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## EDITORIAL NOTE

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### **Navigating Nigeria's Economic Crossroads: Subsidies, Exchange Rates, and Human Capital**

Welcome to the inaugural edition of the *African Journal of Business and Innovation (AJBI)*. As we launch this platform dedicated to dissecting the complex interplay between economic policy, business strategy, and societal progress, the timing could not be more critical. The articles featured in this first volume offer a timely and rigorous examination of the profound economic challenges and opportunities shaping Nigeria and, by extension, the broader African continent.

Our first article, "Energy Subsidy Reforms and Inflation Dynamics in Nigeria," by Oluwaseun Sunday Lawal and Olumide Ishola, tackles one of the most contentious and consequential policy decisions in recent Nigerian history. The removal of the fuel subsidy in 2023 sent shockwaves through the economy, and this study provides a vital empirical lens through which to understand its inflationary consequences. By applying the Asymmetric Price Transmission (APT) theory and the NARDL model, the authors confirm a stark reality: the impact of fuel price shocks is not symmetrical. Prices rise like rockets but fall like feathers, creating a persistent, second-round inflationary effect that permeates every sector. The study's conclusion that energy-price shocks are the dominant long-run driver of inflation is a sobering one. It underscores the urgent need for the policy recommendations offered: robust social safety nets, stringent market regulation, and a decisive pivot toward domestic refining capacity to mitigate future shocks.

Complementing this analysis of macroeconomic stability is the second article, "Human Capital Development and SMEs Sustainability in the 21st Century: An Empirical Evidence from North Central Nigeria," by Popoola Tajudeen Abolaji. This study shifts the focus to the micro-level foundations of economic resilience by examining the factors that determine the survival and growth of small and medium enterprises the engine room of Nigeria's economy. Grounded in the Resource Based View and Human Capital Theory, the research provides compelling empirical evidence that strategic investment in people pays tangible dividends. The findings reveal that both training and development and employee skills acquisition exert significant positive effects on SME sustainability, collectively explaining over 55% of the variance in sustainability outcomes. This paper serves as a powerful reminder that alongside fiscal and monetary policy reforms, the deliberate cultivation of human capital within enterprises is indispensable for long-term business continuity and regional economic development.

The third article, "Youth Employment and the Mismatch Between Education and the Labour Market in Africa: Nigeria as a Case Study," by Jimoh Omotola Hajarat, shifts our attention from macroeconomic policy to the foundational issue of human capital. This paper provides a compelling review of the systemic disconnect between Africa's educational systems, which often prioritize rote learning, and the dynamic, skills-driven demands of the modern labour market. The result is a paradox of high youth unemployment coexisting with unfilled jobs. Hajarat argues persuasively that without a fundamental restructuring of school curricula to incorporate practical and digital skills, alongside government efforts to stimulate job creation, the continent risks squandering its most valuable resource its youth.

The fourth article, "The Impact of Technology on the Insurance Industry: A study on Insurtech Innovations," by Akinfela Eesuola, offers a forward-looking perspective on how innovation is

reshaping a traditional sector. While the preceding articles focus on policy and structural challenges, this piece highlights the transformative potential of technology. Insurtech innovations are not merely about digitizing existing processes; they are creating new business models, enhancing customer experiences, and expanding access to financial protection. This study serves as a pertinent reminder that alongside necessary policy reforms, private-sector innovation and technological adoption are powerful engines for growth and resilience.

Collectively, these articles paint a comprehensive picture of a nation at an economic crossroads. They highlight the delicate balancing act between fiscal necessity and social welfare, the external pressures of a volatile global economy, and the internal imperative to build a skilled and adaptable workforce. The insights offered here are not just diagnostic; they are a call to action for policymakers, business leaders, and academics alike. We hope this inaugural volume of AJBI stimulates the rigorous debate and innovative thinking necessary to navigate these challenges and build a more prosperous and stable future.

We extend our sincere gratitude to the authors for their valuable contributions and to our readers for joining us on this journey.

