The Nexus Between Oil Price Shocks and Microeconomic Fundamentals in Nigeria: Evidence From New Data-Set

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Abstract—*This study examines the nexus between oil price shocks and microeconomic fundamentals, with particular focus on wage dynamics, inflation, energy use, and money supply over the period 1990–2025. The study adopts the Autoregressive Distributed Lag (ARDL) framework to analyse both short-run and long-run relationships among the variables. Empirical results reveal a mixed order of integration, justifying the application of the ARDL bounds testing approach. The bounds test confirms the existence of a long-run equilibrium relationship among the variables. However, the long-run estimates indicate that oil price shocks exert a positive but statistically insignificant effect on wages, while inflation, energy use, and money supply also show weak and insignificant impacts. In the short run, oil price shocks exhibit only marginal influence on wage dynamics, suggesting limited transmission effects to microeconomic fundamentals. Diagnostic and stability tests confirm that the model is well-specified and stable. The findings imply that although oil price shocks are theoretically important, their direct impact on microeconomic variables is weak, reflecting underlying structural rigidities and policy constraints. The study therefore emphasizes the need for economic diversification, energy sector reforms, and improved policy coordination to enhance economic resilience.*

Keywords—Oil Price Shocks; Wage Dynamics; Microeconomic Fundamentals; ARDL Model
JEL Classifications: *Q43; E31; C22*

I. INTRODUCTION

Crude oil remains one of the most important commodities in the global economy due to its strategic role in energy production, industrial development, and international trade. Kuzemko, C., et al. (2022). Changes in global oil prices often generate significant economic consequences for both oil-exporting and oil-importing countries. Oil price fluctuations can influence inflation, exchange rates, government revenue, production costs, and overall macroeconomic stability. B. Bello et al (2025). As a result, oil price shocks have become a central focus in economic research, particularly for developing economies whose economic structures are heavily dependent on the oil sector.

Recent empirical studies have highlighted the complex relationship between oil price shocks and macroeconomic fundamentals in Nigeria. For example, Ihugba and Adefabi (2025) examined the nonlinear relationship between oil price changes and inflation in Nigeria using a Nonlinear Autoregressive Distributed Lag (NARDL) framework. Their findings indicate that positive oil price shocks tend to increase inflation in the long run, while negative shocks produce asymmetric responses in the inflationary process. The study further revealed that monetary variables such as money supply and external reserves play significant roles in mediating the inflationary effects of oil price fluctuations. This suggests that oil price movements can influence macroeconomic stability through multiple transmission channels including monetary policy and external sector dynamics.

Similarly, Umeokwobi and Sekinat (2025) investigated the relationship between energy price shocks and monetary policy outcomes in Nigeria. Their study argues that despite Nigeria being a major crude oil producer, the country still experiences significant inflationary pressures from fuel price increases due to structural challenges in the domestic refining sector. The authors found that energy price shocks have measurable effects on inflation expectations, exchange rate dynamics, and monetary policy responses. The study further emphasized that oil price volatility influences macroeconomic stability not only through fiscal channels but also through monetary policy adjustments implemented by the Central Bank of Nigeria.

Beyond macroeconomic indicators, oil price shocks also affect microeconomic fundamentals within the economy. At the firm level, rising energy costs increase production expenses, reduce profit margins, and may lead to higher prices for goods and services. Households also experience welfare effects as fuel price increases translate into higher transportation and living costs. Consequently, fluctuations in oil prices can influence consumption patterns, investment decisions, and business productivity. M. Aye et al. (2014). These microeconomic responses eventually aggregate to influence broader macroeconomic outcomes such as inflation, employment, and economic growth.

The Nigerian economy has experienced several episodes of oil price volatility over the past two decades, including the global oil price collapse of 2014–2016, the COVID-19 induced oil demand shock in 2020, and the recent geopolitical disruptions affecting global energy markets. Each of these events has had

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profound implications for Nigeria's economic stability, highlighting the vulnerability of the economy to external oil market dynamics.

Against this background, this study seeks to examine the relationship between oil price shocks and microeconomic and macroeconomic fundamentals in Nigeria. Specifically, the study aims to explore how fluctuations in global oil prices influence key economic indicators such as inflation, exchange rate, output, and production costs, while also assessing the broader implications for economic stability and policy formulation in Nigeria. Following this introductory section is the review of literature in section 2, methodology in section 3, discussion of results and findings in section 4 and section 5 which contains the summary and conclusion.

