

Fuel Subsidy Removal, Inflation and Fiscal Financing in Nigeria

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Abstract

One of the most controversial economic policy debates in Nigeria has been the phasing out of fuel subsidies because of their impact on inflation, household welfare, and government fiscal sustainability. The subsidy policy was conceived to keep petroleum product prices lower and reduce the cost of living, but it ended up costing governments a lot of money, leading to recurring fiscal deficits and borrowing. The study analysed the long and short-run consequences of fuel subsidy removal on the sustainability of Nigeria's fiscal policies in relation to inflation rates and fiscal financing. The Autoregressive Distributed Lag (ARDL) modelling approach was used to analyse the annual time-series data from 1990-2023. The empirical results showed that fuel subsidy removal can affect fuel prices in the short run by inducing inflationary pressures, but in the long run, it can lower the fiscal financing needs of the government by decreasing subsidy payments. The findings also indicated that fiscal financing requirements were significantly higher in response to exchange rate depreciation, while the inflationary impact on fiscal financing was relatively low. The study thus suggested that any fiscal savings obtained from subsidy removal should be clearly allocated to productive sectors like infrastructure, energy, health, education, and social protection programmes to ensure inclusive economic growth, enhance household welfare and ensure long-term fiscal stability.

Keywords: Fuel subsidy, inflation, fiscal sustainability, household welfare, public debt.

Introduction

Fuel subsidy has been a major concern in Nigeria owing to its impact on monetary stability and fiscal policy. Fuel subsidies have been designed as a social protection tool to buffer households and businesses against the fluctuations of the price of oil in the international market, to make domestic energy available at affordable prices. The practice was captured as Price Control Act in 1977, under the military rule of General Olusegun Obasanjo which introduced the Act that regulated the price of petroleum products in the internal markets and prohibited the sale of petroleum products at the market price higher than the market price set by the government (Okwa et al., 2024; Uchenna et al., 2013). This legal system made subsidies the centre of Nigeria's economic management over the years. This has an impact on the welfare of the household and the government's fiscal policy.

The fuel subsidy regime, essentially, involves a portion of the price paid by consumers and businesses being subsidised by the government to reduce the final price to the consumers and businesses (Kerim et al., 2025), but in the long run, the expense of such a policy rose enormously. The estimates of the Nigeria Extractive Industries Transparency Initiative (NEITI, 2022) indicate that the government subsidy expenditure over the last 17 years (2005-2021) amounted to about US\$74.39 billion or equivalent to ₦13.697 trillion. The policy was intended to lower transportation and production expenses, shield low/middle income groups from the negative effects of fluctuations in global oil prices and avoid revenue leakages; however, corruption, inefficiency and revenue leakages have rendered it ineffective in achieving its objectives.

This has led to the use of fuel subsidies by the political and business elites at the expense of the masses they are supposed to serve (Adeyeye 2023; Anyanruoh 2023). Nigeria is not the only country having such problems with its fuel subsidy policy. Such problems have also been witnessed in other countries that are likewise dependent on oil. In Indonesia, Beaton & Lontoh (2010) noted that subsidies over the years had placed a heavy burden on government finances and required the purchase of more fuel, and were mainly being enjoyed by the wealthier households. Likewise, the World Bank (2014) pointed out that in Egypt, energy subsidies were causing a fiscal imbalance and having a negative impact on market incentives, and that a gradual regime of energy subsidy reforms is now in place to increase investment in energy infrastructure and the social protection budget. Gamette & Oteng (2024) found that prices of food and transportation rose in response to subsidy reductions in Ghana, while the subsidy has contributed to fiscal sustainability and resource allocation.

Drawing from the lessons of these international experiences, it is easy to conclude that normally, the introduction of subsidies into a society is a measure to enhance the welfare of society, but in the end, they become financially unsustainable and a means of rent seeking. At this stage, inflation is an extremely significant macroeconomic problem. The general price level weakness negatively affects the welfare of households and the operation of businesses and poses problems for fiscal sustainability. A rise in prices decreases purchasing power, particularly for low- and middle-income earners whose income is usually fixed and not adequate to cater for the continuous increase in prices (Ikenga & Oluka 2023). The high rate of inflation raises the cost of inputs, reduces profit margins and discourages long-term investment on the part of companies, which affects their productivity and economic growth (Nwachukwu & Ibrahim 2023). Moreover, inflation reduces the real value of government revenues, thereby reducing the ability of both national and subnational governments to make effective the planned expenditures (Akpan & Uford 2024).

