\Delta(HHK_{t-1}) + \delta_{4i}\Delta(ADO_{t-1}) + \sum_{t=1}^{p} \alpha_{1i}\Delta(IFR_{t-1}) + \sum_{t=1}^{q} \alpha_{2i}\Delta(PMS_{t-1}) + \sum_{t=1}^{q} \alpha_{3i}\Delta(HHK_{t-1}) + \sum_{t=1}^{P} \alpha_{4i}\Delta(ADO_{t-1}) + \varepsilon_{1i} \quad (3.4)$$

The short-run Autoregressive Distributed Lag (ARDL) model is stated thus:

$$\Delta \ln(IFR_t) = \alpha_0 + \sum_{t=1}^{p} \alpha_{1i}\Delta(IFR_{t-1}) + \sum_{t=1}^{q} \alpha_{2i}\Delta(PMS_{t-1}) + \sum_{t=1}^{q} \alpha_{3i}\Delta(HHK_{t-1}) + \sum_{t=1}^{P} \alpha_{4i}\Delta In(ADO_{t-1}) + \delta ECM_{t-1} + U\varepsilon_i \quad (3.5)$$

A Priori Expectation: $\delta_1 > 0$; $\delta_2 < 0$; $\delta_3 > 0$; $\delta_4 < 0$

Where: IFR = Inflation rate, PMS = Premium motor spirit price, HHK = Household kerosene price, AGO = Automotive gas oil price, δ_0 = Constant variable, δ_1 - δ_4 = Long-run

Coefficients/Parameters, α_1 - α_4 = Coefficients/parameters, In = Natural log, Δ = Difference operator and indicates the optimum, *et* = Error term

Data Analysis Technique

In this study, Autoregressive Distributive Lag (ARDL) approach was adopted to estimate the dynamic effect of petroleum product pricing of inflation in Nigeria. The estimation was done using E-Views 12 statistical package.

4.0 DATA ANALYSIS AND DISCUSSION OF FINDINGS

Descriptive Statistical Analysis

Table 1 presents the descriptive statistics of the data for this study as follows:

Table 1: Descriptive Statistics

	IFR	PMS	HHK	AGO
Mean	18.56618	77.10441	131.6147	161.1618
Median	12.10000	65.00000	50.00000	75.00000
Maximum	76.80000	285.0000	855.0000	905.0000
Minimum	0.200000	0.600000	0.400000	0.500000
Std. Dev.	16.64510	69.59043	215.7593	238.5116
Skewness	2.139151	0.933922	2.258597	2.036242
Kurtosis	6.968213	3.406796	7.373043	6.122320
Jarque-Bera	48.23832	5.176958	55.99878	37.30650
Probability	0.000000	0.075134	0.000000	0.000000
Sum	631.2500	2621.550	4474.900	5479.500
Sum Sq. Dev.	9142.964	159813.3	1536219.	1877297.
Observations	34	34	34	34

Source: ***Authors' Computation, 2024.***

Table 1 shows that the average inflation rate from 1990 to 2023 is 18.56. The maximum value for inflation rate is 76.80 while the minimum value of inflation rate is 0.2. In furtherance, the average premium motor spirit price is 77.10. The maximum value for premium motor spirit price is 285.0 while the minimum value of premium motor spirit price is 0.6. Moreover, the average household kerosene price is 131.61. The maximum value for household kerosene price is 855.0 while the minimum value of household kerosene price is 0.4. Lastly, the average automotive gas oil price is 161.16. The maximum value for automotive gas oil price is 905.0 while the minimum value of automotive gas oil price is 0.5.

Unit Root Test

Table 2: Unit Root Test Results

Augmented Dickey-Fuller (ADF)						
Variables	**Levels**	**5% Critical Value**	**1st Difference**	**5% Critical Value**	**I(d)**	**Decision**
IFR	-2.161448	-2.954021	-6.483164	-2.967767	I(1)	Stationary @ 1st Difference
PMS	2.309319	-2.954021	-4.509060	-2.957110	I(0)	Stationary @ 1st Difference
HHK	4.607035	-2.957110	-	-	I(0)	Stationary @ Level
AGO	4.956853	-2.954021	-	-	I(0)	Stationary @ Level

Source: ***Authors' Computation, 2024.***

Table 2 presents the summary results of the ADF unit root test carried out on all the variables in our model. The unit root test results showed that household kerosene price (HHK) and automotive gas oil price (AGO) are stationary at levels [i.e., I(0)]. On the other hand, inflation rate (IFR) and premium motor spirit price (PMS) are stationary at first difference [i.e., I(1)]. The attainment of mixed stationarity is a precondition for the use of ARDL in the estimation of the long run relationship among the variables and the error correction model.