1.2 Statement of the Problem

Empirical evidence suggests that oil price shocks can influence key macroeconomic fundamentals such as inflation, exchange rate, output growth, and monetary policy responses. Ihugba and Adefabi (2025) found that oil price fluctuations significantly affect inflation dynamics in Nigeria, with positive oil price shocks contributing to long-run inflationary pressures through monetary and external sector channels. Similarly, Umeokwobi and Sekinat (2025) observed that energy price shocks influence monetary policy outcomes and inflation expectations in Nigeria, highlighting the complex transmission mechanisms through which oil price volatility affects economic stability.

Despite these findings, the Nigerian economy continues to experience persistent macroeconomic challenges including rising inflation, exchange rate instability, and fluctuations in output growth. Arotile & Ajepe (2025). These problems suggest that oil price shocks may have broader implications that extend beyond macroeconomic indicators to affect microeconomic fundamentals such as production costs, business performance, household consumption patterns, and investment decisions. Rising energy prices, for instance, increase operational costs for firms and transportation expenses for households, thereby influencing the overall cost structure of economic activities.

Furthermore, the paradox of Nigeria being a major crude oil producer yet facing frequent domestic energy price shocks due to its reliance on imported refined petroleum products further complicates the economic transmission of oil price volatility. Olujobi & Irumekhai (2024). This structural weakness exposes the economy to both external oil price fluctuations and internal energy market inefficiencies.

Consequently, the absence of comprehensive analysis on how oil price shocks interact with both microeconomic and macroeconomic fundamentals creates a gap in the literature. Addressing this gap is important for improving the understanding of oil price transmission mechanisms within the Nigerian economy and for designing effective economic policies that can mitigate the adverse effects of oil price volatility.

Therefore, this study seeks to investigate the nexus between oil price shocks and microeconomic and macroeconomic fundamentals in Nigeria in order to provide deeper insights into the economic implications of oil price fluctuations and contribute to policy discussions on economic stability and diversification.

II. Review of Literature

2.1 Theoretical Review

Oil Price Transmission Mechanism Theory

The oil price transmission mechanism theory explains how crude oil price fluctuations are transmitted to economic activities through various channels. The basis of this theory can be drawn from the seminal work of James D. Hamilton (1983), who established the relationship between oil price shocks and economic performance, particularly in oil-dependent economies.

According to this theory, oil price shocks influence the economy through four major channels: income transfer, production cost, inflationary pressures, and expectations. Rising oil prices transfer income from oil-importing to oil-exporting countries, thereby affecting aggregate demand. At the firm level, oil serves as a critical input in production; hence, an increase in oil prices raises production and transportation costs, leading to reduced output and higher prices.

Furthermore, inflationary pressures are generated due to increase in oil prices, prompting monetary policy responses that may affect interest rates and liquidity conditions. These dynamics eventually influence microeconomic outcomes such as wages, household consumption, and cost of living. This theory is directly relevant to the present study as it provides the foundational framework explaining how oil price shocks affect microeconomic fundamentals (wages) through macroeconomic transmission channels such as inflation and energy costs.

Supply and Demand Theory of Oil Price Determination

The classical theory of supply and demand originates from early economists such as Adam Smith (1776). It explains price determination through the interaction of demand and supply forces. In the context of oil markets, this framework has been extended by Lutz Kilian (2008), who decomposed oil price shocks into supply shocks, aggregate demand shocks, and precautionary demand shocks.

The theory postulates that oil price fluctuations arise from disruptions in supply (e.g., geopolitical instability), changes in global demand, and expectations about future oil availability. These shocks influence production costs and household welfare differently. For instance, an increase in oil prices raises production costs, reduces real income, and lowers consumption, particularly among low-income households.

On the demand side, rising oil prices reduce disposable income and consumption, thereby weakening economic activity. Conversely, falling oil prices may stimulate output and improve welfare through lower production costs. This theory is relevant to the study as it explains the origin and nature of oil price shocks (OPS) used in the model and their implications for microeconomic variables such as wages and living standards.

Asymmetric Price Transmission (APT) Theory

The Asymmetric Price Transmission (APT) theory gained prominence in the early 2000s, particularly through the work of Jochen Meyer and Stephan von Cramon-Taubadel (2004).

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The theory explains how prices respond differently to increases and decreases in input costs.

According to APT, price adjustments are not symmetrical; increases in input prices (such as oil) are often passed through quickly to consumers, while decreases are transmitted more slowly or incompletely. This results in persistent high prices even when input costs fall.