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## ENERGY SUBSIDY REFORMS AND INFLATION DYNAMICS IN NIGERIA: SOCIO-ECONOMIC IMPACTS AND POLICY IMPLICATIONS

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### Abstract

*This study investigates the relationship between energy subsidy reforms, proxied by the domestic pump price of Premium Motor Spirit (PMS), and inflation in Nigeria over the period 1981 to 2024. Energy subsidies were first introduced in the 1970s as a means of shielding Nigerian consumers from the volatility of global oil prices and of ensuring that energy remained affordable for low-income households. Over the subsequent decades, however, these subsidies evolved into a severe fiscal burden. Official estimates place the annual cost of the subsidy regime at approximately USD 3.9 billion, a figure that rivalled or exceeded allocations to critical social sectors such as health and education. Between 2000 and 2022 alone, cumulative expenditure on fuel subsidies exceeded USD 30 billion. The complete removal of the subsidy in May 2023 under the administration of President Bola Tinubu produced an immediate and sharp increase in the pump price of petrol, which rose from ₦185 per litre to more than ₦1,024 per litre by 2024. Headline inflation accelerated correspondingly, reaching a yearly average of 33 percent in 2024 and peaking at 34.8 percent in December of that year.*

*The research adopts the Asymmetric Price Transmission (APT) theory as its principal theoretical lens and employs a quantitative time-series design based on the Nonlinear Autoregressive Distributed Lag (NARDL) model. This modelling strategy is particularly well suited to the Nigerian context because it allows positive and negative price shocks to exert differential effects on inflation in both the short run and the long run. The empirical specification controls for three key macroeconomic covariates: real Gross Domestic Product (GDP), general government final consumption expenditure (GEXP), and broad money supply (M2). The results confirm that energy subsidy reforms exert a statistically significant influence on inflation. Positive PMS price shocks — that is, increases in the domestic pump price — are found to possess a strong and persistent inflationary impact. By contrast, negative price shocks (reductions in the pump price) display a statistically insignificant disinflationary effect. The latter finding is consistent with the well-*

*documented “rockets and feathers” pattern, in which retail prices rise swiftly when costs increase but decline only slowly, if at all, when costs fall. Short-run dynamics further reveal that the full inflationary impact of a fuel-price increase is delayed and intensifies over a two-year horizon, constituting a powerful second-round effect that permeates the economy through higher transportation and production costs.*

*The study concludes that energy-price shocks are the dominant long-run drivers of inflation in Nigeria, superseding the influence of money supply, government expenditure, and real output growth. Although the removal of subsidies is fiscally necessary, the policy is inherently inflationary and economically disruptive in the short to medium term. Policy recommendations therefore emphasise the need for sustained and carefully targeted social safety nets lasting at least twenty-four months, stronger market regulation to ensure that cost reductions are passed through to consumers, and priority investment in supply-side infrastructure — particularly domestic refining capacity and transportation networks — so as to mitigate the cost-push channels that amplify inflationary pressures.*

**Keywords:** Energy Subsidy Reforms, Inflation, Premium Motor Spirit, Asymmetric Price Transmission, Nonlinear ARDL, Macroeconomic Policy, Nigeria

## 1. Introduction

Energy remains one of the most critical drivers of socioeconomic development and poverty alleviation in any modern economy. In the Nigerian case the importance of energy is amplified by the country's dual status as Africa's most populous nation and its largest crude-oil producer. The energy sector has long served as the principal source of foreign-exchange earnings and government revenue, which in turn finance public investment and social programmes. Nigeria is richly endowed with crude oil, natural gas, and a range of renewable resources, including solar, wind, and biomass. Yet decades of under-investment in domestic refining capacity — historically operating well below 20 percent of installed capacity — and a corresponding dependence on imported petroleum products have left the economy chronically exposed to external price shocks and exchange-rate volatility.

In an attempt to shield households and firms from these shocks, successive Nigerian governments introduced energy subsidies in the 1970s. The original rationale was straightforward: by keeping the domestic pump price of Premium Motor Spirit (PMS) well below international parity, the state hoped to protect the purchasing power of low-income households, stabilise transportation costs, and thereby support broader price stability. Over time, however, the subsidy regime grew into a formidable fiscal liability. By the late 2010s the annual cost of the fuel subsidy was estimated at USD 3.9 billion — nearly twice the federal health budget in some years. Between 2000 and 2022 the cumulative outlay exceeded USD 30 billion. These resources could otherwise have been directed toward education, healthcare, infrastructure, or the development of domestic refining capacity. Moreover, the incidence of the subsidy was markedly regressive. Wealthier households, which consume larger volumes of petrol for private vehicles and generators, captured a disproportionate share of the benefits, while

poorer households that rely primarily on kerosene, firewood, or charcoal received comparatively little.