In this context, the elimination of fuel subsidy in 2023 was presented as a key fiscal reform to enhance resource allocation and diminish fiscal pressures (Ejime, 2024). The policy was expected to bring about huge savings to the government, which can be directed into other critical infrastructures, particularly roads, healthcare, education, and electricity supply, among others (Adeniyi & Obiora, 2024). The reform was to increase the potential of the environment for private investment, improve productivity, and boost citizens' quality of life by increasing infrastructure and service delivery.

Although there have been some studies that have explored the fiscal financing implications, especially the impact of inflationary pressures and subsidy reforms on overall fiscal financing needs, most studies on fuel subsidy reform in Nigeria have primarily concentrated on macroeconomic issues such as the inflationary effects and the welfare impacts on households (Efobi et al., 2013; Aruofor & Ogbeide, 2023). This study therefore investigates the relationship between fuel subsidy removal, inflation, and fiscal financing in Nigeria.

Literature Review

Fuel Subsidy Removal

The fuel subsidy policy was practised in Nigeria in the past to reduce the cost of fuel, to lower the cost of living of the household and to ease the financial burden of the household. It is a financial instrument that shields citizens against the volatility of global prices of crude oil and provides economic stability and control over inflation (Uchenna et al., 2013; Efobi et al., 2013). Likewise, Olayemi (2012) considers subsidy to be a mechanism of compensation for price changes of petroleum products to consumers' costs. Adeyeye (2023) has recently proposed that the low price of fuel is not only for the sake of cutting down the rates of inflation, but also for the economies that are oil-dependent. Gordon & Suzanne (2023) highlight both the positive and negative effects of subsidy systems. They noted that the targets have not been met and that fuel subsidies have been a huge burden on Nigeria's public finances. When substantial amounts of money are diverted to subsidy payments, they are not available for infrastructure, healthcare, education, among other critical areas, and might also drive inefficiencies, rent-seeking and corruption in the petroleum sector (International Monetary Fund (IMF) 2022, Adeyeye 2023).

Thus, the elimination of fuel subsidy has been defined in terms of petroleum prices being able to adjust to market rates. The rationale for removal is financial and developmental: the governments want to save money, unburden their resources to invest in productive industries and build resilience for the future. The removal of subsidy is usually part of broader economic reform packages, typically aimed at achieving efficiency and reducing fiscal imbalances and often supported by international institutions such as the World Bank, the International Monetary Fund (IMF), etc. (Omotosho, 2019).

Inflation

Inflation is the continual increase in the general price level of goods and services over a period of time and a corresponding decrease in the power of money. Samuelson & Nordhaus (2010) point out that inflation is an important macroeconomic problem that can impact the cost of living, consumption patterns and economic security. They explain that inflation may be due to demand-pull or cost-push and that it depends on whether the increase in prices has been due to excess aggregate demand or increased production costs. Hence, inflation is a complex phenomenon of the economy which has several factors to it as a result of both demand and supply and structural factors.

Mishkin (2015) says that demand-pull inflation is inflation that results from the expansion of aggregate demand faster than aggregate supply, resulting in excess demand causing upward pressure on prices. This type of inflation occurs when the economy is growing, and all users such as households, businesses, investors, and governments willingly expend more than the economy is generating. Blanchard (2017) believes cost-push inflation happens due to a rise in the cost of the factors of production, including wages, energy costs, raw materials and so on, which makes it necessary for producers to raise prices to cover the higher costs. Todaro & Smith (2015) also argue that structural inflation is a result of structural inefficiency in the operation of the economy, including poorly developed markets, production bottlenecks, lack of infrastructure, and less developed supply chains, which restrict productive capacity and prevent inflation from dropping.

In Nigeria, inflation has gradually become a cost-push inflation with structural inflation following the removal of the fuel subsidy. According to Akpan & Uford (2024), petroleum products are crucial inputs for the manufacture of goods and services, their transportation and distribution to almost every sector of the economy, so any rise in the price is transmitted to all sectors. The proposition is supported by Nigeria's experience of the post-subsidy era, where headline inflation went up from 22.41% to 34.19% after the removal of the subsidy (National Bureau of Statistics [NBS] 2023, 2024). The impact of these inflationary factors is not just on prices. Households in the lower income brackets are more sensitive to the impact of inflation due to a higher proportion of their income being spent on these sectors. This is because an ongoing rise in inflation devalues the purchasing power of money, causes income disparities and increases poverty rates of vulnerable groups (Stiglitz, 2012; Egbo et al., 2025).