In the context of oil price shocks, this theory implies that rising oil prices may rapidly increase transportation costs, energy prices, and ultimately wages and cost of living, while falling oil prices may not produce equivalent reductions. The relevance of this theory to the study stems from how it justifies the inclusion of oil price shocks and supports the possibility of nonlinear or weak responses of wages, as observed in the empirical results.

Dutch Disease Theory

The Dutch Disease theory was formally developed by W. Max Corden and J. Peter Neary (1982) to explain the adverse effects of resource booms on an economy. The theory posits that structural imbalances in the economy occurs as a result of heavy reliance on natural resource revenues, such as crude oil.

According to this framework, a boom in the oil sector leads to currency appreciation and a shift of labour and capital from other productive sectors (such as manufacturing and agriculture) to the oil sector. This reduces productivity and competitiveness in non-oil sectors, ultimately affecting employment and wages.

In oil-dependent economies like Nigeria, fluctuations in oil prices can therefore lead to instability in income distribution and labour markets. A fall in oil prices may reduce government revenue, leading to lower public spending, reduced labour demand, and downward pressure on wages. The Dutch Disease theory is applicable to the study as it explains how oil price shocks can influence microeconomic fundamentals such as wages through structural changes in the economy.

Income Distribution (Inequality) Hypothesis

The income distribution hypothesis provides a microeconomic perspective on the effects of oil price shocks. Recent contributions such as Anthony Enisan Akinlo (2024) argue that oil price movements can either widen or reduce income inequality depending on the direction of the shock.

The theory suggests that rising oil prices increase production costs, reduce output, and lead to job losses or wage reductions, disproportionately affecting low-income households. This results in a widening income inequality gap. Conversely, falling oil prices may stimulate economic activity by lowering production costs, increasing employment, and improving household welfare.

However, in oil-exporting countries like Nigeria, government revenue and public spending may reduce as a result of declining oil prices, which can negatively affect wages and social welfare. This theory is directly aligned with the present study as it links oil price shocks to microeconomic welfare indicators, particularly wages, which serve as a proxy for household economic well-being.

2.2 Empirical Review

Recent empirical literature has broadly examined the relationship between oil price shocks and economic performance in Nigeria, though most with varying emphasis on macroeconomic and microeconomic channels, methodologies, and outcomes.

Leo (2024) employed a Structural Vector Autoregressive (SVAR) model using quarterly data from 2000Q1 to 2022Q4 to investigate the macroeconomic impact of crude oil price fluctuations in Nigeria. The study utilized variables such as real GDP, inflation, interest rate, and broad money supply. Findings revealed that oil price shocks significantly influence macroeconomic stability, with strong lag effects observed in GDP and money supply both in the short and long run. The impulse response analysis further showed that GDP responds positively after initial volatility, confirming the procyclical nature of oil price shocks in Nigeria.

Similarly, Magaji et al. (2024) analyzed the link between oil price fluctuations and macroeconomic dynamics using a Vector Error Correction Model (VECM) over the period 1980–2022. The study included real GDP, consumer price index (CPI), and exchange rate as key variables. The results indicated a long-run equilibrium relationship, with oil price shocks exerting significant influence on all selected macroeconomic indicators. The study concluded that Nigeria's heavy dependence on crude oil exposes the economy to external vulnerabilities.

With focus shifting to monetary transmission, Umeokwobi and Sekinat (2024) examined the impact of energy price shocks on inflation and monetary policy outcomes using monthly data from 2000–2024. The study found that fuel price shocks (proxied by PMS prices) have a weak and short-lived effect on inflation, with less than 5% pass-through. In contrast, monetary policy rate (MPR) strongly influences exchange rate dynamics, suggesting that inflation in Nigeria is more structurally driven than energy-induced.

Akinlo (2024) explored the nonlinear effects of oil price shocks on income inequality using a Nonlinear ARDL (NARDL) framework. Using annual data from 1981–2018, the study found asymmetric effects: negative oil price shocks significantly reduce income inequality, while positive shocks increase inequality but insignificantly. This highlights the distributional consequences of oil price volatility, linking oil shocks to microeconomic welfare outcomes.

In a related study, Usman and Ugwuoke (2024) applied a NARDL model to examine the asymmetric impact of crude oil price on domestic prices. Using quarterly data from 1999–2023, the study found that increases in oil prices significantly raise manufacturing and food prices, while decreases have weaker downward effects due to price rigidity. This suggests strong cost-push transmission mechanisms from oil shocks to household-level price dynamics.

