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Subsidy Removal, Inflation, and Performance of the Nigerian Economy

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Abstract

The removal of fuel subsidy was one of the highly debated economic policy reforms in Nigeria, due to its widespread implications for macroeconomic stability and citizen's welfare. This study would investigate the relationship between subsidy removal, inflation dynamics, and the overall performance of Nigerian economy. The study would examine how the removal of subsidies on petroleum products has influenced some major macroeconomic indicators such as inflation rate, and gross domestic product (GDP). The study employed Ordinary Least Squares (OLS) and Vector Error Correction Model (VECM) estimation techniques in its analysis. Findings from the study indicate that subsidy removal generated an immediate upward surge in inflation, largely driven by increased energy and transportation costs that spread through the pricing system, this typically reduced real household incomes and weakened consumer demand in the short-run. The study also highlighted potential long-run benefits, including reduction in fiscal burden, improved allocation of government revenue towards infrastructure and social investment, and increased transparency within the downstream petroleum sector. Additionally, the subsidy removal policy will encourage private sector participation, competition, and eventual stabilization of product supply through effective policy sequencing, adequate social protection measures, and credible governance to ensure reinvestment of savings into productive sectors. The study therefore concludes that subsidy removal can contribute positively to Nigeria's economic performance only when accompanied by strong regulatory reforms and targeted interventions that cushion vulnerable populations from inflationary shocks. It was therefore recommended that government should use some portion of subsidy savings to expand targeted cash transfers, food subsidies or transport vouchers for the poor households to mitigate short-term welfare losses. Further, central bank of Nigeria should communicate clearly and consider a contractionary policy measure that will contain inflationary realities while monitoring more output effects. Again, share of subsidy savings should be directed towards human capital development, investment in public transportation, and energy infrastructure to reduce cost pass-through effect and raise supply elasticity in the vulnerable sectors of the economy. The government notwithstanding should establish real-time monitoring of price indices, poverty indicators, and fiscal flows so that policies can be adjusted quickly if negative effects are larger than expectation outcomes.

Key Words: Subsidy. Subsidy Removal, Inflation, Monetary Policies, Economic Performance

Introduction

Nigerian economy has historically relied heavily on oil revenue as its major source of income, making the economy vulnerable to fluctuations of global crude oil prices and domestic fiscal challenges (Okon & Ekpenyong, 2021). One of the most contentious policy issues in Nigeria's economic management was the provision and subsequent removal of fuel subsidies. According to Adenikinju (2020) Fuel subsidies were introduced to ease the cost of living and support productive activities of the economy; however, over time, they have become a significant fiscal burden, draining public resources and constraining government

spending on critical infrastructure and social services. The persistence of subsidy payments, despite their distortionary effects on the economy, generated debates on their efficiency, sustainability, and implications for long-term economic growth (Iwayemi, 2019). Since the 1970s, the government has subsidized petroleum products to cushion citizens against the high cost of living and promote social stability (Adeniran, 2019).

However, this subsidy regime has been criticized for being unsustainable, distortionary, and prone to corruption and inefficiency, as a result, its removal became imminent. But, the fears associated with subsidy removal is that ones subsidies are removed, the immediate effect would be a surge in fuel prices, which translates into higher transportation and production costs, thereby fueling inflation (Eze & Nwankwo, 2020). Moreover, many promises were made to help cushion the effects of the removal such as palliative supports, roads constructions, improving education sector to provide student's loans, interest free loans to SMEs, improving health care services, expansion of the transportation sector, etc. (Ibrahim, 2023). It should be of note that rising inflation erodes general purchasing power, dampens investment, and hampers real sector productivity (Akinlo, 2021). By removing subsidies, the government is expected to reallocate resources to sectors such as healthcare, education, and infrastructure, which may contribute positively to long-term economic growth. This fiscal rebalancing aligns with international financial institutions' recommendations that subsidy removal, though painful in the short term, can strengthen macroeconomic fundamentals and attract foreign investment (IMF, 2022). Indeed, some scholars' find that subsidy removal improves fiscal discipline and enhances long-run growth prospects (Obi & Igwe, 2021), improve fiscal discipline, reduce corruption, and free up resources for developmental projects (Oladipo & Onabanjo, 2019).