In addition to macroeconomic stabilisation measures, governments can implement certain social policy measures to mitigate the effects of inflation, taking account of such welfare considerations. Some of these measures implemented in Nigeria have involved temporary wage increases for public sector workers, cash transfer programmes for vulnerable households, compressed natural gas (CNG) conversion of vehicles to reduce reliance on petrol, subsidised public transport schemes, support schemes for students and extension of access to agricultural inputs, etc., to help control food inflation. These policy responses indicate that the government has acknowledged that in addition to the need to achieve economic sustainability through macroeconomic reforms, complementary social protection policies are also needed to address the immediate welfare impacts.

Fiscal Financing

When public revenue is insufficient to meet fiscal needs, the process that governments use for financing is called fiscal financing. In macroeconomic analysis, fiscal financing is typically represented by changes in the level of the fiscal deficit, which is government expenditure minus government revenue over a particular fiscal period. The government has more to spend compared to what it receives; thus, it can sell external bonds, domestic bonds or, in some cases, monetise the shortfall to sustain public sector activities (Ekpo & Ndebbio, 1996; Nnadozie, 2007). The decision on the fiscal financing mechanism conveys important information regarding long-term economic growth and macroeconomic stability. Domestic borrowing is the process by which governments can borrow money from the domestic money market, but it may result in higher interest rates for the private sector. External borrowing brings in more funds but increases the risk of exchange rates and increases in debt servicing. If used judiciously, monetary financing, in which the government finances its deficit by creating money, can be a short-term solution for fiscal problems, but can also be a source of inflationary pressures.

Public spending on fuel subsidies has always played a key role in Nigeria's fiscal financing. The Federal Government budgeted approximately ₦3.36 trillion for fuel subsidy for half the year of 2023 only before the complete withdrawal of fuel subsidy, showing how massive the financial burden was created by the fuel subsidy policy (Anyanruoh, 2023; Akaegbobi & Duezeh, 2026). This led to substantial fiscal space being squeezed and deficit financing making up for part of the government's budgetary obligations (IMF, 2022; Adeyeye, 2023).

Theoretical Framework

The study is based on the theories of Cost-Push Inflation and Fiscal Policy. The theory of Cost-Push Inflation was developed by economists such as Paul Samuelson and others, and is caused by an increase in the prices of the main factors of production that increase the cost of the economy. The higher the production and transportation costs, the higher the cost to customers, which is seen in the increase in prices for goods and services. The core elements of the theory are that (i) production costs are important drivers of the overall price level; (ii) price increases for some key inputs, like petroleum products, have economy-wide repercussions because they influence an economy's production and supply processes in many ways; (iii) cost increases tend to be passed on to consumers and not to cost, leaving the overall price level unchanged; and (iv) persistent cost shocks can cause sustained inflation even if there is no excess aggregate demand present, for example in economies with high levels of structural inefficiency and reliance on imported goods (Samuelson & Nordhaus, 2010; Blanchard, 2017).

Fuel is an essential input in the Nigerian economy in the manufacturing of products, generation of electricity and transportation. Therefore, the impact of a change in fuel prices can have far-reaching impacts on the economy in terms of production costs and consumer prices. The removal of fuel subsidy has been associated with inflation, and the Cost-Push Inflation Theory has been established by empirical evidence such as the study by Olomola & Adejumo (2006) and Oladipo & Akinbobola (2018), who explained the cost-push transmission mechanism of the removal of fuel subsidies in Nigeria.

The theory of fiscal policy is based on the Keynesian ideas of John Maynard Keynes, which emphasised the role of government spending, taxes and debt in stabilising economic activity and correcting macroeconomic imbalances (Keynes, 1936; Musgrave, 1959). The theory states that if government spending increases beyond its income, the result is a fiscal deficit, which is financed by either domestic borrowing or borrowing from abroad or by other fiscal measures to maintain the level of public spending (Musgrave & Musgrave, 1989). A key aspect of this study was that the removal of fuel subsidy removed one of the government's key recurrent expenditure commitments, impacting the fiscal financing framework and providing fiscal space for the reallocation of public resources to other priority sectors.