Ikue (2024) also adopted a nonlinear ARDL approach to analyze the impact of retail energy prices on inflation between 2010 and 2024. The study found significant asymmetry: increases in fuel prices exert strong inflationary pressures, particularly on food prices, while decreases have minimal deflationary effects. This reinforces the presence of structural rigidities in Nigeria's pricing system.

Bello et al. (2025) investigated oil price shocks and selected macroeconomic variables using a NARDL model over the period 1981–2022. Variables included inflation, exchange rate, oil revenue, and government expenditure. The results confirmed both short-run and long-run significant effects of oil price shocks, with positive oil price changes increasing inflation while negatively affecting exchange rate stability and fiscal performance.

Ihugba and Adefabi (2025) examined the nonlinear relationship between oil prices and inflation using a NARDL model with data from 1981–2024. The study incorporated variables such as money supply, reserves, GDP growth, and monetary policy rate. Findings revealed strong inflation persistence and asymmetric responses to oil price shocks, with delayed but significant long-run effects. The study emphasized the role of monetary variables in moderating oil price–inflation dynamics.

From a broader development perspective, Oladipo et al. (2024) utilized an SVAR model to assess the impact of oil price shocks on human capital development. The study found that oil price shocks negatively affect secondary and tertiary education outcomes while positively influencing primary enrolment and government spending on education. This demonstrates that oil shocks have heterogeneous effects across human capital channels.

Lastly, a 2025 study on microeconomic variables and economic growth in Nigeria employed an ARDL framework using data from 1981–2023. The study analysed variables such as inflation, exchange rate, unemployment, and trade balance. The findings indicated that inflation and exchange rate exert negative but statistically insignificant effects on growth, while structural factors such as unemployment show mixed outcomes. The study underscores the weak transmission of macro shocks to certain microeconomic indicators.

III. METHODOLOGY

3.1 Model Specification

This study adopts the model specification of Usman and Ugwuoke (2024), who examined the impact of crude oil price shocks on domestic prices in Nigeria using an Autoregressive Distributed Lag (ARDL) framework. The ARDL approach is suitable because it captures both short-run and long-run dynamics and accommodates variables integrated of different orders.

However, the model is modified to suit the objective of this study, which focuses on the nexus between oil price shocks and microeconomic fundamentals in Nigeria, using wages as a proxy.

The functional form of the model is specified as:

LNWAGES=f (OPS, INF, LNEU, LNMS)

The econometric model is specified as:

$$LNWAGES_t = \alpha_0 + \sum_{i=1}^{p} \beta_1 LNWAGES_{t-i} + \sum_{j=0}^{q} \gamma_j OPS_{t-j} + \sum_{k=0}^{r} \delta_k INF_{t-k} \sum_{m=0}^{s} \emptyset_m LNEU_{t-m} + \sum_{n=0}^{u} \theta_n LNMS_{t-n} + \varepsilon_t$$

Where:

LNWAGES = Log of wages (dependent variable)

OPS = Oil price shocks

INF = Inflation rate

LNEU = Log of energy use

LNMS = Log of money supply

α_0 = Constant term

β_i, γ_j, δ_k, φ_m, θ_n = Coefficients of explanatory variables

ε_t = Error term

p, q, r, s, u = Optimal lag lengths determined using Akaike Information Criterion (AIC)

3.2 Variable Definitions

Variable	Definition	Measurement	Type
LNWAGES	Log of Wages	Natural logarithm of average wage levels	Dependent
OPS	Oil Price Shocks	Change in log of crude oil price (ΔlnOP)	Independent
INF	Inflation Rate	CPI growth rate (%)	Independent
LNEU	Log of Energy Use	Natural logarithm of energy consumption (kg of oil equivalent per capita)	Independent
LNMS	Log of Money Supply	Broad money supply (M2)	Independent

3.3 Data and Sources

This study uses annual time series data covering the period 1990–2025. All data are obtained from the World Bank's World Development Indicators (WDI) database. The variables include wages (proxy for microeconomic fundamentals), oil price shocks, inflation, energy use, and money supply. The use of secondary data is consistent with an ex-post facto research design, which allows for the analysis of relationships among variables without manipulation.