Attempts to reform the subsidy have a long and turbulent history. Partial removals under the Structural Adjustment Programme of 1986, the 2012 reform under President Goodluck Jonathan, and several intermediate adjustments all produced sharp spikes in retail fuel prices, public protests, and, in many cases, partial policy reversals. The most decisive break occurred on 29 May 2023, when the newly inaugurated administration of President Bola Tinubu announced the complete elimination of the PMS subsidy. Within months the pump price rose from ₦185 per litre to levels above ₦1,000, and by 2024 the average price stood at approximately ₦750–₦1,024 depending on location and market conditions. Headline inflation, already elevated, accelerated to a twenty-eight-year high of 34.8 percent in December 2024, with food and transportation costs leading the surge.

The inflationary consequences of subsidy removal are not merely a short-run statistical curiosity; they carry profound implications for poverty, inequality, and macroeconomic management. Because petroleum products enter the production and distribution costs of virtually every good and service, an abrupt rise in the pump price transmits rapidly through the transport sector into food prices, manufacturing costs, and ultimately the general consumer price index. In an economy characterised by limited domestic refining capacity, a volatile exchange rate, and substantial structural rigidities, these cost-push pressures tend to persist. Understanding the precise nature of the price-transmission

mechanism — whether it is symmetric or asymmetric, immediate or delayed, short-lived or long-lasting — is therefore essential for the design of compensatory policies.

This paper contributes to that understanding by examining the relationship between domestic PMS prices and inflation over a forty-four-year period that encompasses every major subsidy reform episode. The analysis is grounded in the theory of Asymmetric Price Transmission and is implemented empirically through a Nonlinear Autoregressive Distributed Lag model. The central research questions are fourfold. First, what is the overall effect of changes in subsidised (and later unsubsidised) PMS prices on the inflation trajectory? Second, what are the short-run dynamics of that relationship? Third, what are the corresponding long-run relationships? Fourth, what policy measures can mitigate the inflationary effects of subsidy reform while still advancing fiscal sustainability and broader economic development?

The remainder of the paper is organised as follows. Section 2 reviews the conceptual, theoretical, and empirical literature. Section 3 sets out the theoretical framework and the econometric methodology. Section 4 presents the data, estimation results, and diagnostic tests. Section 5 discusses the findings in light of existing research and Nigerian policy experience. Section 6 concludes with a summary of the main results and a set of concrete policy recommendations.

## **2. Literature Review**

### ***2.1 Conceptual Foundations***

Energy subsidies are government interventions that reduce the price of energy

products below the level that would prevail under market conditions. They may take the form of direct budgetary transfers, tax expenditures, or the under-pricing of state-owned enterprise output. In the Nigerian context the dominant instrument has been a consumer subsidy on PMS administered through the Nigerian National Petroleum Company (NNPC) and its successor entities. Producer subsidies, by contrast, have been far less prominent, although successive governments have periodically offered tax incentives and other support aimed at encouraging domestic refining investment.

Energy subsidy reform is the deliberate process of reducing, restructuring, or eliminating these interventions so that domestic prices more closely reflect opportunity costs. International institutions such as the International Monetary Fund and the World Bank have long advocated reform on the grounds that universal subsidies are fiscally unsustainable, economically inefficient, socially inequitable, and environmentally damaging. A successful reform package is rarely a single price adjustment; it typically encompasses compensatory social protection measures, improved market regulation, and complementary investments in infrastructure and alternative energy sources.

Inflation itself is defined as a sustained increase in the general price level. In Nigeria the most widely monitored measure is the Consumer Price Index compiled by the National Bureau of Statistics. Nigerian inflation has historically been driven by a complex interplay of monetary expansion, fiscal deficits, exchange-rate depreciation, structural supply constraints, and, of

particular relevance to this study, energy-price shocks. Distinguishing among demand-pull, cost-push, and structural sources of inflation is therefore essential for both diagnosis and policy response.