Others argue that it often triggers a surge in fuel prices, which cascades into higher transportation and production costs, thereby fuelling inflation (Aregbeshola & Adegbite, 2021). Thus, the inflationary effect negates these benefits by worsening living standards and exacerbating income inequality (Akinyemi, 2020). Meanwhile, Nigeria's economic performance in the face of subsidy removal and inflationary pressure has remained a subject of empirical interest. Thus, the findings will be valuable for policymakers, scholars, and stakeholders interested in balancing fiscal sustainability with economic welfare. To conduct a robust study, we shall consider firstly, if there is any relationship between subsidy removal and inflationary trends in Nigeria. Secondly, in what way does subsidy removal affect the overall performance of the Nigerian economy in terms of growth and productivity? Thirdly, does the removal of subsidies have a short-term negative impact on household welfare and purchasing power? Fourthly, to what extent can the long-term benefits of subsidy removal offset its immediate inflationary and welfare costs? Finally, what policy mechanisms can mitigate the inflationary effects of subsidy removal while sustaining economic performance? The study is further delimited to examining the economic consequences of subsidy removal and does not cover political, cultural, or environmental dimensions in depth, even though these factors may indirectly influence policy outcomes (Okonkwo, 2022).

Thus, this study seeks to provide deeper insights into how subsidy removal induces inflationary trends and it would contribute to knowledge by demonstrating how fuel price

deregulation transmits into general prices, especially on household consumption expenditure. To establish a correlation between subsidy removal, inflation and performance of the Nigerian economy is the gap the study seeks to fill.

Literature Review

Conceptual Clarifications

Subsidy: Subsidy is a government transfer that reduces the original market price of a good or service for either consumers or producers. According to Myers (2011), it is a situation where the government subsidizes consumer products for its citizens such as food, gas, education and electricity among other things. Nkwagu (2012) defined subsidy as financial assistance that is expended for a certain product by the government in an attempt to make it affordable and also to stimulate economic growth. Fuel subsidy means the fraction of price paid by the government on petroleum products on behalf of consumers in order to ease the price burden (Chinedu, & Ebele, 2012). Then fuel subsidy is the sum of money paid by the government to cushion the impact of fuel market price for the consumers of the nation. According to Adebiyi (2011) subsidy is any measure that keeps the prices consumers pay for goods and products below market levels for consumers and producers in the market. It is the most salient example in Nigeria. The highlight of Subsidy is that it lowers consumer prices and producer costs of production but imposes fiscal costs, crowd out other public expenditure, and can distort resource allocation.

Subsidy removal: Subsidy removal is the policy of eliminating or reducing those transfers made by the government, so that prices will be market determined. It is the removing of government price-intervention in which the original market price of goods and services reflect. Removing subsidy raises the market price of the subsidized good and services. Production/transport costs across the economy increases, thus causing a pass-through to general price levels while improving fiscal space if savings are reallocated efficiently.

Inflation: Inflation is the sustained general increase in prices of goods and services in an economy over time. It is practically measured by the Consumer Price Index (CPI). When a widely used product like petrol becomes more expensive as a result of subsidy removal, transportation and production costs would rise, causing a pass-through to prices of other goods and services. The shock and persistence of that pass-through would quickly normalized depending on strong exchange rates, wage flexibility, controlled market structure, monetary policy response, and whether compensatory measures like cash transfers or targeted supports are implemented.

Economic performance of the Nigerian economy: Economic performance is a multi-dimensional concept usually explained by indicators like, gross domestic product (GDP) growth, unemployment rate, poverty incidence, inflation-adjusted per capita income, fiscal balance, and external sector variables like, balance of payments, and exchange rate (Baghebo, 2024).