3.4 Estimation Techniques

To achieve robust and reliable results, the study employed a comprehensive set of econometric procedures. First, descriptive statistics were used to summarize the distributional properties of the variables, providing insights into their central tendency, dispersion, and overall behaviour. This was followed by the construction of a correlation matrix, which helped to assess the degree of association among the variables and detect potential multicollinearity issues that could bias estimation.

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To ensure the validity of the time series analysis, unit root tests were conducted using the Augmented Dickey–Fuller (ADF) approach (Dickey & Fuller, 1979), thereby establishing the order of integration of each variable. Given the presence of mixed integration orders, the Autoregressive Distributed Lag (ARDL) bounds testing approach (Pesaran et al., 2001) was applied to determine the existence of long-run equilibrium relationships among the variables.
In addition, the Error Correction Model (ECM) was employed to capture short-run dynamics and the speed of adjustment toward long-run equilibrium. Finally, a series of diagnostic and stability tests were performed, including the Breusch–Godfrey LM test for serial correlation, the Breusch–Pagan–Godfrey test for heteroskedasticity, and the CUSUM and CUSUMSQ tests (Brown, Durbin & Evans, 1975), all of which confirmed the adequacy, reliability, and structural stability of the estimated model.

3.5 Result of Analysis

The results of the analysis are presented in section four. This includes the interpretation of descriptive statistics, correlation analysis, unit root tests, ARDL bounds test results, long-run and short-run estimates, as well as post-estimation diagnostic and stability tests.

IV. Data Analysis and Interpretation

4.1 Descriptive Statistics

	LNWAGES	OPS	INF	LNEU	LNMS
Mean	2.171503	0.030567	19.02962	5.710937	2.816722
Median	2.281316	0.009203	13.24602	5.702949	2.853306
Maximum	2.628137	0.510021	72.83550	5.929775	3.309769
Minimum	1.483603	-0.636154	5.388008	5.548758	2.204236
Std. Dev.	0.389738	0.271380	15.74622	0.096823	0.314351
Skewness	-0.382137	-0.369115	2.068909	0.295516	-0.181880
Kurtosis	1.585928	2.685681	6.517612	2.310662	1.940230
Jarque-Bera	3.767918	0.938844	43.01375	1.202404	1.830842
Probability	0.151987	0.625364	0.000000	0.548152	0.400348
Sum	76.00261	1.069846	666.0369	199.8828	98.58525
Sum Sq. Dev.	5.164457	2.503997	8430.078	0.318737	3.359753
Observations	35	35	35	35	35

The descriptive statistics show that inflation (INF) has the highest mean value (19.03) and also exhibits substantial volatility with a standard deviation of 15.75, indicating significant price fluctuations over the sample period. Log wages (LNWAGES), energy use (LNEU) and money supply (LNMS) display relatively lower dispersion, suggesting more stable movements compared to inflation and oil price shocks.
The Jarque–Bera statistics indicate that most variables are normally distributed except inflation (p = 0.0000), which deviates from normality. However, this does not undermine the validity of the ARDL estimation given the moderate sample size of 35 observations.

4.2 Correlation Matrix

	LNWAGES	OPS	INF	LNEU	LNMS
LNWA...	1.000000	-0.013810	-0.425240	0.645979	0.727688
OPS	-0.013810	1.000000	-0.064487	0.073510	-0.121259
INF	-0.425240	-0.064487	1.000000	-0.306302	-0.287684
LNEU	0.645979	0.073510	-0.306302	1.000000	0.610699
LNMS	0.727688	-0.121259	-0.287684	0.610699	1.000000

The correlation matrix reveals moderate relationships among the variables. Log wages (LNWAGES) show a positive correlation with energy use (0.6460) and money supply (0.7277), suggesting that increases in energy consumption and monetary expansion may be associated with higher wage levels.
Inflation is negatively correlated with most variables, particularly log wages (–0.4252) and energy use (–0.3063). Although some variables display moderate correlations, none indicates perfect multicollinearity. Therefore, multicollinearity is not severe enough to distort the ARDL estimation results.

4.3 Unit Root Tests

To ensure valid estimation and avoid spurious regression, the stationarity properties of all variables were examined using the Augmented Dickey-Fuller (ADF) test. Results are summarized below.