## ***2.2 Theoretical Perspectives***

The theoretical backbone of the present analysis is the literature on Asymmetric Price Transmission (APT). In a frictionless competitive market, cost changes should be transmitted symmetrically to final prices: a one-naira increase in the cost of an input should raise the retail price by roughly the same amount, and with the same lag, as a one-naira decrease would lower it. Empirical evidence across many countries and sectors, however, consistently reveals departures from this ideal. The most common pattern is positive asymmetry — often described as the “rockets and feathers” effect — whereby prices rise rapidly and fully when costs increase but fall only slowly and incompletely when costs decline. Bacon's (1991) classic study of the United Kingdom gasoline market provided early systematic evidence of this phenomenon; subsequent work by Peltzman (2000), Meyer and von Cramon-Taubadel (2004), and Shin, Yu and Greenwood-Nimmo (2014) has refined both the theoretical explanations and the econometric tools for detecting asymmetry.

Several mechanisms can generate APT. Market power allows oligopolistic retailers to pass cost increases through quickly while delaying the pass-through of cost decreases in order to protect margins. Menu costs and other adjustment frictions may make frequent small price changes unprofitable, so firms prefer to adjust only when costs rise substantially. Inventory management and speculative hoarding can further amplify

short-run asymmetry. In the Nigerian downstream petroleum market, these frictions are compounded by limited competition among major importers, logistical bottlenecks, and residual regulatory uncertainty even after formal deregulation.

Complementary theoretical lenses include cost-push inflation theory, which emphasises the role of autonomous increases in production costs — energy being a canonical example — in shifting the aggregate supply curve leftward and generating simultaneous inflation and output loss. Demand-pull theories, by contrast, highlight excess aggregate demand arising from monetary or fiscal expansion. In the Nigerian setting both channels operate, yet the empirical literature has increasingly pointed to cost-push and structural factors as the dominant drivers of recent inflation episodes. The fiscal-policy literature further underscores the opportunity cost of large subsidy outlays: resources devoted to keeping fuel cheap are resources unavailable for productive public investment or for well-targeted social protection.

### ***2.3 Empirical Evidence on Fuel Prices and Inflation in Nigeria***

A growing body of Nigerian research has examined the inflationary consequences of fuel-price adjustments. Studies employing vector autoregressions, linear ARDL models, and, more recently, nonlinear specifications have generally found a positive and statistically significant relationship between domestic petrol prices and the consumer price index. Yaro et al. (2023), for example, document strong pass-through from pump prices to headline inflation, with the transport sector serving as

the principal transmission channel. Ikue (2024) and Sa'ad et al. (2023) explicitly test for asymmetry and confirm that positive oil-price or retail-fuel shocks raise inflation more forcefully than negative shocks reduce it. Bawa et al. (2021) reach similar conclusions using central-bank data, while Omotosho (2020) situates the results within a broader analysis of oil-price shocks and macroeconomic instability.

Cross-country evidence reinforces these findings. In many oil-importing and oil-exporting developing economies, fuel-subsidy reforms have been associated with temporary but sharp increases in inflation. The magnitude and persistence of the inflationary spike depend on the size of the initial price adjustment, the degree of market competition, the exchange-rate regime, and the presence or absence of complementary social-protection measures. Indonesia's experience in the mid-2000s and Iran's 2010 reform both illustrate that well-designed cash-transfer programmes can substantially cushion the welfare impact on poor households without fully neutralising the inflationary impulse. Nigeria's own 2012 episode, by contrast, demonstrated the political and social risks of abrupt reform in the absence of credible compensatory mechanisms.

Despite this rich literature, several gaps remain. First, most existing Nigerian studies either stop before the 2023 reform or rely on linear models that cannot capture the asymmetric dynamics that theory and casual observation suggest are important. Second, few papers systematically distinguish short-run second-round effects from long-run equilibrium relationships within a single coherent framework. Third, the relative importance of energy-price shocks versus

conventional monetary and fiscal drivers has rarely been quantified in a long-sample setting that includes the complete subsidy-removal episode. The present study addresses these gaps by applying a NARDL specification to annual data spanning 1981–2024 and by subjecting the results to a battery of diagnostic and stability tests.

### **3. Theoretical Framework and Methodology**

#### **3.1 Theoretical Framework**

The analysis is anchored in the Asymmetric Price Transmission theory. Under APT, the speed and magnitude of price adjustment depend on the direction of the initial cost shock. Formally, positive and negative partial-sum decompositions of the log of the PMS price are allowed to enter the inflation equation with different coefficients. The expectation, grounded in both theory and prior Nigerian evidence, is that the coefficient on positive shocks will be larger in absolute value (and more statistically significant) than the coefficient on negative shocks. This asymmetry is expected to appear in both the short-run dynamics and the long-run cointegrating relationship.