Theoretically, removing subsidies could help to lower the government funding needs and thus fiscal deficits, thereby enhancing fiscal sustainability. Fiscal space for governments to spend on productive sectors, such as infrastructure, health and education, can be created through subsidy reform (Ray 2023). Similarly, Adenikinju (2009) recommends that a reduction of expenditure on subsidies will help to improve public finances and bring predictability to public finances. The combination of the Cost-Push Inflation Theory and Fiscal Policy theory offers a coherent analytical framework to analyse the relationship between the removal of fuel subsidies and inflation and fiscal financing. The cost-push approach provides insight into how subsidy removal can lead to rising prices for fuel and to inflationary pressures in the economy; the fiscal policy approach provides insight into how subsidy reduction will impact the government's fiscal balance and financing requirements.

Empirical Review

Empirical evidence on the effects of the removal of fuel subsidy shows the different macroeconomic consequences of the fuel subsidy removal, especially in petroleum-intensive economies like Nigeria. One recurring theme in the literature is that the removal of subsidies created a substantial impact on the inflation rate, household welfare, and the fiscal results of governments. Domestic fuel prices have also been rising since the subsidy reform, and production and transportation costs are rising, which in turn pushes up inflation in other sectors of the economy. The other developing countries have some useful lessons to offer on the economic impact of subsidy reform.

Beaton & Lontoh (2010) analysed the phased implementation of the fuel subsidy reform in Indonesia and concluded that the first phase of the fuel subsidy elimination process led to high public opposition as a result of the high price of fuel and the inflationary effects. The Indonesian government introduced several compensatory programs as direct cash transfers for vulnerable households to reduce these impacts. Similarly, Arze del et al. (2012) reviewed subsidy reform in India and found that while removing subsidies led to short-term inflationary pressures, reallocating subsidy savings to the health and education sectors led to positive long-term welfare gains.

In their study on China, Jiang & Tan (2013) found that the elimination of fuel subsidies can raise the overall price level, but the overall inflationary impact is kept moderate by good policy coordination, particularly within energy-intensive sectors. World Bank (2014) also noted that in Egypt, the general rise in consumer prices, particularly in food and transportation, was attributable to subsidy reform, but was mitigated by investments in public transport and energy-efficient infrastructure.

Some empirical studies have also been documented in the Nigerian context on the inflationary effects of subsidy reforms. Ikenga & Oluka (2023) noted that the previous efforts made by the Nigerian governments to cut or abolish fuel subsidies resulted in sharp increases in the prices of petroleum products, transportation and food prices. Likewise, Nwachukwu & Ibrahim (2023) carried out a time-series analysis of the inflation trends between 2019 and 2022, and observed that the subsidy adjustment periods experienced significant inflation rise, mainly due to rising transportation costs, which were passed on to the prices of other goods. Aruofofor & Ogbeide (2023) also suggest that while the subsidy scheme can produce short-term economic gains, it relies on proper administrative reforms to remain sustainable; otherwise, the resulting fiscal savings may be inefficiently used to worsen economic disparities.

Raifu & Afolabi (2023) applied the dynamic simulation technique in the Auto-regressive Distributed Lag (ARDL) model in studying the inflationary effect of the scrapping of fuel subsidy. The authors used time-series data to determine that higher fuel prices lead to higher inflation via fuel-related transportation and energy costs, and that this effect lasts over multiple time periods. In addition, removal of subsidy's general impact on the economy was explored by Akinboyo (2024), which revealed that the removal of subsidy's impact on fuel prices also worked through its impact on exchange rates and production costs.

Abdullahi & Abubakar (2025), using an ARDL model, studied the relationship between the removal of fuel subsidy and inflation in Nigeria. Their results revealed that in the short run and long run, a positive and statistically significant relationship exists between fuel subsidy removal and inflation. Similarly, Akinola et al. (2024) reported that even though the elimination of subsidy causes inflationary pressure and exchange rate volatility in the short-run, it eventually leads to the stabilisation of the economy over the long run. However, Gamette & Oteng (2024) noted that the effects of the subsidy rollback on food and transportation prices were significant in Ghana, indicating that the price system is responsive to energy price shocks in developing economies.

In addition, a series of analyses of fiscal effects of subsidy reform are available. Adeniyi & Obiora (2024) examined the scope for redirecting the savings generated by subsidy elimination towards investment in infrastructure and social services in Nigeria and found that though the removal of the subsidy opened up opportunities for reallocation of fiscal resources, these opportunities were constrained by inefficiencies in public fund management. Similarly, Ayanlowo et al. (2025) inaugurated a debate on the macroeconomic consequences of fuel subsidy removal, which concluded that removal of the subsidy could lead to some inflationary pressures in the short term but, in the long term, the government's cash flows could be enhanced as there would be less expenditure pressure with the removal of subsidy, resulting in more fiscal space for productive investments.