Bounds Cointegration Test

The result of ARDL bounds cointegration test is presented in Table 3:

Table 3: Bounds Cointegration Test Results

Significant Level	**Critical Value Bound**		**F-Statistics**	K
	I(0) Bound	**I(1) Bound**		
10 Percent	2.37	3.2	6.442107	3
5 Percent	2.79	3.67		
2.5 Percent	3.15	4.08		
1 Percent	3.65	4.66		

Source: ***Authors' Computation, 2024.***

The result of bounds cointegration test in Table 3 shows that there is cointegration or long run relationship between petroleum product pricing indicators (premium motor spirit price, household kerosene price, automotive gas oil price and exchange rate) and inflation indicator (inflation rate) in Nigeria.

Estimation of Autoregressive Distributive Lag (ARDL) Model

The results of long run and short run Autoregressive Distributive Lag (ARDL) Model estimation are presented in Table 4 below:

Table 4: ARDL Long-Run and Short-Run Estimation Results

Dependent Variable = IFR

ARDL Long-Run Results				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
PMS	0.380806	0.159458	2.388134	0.0288
HHK	1.847810	0.839927	2.199966	0.0419
AGO	0.001345	0.050895	0.026427	0.9792
C	20.23857	5.428351	3.728310	0.0012
ARDL Short-Run Results				
D(IFR(-1))	-0.003967	0.197224	-0.020116	0.9842
D(PMS)	0.321173	0.154642	2.076885	0.0497
D(PMS(-1))	0.517265	0.484401	1.067845	0.3005
D(HHK)	0.348355	0.151201	2.303918	0.0311
D(AGO)	0.136014	0.168115	0.809054	0.4297
CointEq(-1)*	-0.610913	0.135459	-4.509958	0.0002
Adjusted R^2	0.593980			
Durbin-Watson stat	1.940702			

Source: ***Authors' Computation, 2024.***

Interpretation of Long-Run and Long-Run ARDL Parameters

The results of the long-run estimates of the ARDL model as shown in Table 4 shows that premium motor spirit price has a positive (0.380806) and significant (0.0288 < 0.05) effect on inflation rate in Nigeria in the long-run while the results of the short-run estimates of the ARDL model as shown in Table 4 equally shows that premium motor spirit price has a positive (0.321173) and significant (0.0497 < 0.05) effect on inflation rate in Nigeria in the short-run. The implication of this is that inflation rate will increase given a unit increase in premium motor spirit price both long-run and short run and vice versa.

Also, the results of the long-run estimates of the ARDL model as shown in Table 4 shows that household kerosene price has a positive (1.847810) and significant (0.0419 < 0.05) effect on inflation rate in Nigeria in the long-run while the results of the short-run estimates of the ARDL model as shown in Table 4 also shows that household kerosene price has a positive (0.348355) and significant (0.0311 < 0.05) effect on inflation rate in Nigeria in the short-run. The implication of this is that inflation rate will increase given a unit increase in household kerosene price both long-run and short run and vice versa.

Additionally, the results of the long-run estimates of the ARDL model as shown in Table 4 shows that automotive gas oil price has a positive (0.001345) and non-significant (0.9792 > 0.05) effect on inflation rate in Nigeria in the long-run while the results of the short-run estimates of the ARDL

model as shown in Table 4 equally shows that automotive gas oil price has a positive (0.136014) and non-significant (0.4297 > 0.05) effect on inflation rate in Nigeria in the short-run. The implication of this is that inflation rate will increase given a unit increase in automotive gas oil price both long-run and short run and vice versa.

Interpretation of CointEq(-1) Result

The results of the error correction model presented in Table 4 show that the error term is negative (-0.610913) and significant (0.0002 < 0.05). Specifically, the error term coefficient of -0.610913 shows an evidence of speedy adjustment towards long run equilibrium (i.e about 61 percent disequilibrium is corrected on yearly basis by changes in inflation rate). This implies that if there is a shock, the long-run equilibrium will return to its steady state easily. The low coefficient value of the error term also indicates that it will take very long time to restore the steady-state relation if the system is distorted.