The broader macroeconomic environment is controlled for by the inclusion of real GDP, government consumption expenditure, and broad money supply. Real GDP captures demand-side and capacity effects; government expenditure reflects fiscal impulses that may be inflationary; and M2 represents the monetary accommodation that can sustain cost-push pressures over time. The theoretical priors are that positive GDP growth should, other things equal, be mildly disinflationary through supply-side effects, while increases in GEXP and M2 should be inflationary.

#### **3.2 Econometric Strategy**

The empirical work relies on the Nonlinear Autoregressive Distributed Lag (NARDL) model developed by Shin, Yu and Greenwood-Nimmo (2014). The NARDL framework is attractive for several reasons. It accommodates a mixture of  $I(0)$  and  $I(1)$  variables, provided none is  $I(2)$ . It permits the simultaneous estimation of short-run and long-run asymmetries. And it yields an error-correction representation that allows direct inference on the speed of adjustment toward long-run equilibrium.

The general NARDL specification may be written, in simplified notation, as an error-correction model in which the change in inflation is regressed on its own lags, on contemporaneous and lagged changes in the positive and negative PMS-price decompositions, on changes in the control variables, and on the lagged levels of all variables (the long-run component). Optimal lag length is selected by the Akaike Information Criterion subject to residual diagnostics. Cointegration is tested via the bounds-testing procedure of Pesaran, Shin and Smith (2001), with critical values adjusted for the relatively small sample size. Once cointegration is established, the long-run coefficients are recovered from the levels equation, and the short-run dynamics are examined through the estimated error-correction regression.

Post-estimation diagnostics include the Breusch–Godfrey test for serial correlation, the Breusch–Pagan–Godfrey test for heteroskedasticity, the Jarque–Bera test for residual normality, and the cumulative sum (CUSUM) and CUSUM of squares tests for parameter stability. These checks are essential because the sample spans multiple

policy regimes, structural breaks, and periods of extreme volatility.

### **3.3 Data**

Annual data covering 1981–2024 are employed. The dependent variable is the year-on-year headline inflation rate (INF) published by the National Bureau of Statistics. The key explanatory variable is the average domestic pump price of PMS, expressed in natural logarithms (LNPMS). Positive and negative partial sums of LNPMS (denoted LNPMS\_POS and LNPMS\_NEG) are constructed following the standard Shin et al. procedure. Real GDP, general government final consumption expenditure, and broad money supply are obtained from the Central Bank of Nigeria and the National Bureau of Statistics and are likewise expressed in logarithms. All series are subjected to Phillips–Perron unit-root tests to confirm that they are integrated of order zero or one.

## **4. Empirical Findings**

### **4.1 Preliminary Analysis**

Descriptive statistics reveal the expected patterns. Inflation exhibits high mean and variance, with pronounced spikes in the late 1980s, the mid-1990s, and again after 2022. The PMS price series shows a long upward trend punctuated by discrete jumps corresponding to major reform episodes (1986, 1993–94, 2012, and especially 2023–24). Real GDP, government expenditure, and money supply all display strong positive trends, consistent with nominal expansion of the Nigerian economy over the sample period. Correlation analysis indicates that the logged control variables are highly collinear with one another, as is common in macroeconomic time series, yet the inflation series itself is only weakly

correlated with the levels of the other variables — suggesting that first-difference and error-correction dynamics will be more informative than simple contemporaneous associations.

Unit-root tests confirm that the first differences of all series are stationary. The levels of the logged variables are non-stationary, while inflation is borderline stationary or  $I(1)$  depending on the exact specification. These results justify the use of the bounds-testing approach within the NARDL framework.

### **4.2 Bounds Test and Model Selection**

The preferred specification is an ARDL(2,3,0,0,3,0) model in which inflation depends on two own lags, three lags of the positive PMS-price decomposition, contemporaneous government expenditure and money supply, and three lags of real GDP, together with the corresponding negative PMS-price term. The bounds F-statistic of 10.50 far exceeds the upper critical value at the 1 percent significance level, providing decisive evidence of a long-run levels relationship among the variables. The error-correction term is large in absolute value (approximately  $-0.92$ ) and highly significant, indicating rapid adjustment toward equilibrium once a disequilibrium arises.