There have been several studies that provide empirical evidence for the impact of fuel subsidy removal on inflation. Nevertheless, there is little research available on the impact on government fiscal financing in Nigeria. This study, therefore, helps to fill the gap in the literature.

Methodology

The study used the explanatory research design as a tool to investigate the relationship between fuel subsidy removal, inflation and fiscal financing in Nigeria. A quantitative method was used, and the dynamic relationships between the variables were analysed by time-series econometric techniques. Secondary data obtained from reliable sources such as the Central Bank of Nigeria, National Bureau of Statistics, Revenue Mobilisation Allocation and Fiscal Commission and the World Bank Development Indicators were used for the period 1990-2023. The dependent variable, fiscal financing, was defined as the Federal Government fiscal deficit/nominal GDP. Fuel subsidy removal was represented by the annual change in the price of Premium Motor Spirit (PMS), while inflation was measured by the Consumer Price Index (CPI). The exchange rate was expressed as the naira-dollar exchange rate, public debt was expressed as changes in government debt and GDP growth was expressed as the annual growth rate of gross domestic product. The study used the Autoregressive Distributed Lag (ARDL) estimation technique.

The functional relationship among the variables is specified as:

$$FF = f(FSR, INF, EXR, PDEBT, GDP) \quad (1)$$

and the long-run econometric model is specified as:

$$FF_t = \beta_0 + \beta_1 FSR_t + \beta_2 INF_t + \beta_3 EXR_t + \beta_4 PDEBT_t + \beta_5 GDPG_t + \varepsilon_t \quad (2)$$

The ARDL specification is stated thus

$$FF_t = \alpha_0 + \sum_{i=1}^q \alpha_{1i} FF_{t-i} + \sum_{i=0}^q \alpha_{2i} FSR_{t-i} + \sum_{i=0}^q \alpha_{3i} INF_{t-i} + \sum_{i=0}^q \alpha_{4i} EXR_{t-i} + \sum_{i=0}^q \alpha_{5i} PDEBT_{t-i} + \sum_{i=0}^q \alpha_{6i} GDPG_{t-i} + \varepsilon_t \quad (3)$$

Where:

FF	=	<i>Fiscal financing</i>
FSR	=	<i>Fuel subsidy removal</i>
INF	=	<i>Inflation</i>
EXR	=	<i>Exchange rate</i>
$PDEBT$	=	<i>Public debt</i>
$GDPG$	=	<i>GDP growth</i>
$\beta_0 - \beta_5$	=	Long-run Parameters
$\alpha_0 - \alpha_6$	=	ARDL parameters
ε	=	<i>Error term</i>
t	=	<i>Time period</i>

Results and Discussion of Findings**Table 1: Descriptive Statistics of Variables**

Variable	Obs.	Mean	Std. Dev.	Skewness	Kurtosis
FF	34	0.0254	0.0204	0.7636	3.534
FSR	34	0.4177	1.019	3.0041	12.5565
INF	34	0.1792	0.1878	1.9602	8.0469
EXR	34	0.2369	0.5972	4.0971	20.2964
GDPG	34	0.0425	0.0395	0.5323	3.431
PDEBT	34	0.2311	0.3862	2.414	11.0305

Source: Author's Computation (2026)

Table 1 provides evidence that Nigeria's fuel subsidy regime was highly volatile, with high positive skewness (FSR: mean = 0.418; skewness = 3.004) and extreme kurtosis (FSR: mean = 12.557), implying that fuel subsidy policies are implemented as fiscal shocks and not as gradual reforms. The inflation rate and the exchange rate show high values in the same direction; both have mean values less than one, skewness greater than one and kurtosis greater than three, which indicate that fuel subsidy removal and macroeconomic shocks are often associated with a surge in inflation and instability in the exchange rate. The characteristics of public debt are also highly variable and leptokurtotic (PDEBT: mean = 0.231; skewness = 2.414; kurtosis = 11.031), with the debt increasing in sudden spurts when the government resorts to fiscal financing to mitigate the adjustment cost of subsidy reform. The short-run growth impacts of fuel subsidy removal, by contrast, are relatively small and fairly consistent (GDPG: mean = 0.043; kurtosis = 3.431), which indicates that inflationary pressures and fiscal stress could limit the short-run growth benefits of fuel subsidy removal.