Interpretation of Adjusted R-Squared (Adj. R^2) Value

The Adjusted R-squared value of 0.593980 from the results of the short-run estimates of the ARDL model in Table 4 indicated that the estimated model is well fitted as the systematic changes in explanatory variables (premium motor spirit price, household kerosene price and automotive gas oil price) explained approximately fifty-nine (59) percent of variations in inflation rate while the remaining forty-one (41) is explained by other variables of variables not included in the model.

Post-Estimation Tests

The results of the post-estimation tests are presented in Table 5:

Table 5: Post-Estimation Test Results

Test	Test Type	X^2 Value	X^2 Prob	Decision
Normality Test	Jarque-Bera Test	0.928138	0.73154	Do not Reject H_0
Serial Correlation Test	Breusch-Godfrey LM Test	1.787901	0.1403	Do not Reject H_0
Heteroscedasticity Test	Breusch-Pagan-Godfrey	1.982900	0.1040	Do not Reject H_0
Functional Form Test	Ramsey RESET	0.049445	0.4822	Do not Reject H_0

Source: ***Authors' Computation, 2024.***

The Jarque Bera (Normality) test result in Table 5 shows that model is normally distributed. The Breusch-Godfrey Serial Correlation LM test result shows that the model has no serial correlation problem. Also, the Breusch-Pagan-Godfrey heteroskedasticity test result implies that relevant variables were not omitted. Lastly, the Ramsey RESET test result indicates that the model is correctly specified. This implies that the functional form of the model is correct.

Discussion of Findings

This study has empirically analyzed the annual time series data sourced in determining the effect of petroleum product pricing on inflation in Nigeria from 1990 to 2023 using Autoregressive Distributive Lag (ARDL) estimation technique. With respect to the effect of premium motor spirit price on inflation rate in Nigeria, the findings obtained in the study showed that premium motor spirit price has positive and significant effect on inflation rate in Nigeria in both short run and long run. This finding is related to the finding of Kyarem and Felix (2023) who found that premium motor spirit has a positive and significant impact on prices of food items during the short run but in the long run, the prices of premium motor spirits have a positive and insignificant impact on the prices of food items in Nigeria. Furthermore, with respect to the effect of household kerosene price on inflation rate in Nigeria, the findings obtained in the study showed that household kerosene price has positive and significant effect on inflation rate in Nigeria in both short run and long run. This finding is related to the finding of Ibrahim, Nteegah and Kalu (2024) who established prices of dual purpose kerosene and crude oil spurred general price level marginally. Also, with respect to the effect of automotive gas oil price on inflation rate in Nigeria, the findings obtained in the study showed that automotive gas oil price has positive and significant effect on inflation rate in Nigeria in both short run and long run. The result showed consistency with the earlier findings of Korgbeelo (2022) who found prices of Kerosene and petrol strongly aggravate inflationary pressure.

5.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined the effect of petroleum product pricing on inflation in Nigeria. Having found that premium motor spirit price, household kerosene price and automotive gas oil price have positive effect on inflation rate in Nigeria, the study therefore concluded that petroleum product pricing contributes positively to inflation in Nigeria.

Recommendations

Based on the findings and conclusion of the study, the following recommendations are hereby presented:

1. Nigerian government should continue restructuring fuel subsidies to reduce the fiscal burden while implementing targeted assistance programs to shield the most vulnerable households from sudden price hikes in premium motor spirit price, household kerosene price and automotive gas oil price. Through direct cash transfers, fuel vouchers, or subsidized transportation services for low-income families, the government can mitigate the impact of fuel price changes on household expenses and inflationary pressures.
2. Government should increase domestic refining capacity in order to reduce dependency on imports, stabilizing domestic fuel prices and minimizing inflation linked to global oil price fluctuations. Policy support to incentivize investments in refining infrastructure, particularly with public-private partnerships, would create local refining efficiencies, thus reducing fuel prices over the long term. Enhanced infrastructure would lead to greater price stability, reducing the frequency and intensity of price-push inflation due to fuel price volatility.

3. Government should intensify efforts to improve price regulation and monitoring frameworks that can help manage short-term fuel price volatility and its inflationary effects, particularly in the case of kerosene, which directly impacts household energy costs. Strategic fuel reserves would allow the government to temporarily mitigate supply shocks and stabilize prices during periods of increased global oil price volatility. This can help control inflation by reducing the frequency and magnitude of domestic fuel price adjustments.

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