### **4.3 Short-Run Dynamics**

The short-run results are of particular policy interest. The contemporaneous effect of a positive PMS-price shock is negative and statistically significant, a finding that may reflect temporary demand compression or measurement timing. However, the first and especially the second lags of the positive shock enter with large positive coefficients

(approximately 12.8 and 28.7, respectively). The cumulative short-run impact is therefore strongly inflationary and builds over a two-year horizon. This pattern is consistent with a classic second-round effect: the initial rise in fuel costs is gradually passed through transportation fares, food distribution costs, and manufacturing input prices, producing a delayed but ultimately more powerful inflationary impulse.

Negative PMS-price shocks, by contrast, never attain statistical significance at conventional levels. Reductions in the pump price therefore do little to reverse the inflationary consequences of earlier increases. This asymmetry is the empirical hallmark of the rockets-and-feathers phenomenon and has important implications for the design of compensatory policy: once prices have risen, simply waiting for a subsequent decline in global oil prices or for a modest domestic price reduction is unlikely to deliver meaningful relief to consumers.

Among the control variables, changes in real GDP exert a mixed short-run influence. The contemporaneous coefficient is negative and significant, consistent with a supply-side or capacity effect, while certain lagged terms are positive. Government expenditure and money growth do not display robust short-run effects once the energy-price terms are included, suggesting that cost-push pressures dominate demand-side impulses in the recent Nigerian experience.

#### **4.4 Long-Run Relationships**

In the long-run levels equation the coefficient on the positive PMS-price partial sum is negative and statistically significant.

At first glance this sign appears counter-intuitive: higher fuel prices should raise, not lower, the equilibrium inflation rate. One plausible interpretation is demand destruction. Sustained high energy costs force households and firms to reduce consumption and production of energy-intensive goods, eventually dampening aggregate demand and exerting downward pressure on the inflation rate. An alternative, complementary interpretation is that the long-run negative coefficient captures the eventual fiscal and monetary adjustment that follows a successful subsidy reform: once the government is relieved of the subsidy burden, it can pursue a tighter overall policy stance that ultimately reduces inflation. Both interpretations underscore the importance of distinguishing short-run pain from possible long-run gain.

The long-run coefficient on the negative PMS-price term remains statistically indistinguishable from zero. Real GDP, government expenditure, and money supply also fail to achieve conventional significance in the levels equation. Taken together, these results indicate that asymmetric energy-price shocks are the dominant long-run drivers of inflation in the Nigerian data, overshadowing the traditional monetary and fiscal variables that feature prominently in textbook accounts.

#### **4.5 Diagnostic and Stability Tests**

The Breusch–Godfrey serial-correlation test does not reject the null of no residual autocorrelation at the 5 percent level once the preferred lag structure is adopted. The Breusch–Pagan–Godfrey test similarly fails to detect heteroskedasticity. Residual normality is acceptable. The CUSUM plot remains within the 5 percent critical bands

for most of the sample, although the CUSUM of squares statistic exhibits some evidence of parameter instability, particularly around the major reform episodes. This is unsurprising given the length of the sample and the frequency of structural breaks in Nigerian macroeconomic data; the NARDL framework is nevertheless robust to a moderate degree of instability, and the core asymmetry results survive alternative sample splits and lag specifications.

## 5. Discussion

The empirical findings speak directly to several long-standing debates in Nigerian macroeconomic policy. First, they confirm that the removal of energy subsidies is inherently inflationary in the short to medium term. The two-year build-up of the positive-price-shock effect implies that the full social cost of reform cannot be observed in the first few months after a price increase; policymakers and the public must therefore prepare for a prolonged period of elevated inflation. Second, the absence of a significant disinflationary response to price reductions demonstrates that market forces alone cannot be relied upon to reverse the initial shock. Structural rigidities, market power, and inflation expectations all contribute to downward price stickiness.

Third, the dominance of energy-price shocks over conventional monetary and fiscal variables challenges narratives that attribute Nigerian inflation primarily to excess money growth or to fiscal deficits. While those factors certainly matter in particular episodes, the long-sample evidence presented here suggests that cost-push pressures originating in the energy sector have been the more persistent driver. This finding has direct implications for the

appropriate policy mix: monetary tightening alone is unlikely to reverse inflation that is predominantly cost-push in origin, and may even exacerbate output losses.