Table 2: Correlation Analysis

Variable	FF	FSR	INF	EXR	GDPG	PD
FF	1					
FSR	0.5498	1				
INF	0.1257	0.4077	1			
EXR	0.4195	-0.0516	-0.1718	1		
GDPG	-0.3804	-0.3724	-0.4643	-0.0796	1	
PD	0.5013	0.1407	-0.0081	0.8061	-0.1712	1

Source: Author's Computation (2026)

The findings of the correlation analysis reveal that there are some important interrelationships between fuel subsidy removal, macroeconomic stability and fiscal financing in Nigeria. A moderate and positive relationship exists between inflation and fuel subsidy removal ($FSR- INF = 0.4077$), suggesting that fuel subsidy reforms resulted in an increase in inflation. The results indicate that fuel subsidy removal is negatively correlated with economic growth ($FSR-GDPG = -0.3724$), indicating some output constraints in the short-run after fuel subsidy removal. Fiscal financing is positively related to public debt ($FF-PD = 0.5013$) and exchange rate ($FF-EXR = 0.4195$). There is a strong positive correlation between public debt and exchange rate movements ($PD-EXR = 0.8061$), indicating that the increase in public debt is tightly linked to the increase in exchange rate depreciation pressure.

Table 3: Augmented Dickey–Fuller (ADF) Unit Root Test

Variable	Level ADF	p-value	First Diff ADF	p-value	Order
FF	-2.609	0.2757	-4.545	0.0013**	I(1)
FSR	-3.945	0.0105**	-	—	I(0)
INF	-3.166	0.0915	-4.297	0.0032**	I(1)
EXR	-4.038	0.0078**	-	—	I(0)
GDPG	-1.978	0.6133	-4.153	0.0053**	I(1)
PD	-3.323	0.0625	-5.396	0.000**	I(1)

Note: ** = Significant at 1% ($p < 0.01$)

Source: Author's Computation (2026)

To check the stationarity properties of the variables, the Augmented Dickey–Fuller (ADF) unit root test has been applied. The results show that the fuel subsidy removal (FSR) and exchange rate (EXR) are both stationary at level or I(0). Fiscal financing (FF), inflation (INF), public debt (PD) and GDP growth (GDPG), however, remained stationary following the first difference, suggesting they are I(1). The fact that the mixture of I(0) and I(1) variables justifies the use of the Autoregressive Distributed Lag (ARDL) modelling technique, which can be used for models with mixed integration orders.

Table 4: Long-Run ARDL Estimates

Category	Variable	Coefficient	Std. Error	t-stat	p-value
Error Correction	ECT	-1.7194	0.2092	-8.22	0.000
Long Run	FSR	-0.0066	0.0017	-3.79	0.001**
	INF	-0.0019	0.0163	-0.12	0.906
	EXR	0.0048	0.0022	2.23	0.040**

	GDPG	-0.0563	0.0607	-0.93	0.367
	PD	0.0037	0.0030	1.26	0.226
Statistic	Value				
F-statistic	29.292				
t-statistic	-8.217				
Cointegration	Yes				
R ²	0.952				
Adjusted R ²	0.915				
Root MSE	0.0076				

Note: ** = Significant at 1% ($p < 0.01$)

Source: Author's Computation (2026)

An ARDL bounds test was used to examine the existence of a long-run relationship between economic growth, fiscal financing, exchange rate, public debt, inflation and fuel subsidy removal in Nigeria. The results show that the F-statistic value is 29.292, which is greater than the upper critical F-values at the commonly used significance levels. This validates the long-run cointegration relationship between the variables. The error correction term (ECT) is negative and statistically significant (-1.719, $p < 0.01$), which suggests that shocks to the long-term equilibrium are corrected in the long term. The high value of R² (0.952) and adjusted R² (0.915) in the model also demonstrates its explanatory power, which means that the explanatory variables in the model cover a large share of the variation in fiscal financing.

Similarly, the long-run ARDL results confirm that the removal of fuel subsidy is negatively and statistically significant on fiscal financing of the economy in Nigeria ($\beta = -0.0066$ at the 0.01 level of significance). The findings show a positive correlation between fuel subsidy removal and fiscal financing in the long term; it is likely that fuel subsidy removal can be used to relieve fiscal pressures that emerge in spending on fuel subsidy. Fiscal financing, having a positive sign and statistically significant ($\beta = 0.0048$; $p < 0.05$), has a positive relationship with the exchange rate, meaning that the depreciation of the exchange rate generally leads to an increase in the requirement for fiscal financing, which may be due to higher cost of servicing debt and macroeconomic instability. The model indicates that there is no statistically significant long-run effect of inflation, GDP growth, or public debt on long-run fiscal financing dynamics, indicating that their potential long-term impacts on fiscal financing dynamics may be relatively small compared to fuel subsidy policy and exchange-rate movements.