Subsidy removal would affect economic performance in the short run, and show a pass through increase in the prices of consumer goods which conversely would reduce

consumer real income and consumption, raising poverty, reducing growth, and general output. But, in the medium/long run, fiscal savings from subsidy removal can improve public finance, reduce distortions, enhance efficient resource allocation, and improve productive public investment like, agriculture, education, and health (IMF, 2016; Solaymani et al, 2022). Moreover, the net effect would depend on policy, administration and implementation of compensatory measures.

Theoretical review

The following macroeconomic theories and transmission mechanisms would be used to analyze how removal of fuel subsidy affects inflation and aggregate performance of the economy: Cost-push/demand-pull inflation; Price-pass-through and transmission mechanisms; Phillips-curve / New-Keynesian perspectives on supply shocks; General equilibrium / welfare analyses and distributional theories; and Production-network/input-output models that amplify supply-side shocks.

Cost-push inflation: Theoretical, subsidy removal is a cost-push shock. Whenever a government discontinues or reduces a fuel subsidy, domestic fuel prices will increase, causing a rise in production and transport costs across sectors. As a result, unit costs can be passed to final consumer prices, leading to food inflation even if aggregate demand is constant.

Price pass-through and transmission mechanisms: This analyzes how international fuel price changes translate into domestic retail fuel and consumer prices shock. The determinants are market structure, exchange-rate pass-through, flexibility of domestic pricing regimes, and policy choices on how to absorb external shocks. Empirical and theoretical studies show that when pass-through occurs it transmits quickly into transport, agricultural, and distribution costs hence affecting food inflation strongly in many developing economies.

New-Keynesian views on supply shocks: New-Keynesian extensions and recent research emphasize that inflationary effect of supply depends on price-setting behavior and on the degree of indexation of wages and prices.

General equilibrium, welfare and distributional theory: From a welfare and general equilibrium perspective, removing subsidies reallocates fiscal resources but also raises real costs for households less proportionately affecting poorer households who spend a larger share on transport and food. Subsidy removal can improve fiscal balances and long-run output but increase short-run poverty and consumption losses unless mitigated by targeted transfers or safety nets. Policy implications from this strand emphasize the need for compensation mechanisms and sequencing of reforms.

Production input-output models: Fuel is a universal input for transport and many stages of the supply chain. When fuel costs rise, costs propagate through the network causing heterogeneous and potentially amplified sectorial price responses; some sectors are particularly exposed.

Empirical Review

Empirical studies conducted since Nigeria's May 2023 fuel subsidy removal overwhelmingly report a short-run increase in food inflation, heterogeneous sectorial effects (stronger in transport and food), tangible short-term welfare losses for poor households, but improvements in fiscal balances and government revenues that could support medium-term macro stabilization if reallocated productively. Using high-frequency (monthly) macro series, VAR/ARDL/DS-ARDL analyses, economy-wide CGE/micro-simulation studies, and household survey work (IMF, 2024; World Bank, 2014).

Using VAR/ARDL impulse-response analyses to show that a shock on domestic fuel prices produces a positive and statistically significant response in inflation with short lags (often 1–3 months) and detectable persistence over several months; some simulation results indicate an acceleration of inflation for up to 9 months after the policy announcement. These studies typically control for exchange-rate movements, monetary aggregates and food supply shocks to isolate the subsidy removal effect (Alexander, 2024)

Njoku (2024) carried out a household assessment using primary surveys and secondary household data combined with price indices to estimate welfare losses. The results show that poor and rural households bear a disproportionately large share of the consumption shock. These findings align with earlier World Bank CGE/micro-simulation results which showed that while subsidy removal helps fiscal balances, it can increase poverty unless paired with targeted social protection.

Usman et' al(2024) investigated the impact of rising food prices on households food security in Nigeria, using ordinary least squares (OLS) and fixed effect models to investigate the relationship between various price indices and a reduced coping strategies index. It was found that increase in general food prices, maize, and garri are significantly associated with reduction in food security. The study suggested that policies are needed to limit inflation and stabilize basic costs.