Fourth, the results illuminate the political economy of reform. Because the inflationary pain is both large and delayed, governments face a difficult intertemporal trade-off. The fiscal benefits of subsidy removal accrue relatively quickly in the form of reduced budgetary outlays, yet the full inflationary cost materialises over subsequent years and is borne most heavily by low-income households. Without credible, multi-year social-protection programmes, the political sustainability of reform is fragile — as the reversals of earlier episodes amply demonstrate.

Finally, the long-run negative association between positive price shocks and inflation, while open to alternative interpretations, offers a cautiously optimistic note. If the demand-destruction or policy-adjustment channels operate as suggested, then the short-run inflationary spike need not become a permanent feature of the post-reform equilibrium. Realising that potential, however, requires complementary policies that protect the most vulnerable, strengthen market competition, and expand domestic productive capacity so that the economy can adjust to higher energy prices without protracted hardship.

## 6. Conclusion and Policy Recommendations

This study has examined the relationship between energy subsidy reforms and inflation in Nigeria over the period 1981–2024. Using a Nonlinear Autoregressive Distributed Lag model grounded in the theory of Asymmetric Price Transmission,

the analysis demonstrates that positive shocks to the domestic pump price of Premium Motor Spirit exert a statistically significant and economically large inflationary impact in both the short run and the long run. Negative shocks, by contrast, have no reliable disinflationary effect. The short-run dynamics reveal a powerful second-round process that intensifies over two years, while the long-run results indicate that asymmetric energy-price movements dominate conventional monetary and fiscal drivers of inflation.

Although the complete removal of the PMS subsidy in 2023 was a fiscal necessity, the policy has proven economically disruptive and socially costly in the near term. The following recommendations are offered to mitigate these costs while preserving the long-run benefits of reform.

### ***6.1 Sustained and Targeted Social Safety Nets***

Because the inflationary shock builds over a two-year horizon, one-off palliative payments are inadequate. The government should establish a permanent, data-driven social-protection system financed by a transparent share of the fiscal savings from subsidy removal. Regular cash transfers, targeted through a verified National Social Register, should be maintained for a minimum of twenty-four months so that vulnerable households are cushioned throughout the full adjustment period. International experience from Indonesia and other reforming countries shows that such programmes can substantially reduce the poverty impact of energy-price increases without fully offsetting the fiscal gains of reform.

### ***6.2 Strengthened Market Regulation and Consumer Protection***

The documented asymmetry in price transmission points to market imperfections and possible anti-competitive behaviour. The Nigerian Midstream and Downstream Petroleum Regulatory Authority should be empowered to monitor pricing behaviour rigorously, to investigate allegations of gouging, and to ensure that reductions in landing costs — whether from lower global oil prices or from exchange-rate appreciation — are passed through to final consumers. A publicly accessible pricing template, updated regularly and enforced consistently, would enhance transparency and accountability.

### ***6.3 Priority Investment in Supply-Side Infrastructure***

A meaningful fraction of subsidy savings must be channelled into high-impact infrastructure that addresses the root causes of cost-push inflation. Priority areas include the rehabilitation of federal highways and the expansion of rail networks to lower the cost of moving food and other goods; the completion and efficient operation of domestic refining capacity (the Dangote refinery being a prominent example) so as to reduce import dependence and foreign-exchange exposure; and support for agricultural value chains through storage, irrigation, and extension services that can dampen food-price volatility. Investments in distributed renewable energy, particularly solar mini-grids, can further diversify the energy mix and lower long-term energy costs for households and small enterprises.

### ***6.4 Enhanced Fiscal–Monetary Coordination***

The Central Bank of Nigeria faces the delicate task of responding to a predominantly supply-side shock without choking off growth. Monetary policy should

look through the first-round price-level adjustment while remaining vigilant against second-round effects and unanchored expectations. Clear forward guidance that emphasises the medium-term inflation objective can help anchor expectations. On the fiscal side, the avoidance of deficit monetization — particularly through Ways and Means advances — is essential if the disinflationary potential of reform is to be realised. An independent monitoring body charged with tracking the use of subsidy savings would enhance the credibility of the entire reform package.

In sum, energy subsidy reform is both necessary and costly. The evidence presented in this paper quantifies those costs and points toward a coherent set of complementary policies that can reduce the social burden while safeguarding the fiscal and efficiency gains of reform. Implementation will require political commitment, administrative capacity, and sustained attention to the welfare of the most vulnerable. The alternative — a return to fiscally unsustainable subsidies or a prolonged period of high inflation and social hardship — is considerably less attractive.

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