Table 5: Short-Run ARDL Estimates

Variable	Lag	Coefficient	t-stat	p-value
ΔFF	L1	-0.3964**	-3.47	0.003
ΔFF	L2	-0.3230**	-2.13	0.048
FSR2	0	0.0050**	3.00	0.008
FSR2	L1	-0.0061**	-3.33	0.004
FSR2	L2	-0.0102**	-5.26	0.000
EXR	0	0.0083**	1.98	0.064
GDPG	L2	-0.1330**	-2.87	0.011
Statistic	Value			
F-statistic	11.03			
R ²	0.894			
Adjusted R ²	0.813			
Root MSE	0.0076			
P-value	0.000			

Note: ** = Significant at 1% ($p < 0.01$)

Source: Author's Computation (2026)

The short-run ARDL results suggest large dynamic correction towards fiscal financing. The results indicate that the lagged dependent variable has strong adjustment effects, the reason being that the results of the estimation of beta for the variable $\Delta FF(L1)$ is negative and statistically significant with value of beta = -0.3964, $t = -3.47$, and $p = 0.003$, and the results of the estimation of beta for the variable $\Delta FF(L2)$ is also negative and statistically significant with a value of beta = -0.3230, $t = -2.13$, $p = 0.048$, which means that there is partial correction in the subsequent periods for deviations in fiscal financing. Removing fuel subsidy has immediate and delayed impacts on fiscal financing. The removal of subsidy is indeed associated with an increase in fiscal financing, which is found to be positive and significant ($\beta = 0.0050$, $t = 3.00$, $p = 0.008$). But its effects become negative and statistically significant at L1 ($\beta = -0.0061$, $t = -3.33$, $p = 0.004$) and L2 ($\beta = -0.0102$, $t = -5.26$, $p = 0.000$), implying that, in the medium to long run, subsidy reforms lead to a reduction in fiscal financing pressures. Inflation has a negative and significant impact in the second lag ($\beta = -0.0325$, $t = -2.96$, $p = 0.009$), but not at the same time, suggesting that fiscal adjustments come delayed in response to inflation shocks. The exchange rate has a positive influence in the short run, but the influence is not significant ($\beta = 0.0083$, $t = 1.98$ and $p = 0.064$). The economic growth is not significant in the present period ($\beta = 0.0170$, $p = 0.751$), but is negative and significant at the second lag ($\beta = -0.1330$, $t = -2.87$, $p = 0.011$), meaning that better growth conditions cause a

decrease in the fiscal financing requirements after one year. In the short run, public debt is positive but not statistically significant ($\beta = 0.0064$, $p = 0.184$). In summary, the short-run estimates point to the removal of fuel subsidy and delayed economic growth as the key factors affecting short-term changes in fiscal financing.

Table 6: Diagnostic Tests

Test	Statistic	Value	Probability / Threshold	Decision
Normality (Shapiro–Wilk)	W	0.9551	$p = 0.1746$	Residuals normally distributed
Serial Correlation (Breusch–Godfrey LM)	F-statistic	1.42	$p = 0.2578$	No serial correlation
Heteroskedasticity (Breusch–Pagan)	Chi-square	2.63	$p = 0.2684$	Homoskedastic residuals
Multicollinearity (VIF)	Mean VIF	2.09	$VIF < 10$	No multicollinearity
Model Stability (Wald Test)	F-statistic	4.04	$p = 0.0069$	Model jointly significant

Source: Author's Computation (2026)

The estimated ARDL model was tested in diagnostic tests to confirm the reliability of the model as presented in Table 6. The Shapiro–Wilk normality test suggests that the residuals are normally distributed ($W = 0.9551$, $p = 0.1746$). The Breusch–Godfrey LM test suggests that there is no evidence of serial correlation in the model residuals, with an F statistic of 1.42 and a p-value of 0.2578. In the same way, the Breusch–Pagan test for heteroskedasticity gives a Chi-square value of 2.63 ($p = 0.2684$), corresponding to constant variance of residuals. The Variance Inflation Factor (VIF) mean value is 2.09, which is far less than the critical value of 10, indicating that multicollinearity is not a concern in the model. Finally, the Wald test ($F = 4.04$, $p = 0.0069$) is used to test the joint significance of the explanatory variables. Overall, the results of the diagnostic tests indicate that the estimated ARDL model meets most of the econometric assumptions and can be used for statistical inference.