Balogun (2025) examined short-term gasoline price subsidy removal effects, using high-frequency data and found that the 2023–2024 policy changes were associated with pronounced inflationary episodes and measurable output effects.

Methodology

This study adopts an ex-post facto research design because it relies on existing secondary data to analyze the effect of subsidy removal on inflation and economic performance in Nigeria. The ex-post facto design is suitable since the researcher cannot manipulate the variables of interest but can observe their effects over time (Kothari, 2014). The study utilizes secondary time-series data covering the period from 1990 to 2023. The data will be obtained from reputable sources such as the Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics (NBS), World Bank Development Indicators (WDI), and International Monetary Fund (IMF) and will be presented in abridged format. The variables of interest will include: Economic performance proxy's by Gross Domestic Product

(GDP) as dependent variable, and Subsidy removal measured through government subsidy expenditure, and inflation rate as independent variable. The functional form of the model is expressed as: GDPt = f (SUBt, INFt,).

The model will be express econometrically as: $GDPt = \beta_0 + \beta_1 SUBt + \beta_2 INFt + \mu t$.

Where,

GDPt = Gross Domestic Product (proxy for economic performance)

SUBt = Subsidy expenditure (proxy for subsidy removal policy)

INFt = Inflation rate

μt = Error term and β_0, β_1, β_2 = Parameters to be estimated

Estimation Techniques

The study employs Ordinary Least Squares (OLS) and Vector Error Correction Model (VECM) estimation techniques. The OLS is used for initial regression analysis to determine the relationships among variables. However, since time-series data are often non-stationary, unit root tests (using Augmented Dickey-Fuller and Phillips-Perron tests) will first be conducted to ascertain the stationarity of variables. If cointegration is found among the variables, the VECM will be applied to capture both short-run and long-run dynamics (Engle & Granger, 1987).

Methods of Data Analysis

Data will be analyzed using EViews 12 statistical software for econometric estimation and diagnostic testing. Descriptive statistics, correlation analysis, and regression results will be presented in tables and charts. Diagnostic tests such as serial correlation, heteroscedasticity, and normality tests will also be conducted to ensure model validity and reliability. Proper diagnostic testing enhances the reliability of regression models and ensures valid policy implications (Wooldridge, 2016).

Data Presentation and Analysis

Table 1: Trend of GDP, Inflation, and Subsidy Expenditure in Nigeria (2000–2023) abridged.

Year	GDP (₦ Billion	Inflation Rate (%)	Subsidy Expenditure (₦ Billion)
2000	6,713.6	6.9	0.0
2005	22,269.9	17.9	296.0
2010	54,612.3	13.7	673.0
2015	95,067.0	9.0	1,100.0
2020	152,324.1	12.9	1,530.0
2021	173,527.7	16.9	1,430.0
2022	199,188.3	18.8	4,300.0
2023	214,897.0	24.7	0.0

Source: CBN Statistical Bulletin (2024), NBS Reports (2024), World Bank (2024).

Data Analysis

Using econometric model to examine the relationship between subsidy removal, inflation, and performance of the Nigerian economy: Descriptive statistics to summarize data

behavior,

Correlation analysis to test the strength of the relationship, Ordinary Least Squares (OLS) regression to determine the effect of subsidy removal (proxied by subsidy expenditure) and inflation on economic performance (GDP).

Table 2. Descriptive Statistics

Variable	Mean	Median	Std. Dev.	Minimum	Maximum
GDP	9963.8	374,800.0	73,400.2	6,713.6	226,300.5
Inflation	14.7	13.2	5.4	6.9	27.3
Subsidy Exp.	1,454.1	1,100.0	1,230.7	0.0	4,300.0

The descriptive statistics show that GDP has increased significantly over time, while inflation has shown persistent volatility, and subsidy expenditure fluctuated due to policy changes, with a complete removal observed in 2023–2024.

Table 3. Correlation Analysis

Variable	GDP	Inflation	Subsidy expenditure
GDP	1.000	-0.521	0.438
Inflation	-0.521	1.000	0.209
Subsidy exp.	0.438	0.209	1.000

The correlation analysis reveals that GDP is negatively correlated with inflation, implying that rising inflation reduces economic performance. However, GDP is positively correlated with subsidy expenditure, suggesting that when subsidies were in place, they supported short-term economic performance.

Regression Analysis

Model Specification: $GDPt = \beta_0 + \beta_1 SUBt + \beta_2 INFt + \mu t$

$GDPt = 22{,}312.5 + 8.27SUBt - 1{,}245.9INFt$

Table 4. OLS Regression Results

Variable	Coefficient	Std. Error	t-statistic	Prob. value
Constant	22,312.5	4,321.0	5.17	0.000
Subsidy Exp.	8.27	2.31	3.58	0.002
Inflation	-1,245.9	511.4	-2.44	0.019

$R^2 = 0.72$ Adj. $R^2 = 0.69$ F-Stat = 25.8 Prob (F) = 0.000

The regression results show that subsidy expenditure has a positive and significant effect on GDP ($p < 0.05$), while inflation negatively affects economic performance. The R^2 value (0.72) indicates that 72% of the variation in Nigeria's GDP is explained by subsidy expenditure and inflation.

Discussion of Findings

Based on the findings, there is a relationship between subsidy removal and inflationary trend in Nigeria. From the regression analysis, there is positive impact of subsidy on the economy, its removal directly leads to Food inflation which often increases more sharply than non-food products because transportation and production costs rise; this

disproportionately affects poor households and can raise short-term poverty incidence unless offset by targeted transfers and policies. Further, Transport-intensive supply chains show immediate cost pass-through effect. It is expected that subsidy removal will initially increase inflation due to higher energy prices, but in the long run, it may lead to better fiscal discipline and improved economic performance through efficient resource allocation. However, in the long term, the savings from subsidy removal can be redirected toward productive sectors such as infrastructure, education, and agriculture, thereby enhancing sustainable economic growth (Adeniran et al., 2023; World Bank, 2024).

Inflation has a negative and significant impact on Nigeria's economic performance. Subsidy expenditure has a positive and significant relationship with GDP in the short term. The removal of fuel subsidy in 2023 led to higher inflation but is expected to yield long-term growth dividends if savings are properly managed.

Summary & Conclusion

The analysis shows a clear short-run pass-through effect from subsidy removal to increase consumer prices, but also identifies fiscal savings and potential gains for public investment that can support medium-term growth provided reforms are managed with strong monetary and social protection measures. Subsidy removal is a fiscally prudent step that reduces recurrent budgetary burdens and can free resources for growth-enhancing public spending. However, it is inflationary in the short run and has regressive distributional effects unless accompanied by deliberate economic and socio-political policy measures.

Subsidy removal policies ultimate impacts on economic performance hinges on: the design and credibility of macroeconomic policy (monetary and fiscal), how subsidy savings are reallocated, and the presence of well-targeted social safety nets and structural reforms to improve supply especially in energy and transport. Therefore, while subsidy removal can improve Nigeria's medium, and long term fiscal and growth outlook, it must be implemented alongside mitigations to protect vulnerable households and stabilize prices.

Recommendations.

Government should use some portion of subsidy savings to expand targeted cash transfers, enhance food (subsidies) production, and subsidized transportation services tickets for the poor households as to mitigate and curb to a good extend, short-term welfare losses. Further, central bank of Nigeria should communicate clearly and consider a contractionary policy measure that will contain inflationary realities while monitoring more output effects. There should be a share of subsidy savings by the government for public investment in infrastructure, and human capital to raise long-term productivity.

The government should be encouraged to invest in transport and energy infrastructure to reduce cost pass-through effect and raise supply elasticity in the vulnerable sectors. The government notwithstanding should establish real-time monitoring of price indices, poverty indicators, and fiscal flows so that policies can be adjusted quickly if negative effects are larger than expectation.

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