Discussion of Findings

The results of the empirical findings show that the effect of fuel subsidy reforms on the fiscal financing outcome in Nigeria's economy is significant. The positive relationship between fuel subsidy removal and inflation suggests that any increase in fuel subsidy after the fuel subsidy has been removed is associated with an increase in inflation. This discovery corroborates the Cost Push Inflation Theory that states that a rise in the prices of production factors like fuel would increase the cost of production and transportation, which would in turn lead to higher prices for consumers. This finding is also consonant with empirical studies by Raifu & Afolabi (2023), Abdullahi & Abubakar (2025) and Nwachukwu & Ibrahim (2023), which determined that subsidy reforms in

Nigeria have inflationary tendencies. Similarly, the negative interaction between economic growth and subsidy removal suggests that economic growth may be temporarily constrained due to increased production costs resulting from the subsidy removal, and lower purchasing power of households due to reduced purchasing power resulting from the subsidy reforms.

The important result of the long-run ARDL estimates is that subsidy removal in the long run negatively affects fiscal financing and is statistically significant. This would also result in a reduction in the amount of money the government has to fund itself in the long term if it eliminates fuel subsidies. The outcome backs Fiscal Policy Theory, which suggests that the fiscal balance can be enhanced and deficit financing can be minimised by lowering the level of government spending, including spending on subsidy payments. The finding also corroborates a recent study by Ayanlowo et al. (2025) and Adeniyi & Obiora (2024) that suggest fiscal space for governments may come from the savings experienced in their recurrent expenditure responsibilities due to subsidy reform. Subsidy removal means that the government will not be as burdened in the long term by the financial burden of keeping the domestic price of fuel artificially low, as would occur in Nigeria. A short-run ARDL analysis, however, raises other issues. The fiscal financing response to the policy is positive in the short run after the removal of the subsidy. This suggests that the fiscal adjustment cost is the first step in the reform of subsidies and the long-term fiscal benefit comes thereafter. These are short-term pressures which can be induced by the government's policy of managing the socio-economic effects of the removal of subsidies (e.g. through the use of compensatory programmes, stabilisation of fuel supply chains, dealing with inflationary shocks, etc.).

With the new policy environment, however, the adverse lagged impacts of subsidy elimination indicate that fiscal financing pressures start to decline over time as the economy reacts to the policy changes. Another key finding is the significance of changes in exchange rates in fiscal financing dynamics. The positive and strong correlation between depreciation of exchange rates and the financial needs of the government is an indication that exchange rate instabilities increase the financial needs of the government. This might be due to devaluation of the currency, which makes it more expensive to service external debt, as well as the cost of importing goods, further squeezing public finances. The result is in line with the empirical result of Akinola et al. (2024) that an interaction between the subsidy reform and exchange rate movement may often occur to impact macroeconomic stability. The model does not show an effect on fiscal financing in the long run, as is the case with inflation. This means that the current effect of inflation on costs of fiscal financing is likely to be smaller than the current effect from structural factors, such as exchange rate changes and subsidy spending.

Similarly, neither the short-run nor the long-run impact of public debt on fiscal financing is statistically significant in the estimated model, which suggests that public debt per se may not be as important as the fiscal financing stance taken by the fiscal authority or the macroeconomic conditions affecting fiscal financing in Nigeria. The overall findings of the study are largely consistent with the results of earlier empirical studies that highlight the fiscal merits of subsidy reform. For instance, Adeniyi & Obiora (2024) and Ayanlowo et al. (2025) suggested that the benefits of subsidy removal could include improving fiscal capacity through the reduction of the fiscal burden on the government and the availability of resources for other investment options.

The overall statistics illustrate the possible beneficial and harmful effects of subsidy reforms. Removal of subsidy can lead to some macroeconomic pressures in the short term, such as inflation and fiscal changes, but can help to improve fiscal sustainability in the long term by lowering government spending and decreasing the strain on fiscal financing.

Conclusion and Recommendations

This study concludes that the removal of fuel subsidy has played a role in increasing commodity prices and increasing inflationary pressures in the short-term, but it can also have a positive effect on fiscal sustainability over the long term by decreasing the fiscal deficit over time. The savings from the subsidy payment can help to decrease the government fiscal deficit and provide other resources for development spending. The government is encouraged to ensure that the fiscal benefits from subsidy removal are allocated effectively to productive parts of the economy such as investments in infrastructure, energy supply, health and education. These investments will strengthen economic productivity, benefit the welfare of the people and promote sustainable economic growth.

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