Variable	Level (Prob)	1st Difference (prob)	Conclusion
LNWAGES	0.8361	0.0254	I(1)
OPS	0.0001	-	I(0)
INF	0.1714	0.0005	I(1)
LNEU	0.2069	0.0000	I(1)
LNMS	0.4135	0.0007	I(1)

The Augmented Dickey–Fuller (ADF) results indicate mixed orders of integration among the variables. Oil price shocks (OPS) are stationary at level, implying integration of order zero, I(0), while log wages (LNWAGES), inflation (INF), energy use (LNEU) and money supply (LNMS) become stationary after first differencing, indicating integration of order one, I(1). This combination of I(0) and I(1) variables satisfies the requirement for the application of the ARDL bounds testing approach in examining the long-run relationship among the variables.

4.4 ARDL Bounds Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	15.73266	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

The ARDL bounds test produced an F-statistic of 15.73, which is higher than the upper critical bound at the 5% significance level (3.49). This indicates the existence of a long-run equilibrium relationship among log wages, oil price shocks, inflation, energy use and money supply in the model.

4.5 Long-Run ARDL Estimates

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OPS	0.799348	0.591363	1.351706	0.1886
INF	-0.011178	0.008232	-1.357834	0.1866
LNMS	-0.084710	0.765511	-0.110658	0.9128
LNEU	0.705534	1.768208	0.399011	0.6933
C	-0.541529	9.055327	-0.059802	0.9528

The long-run results show that oil price shocks (OPS) have a positive coefficient (β = 0.7993) but are not statistically significant (p = 0.1886), suggesting that oil price fluctuations do not exert a strong long-run influence on wages.
Similarly, inflation, energy use, and money supply are not statistically significant in the long run, as their probability values exceed the 5% significance level. This implies that although these variables may influence wage dynamics, their long-term effects are weak once other macroeconomic controls are considered.

4.6 Short-Run Dynamics and Error Correction Model (ECM)

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.019894	0.334242	-0.059519	0.9530
LNWAGES(-1)*	-0.036737	0.019837	-1.851927	0.0759
OPS**	0.029365	0.015287	1.920889	0.0662
INF**	-0.000411	0.000315	-1.303323	0.2043
LNMS(-1)	-0.003112	0.027024	-0.115154	0.9092
LNEU**	0.025919	0.065386	0.396395	0.6952
D(LNWAGES(-1))	-0.003597	0.031576	-0.113926	0.9102
D(LNMS)	-0.029965	0.029372	-1.020187	0.3174
D(LNMS(-1))	0.055554	0.032155	1.727678	0.0964

The short-run results indicate that oil price shocks (OPS) and the lagged dependent variable LNWAGES(-1) are marginally significant at the 10% level, suggesting that oil price changes may exert some short-term influence on wage movements. However, inflation, energy use and money supply remain statistically insignificant in the short run.
Overall, the results indicate that wage dynamics exhibit weak short-run responsiveness to oil price shocks and other economic fundamentals.

4.7 Diagnostic and Stability Tests

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

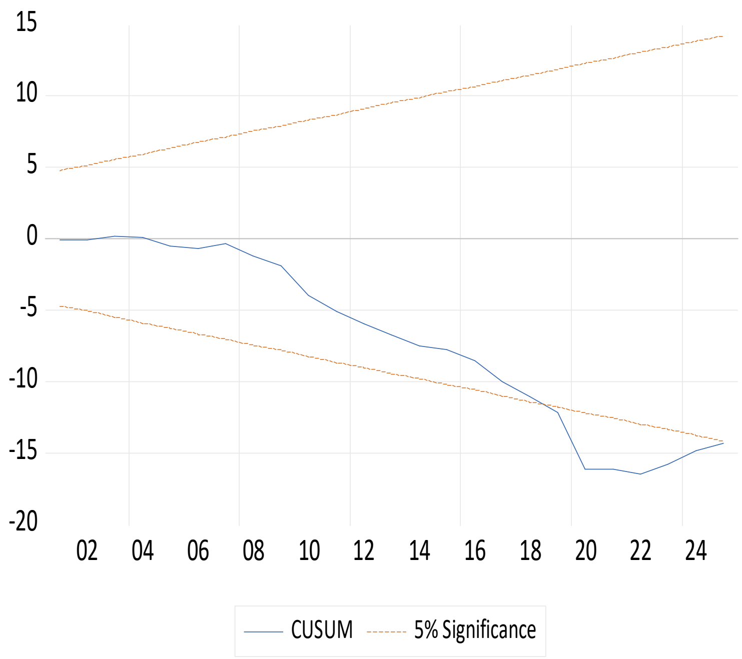
F-statistic	2.867480	Prob. F(2,23)	0.0773
Obs*R-squared	6.785764	Prob. Chi-Square(2)	0.0336

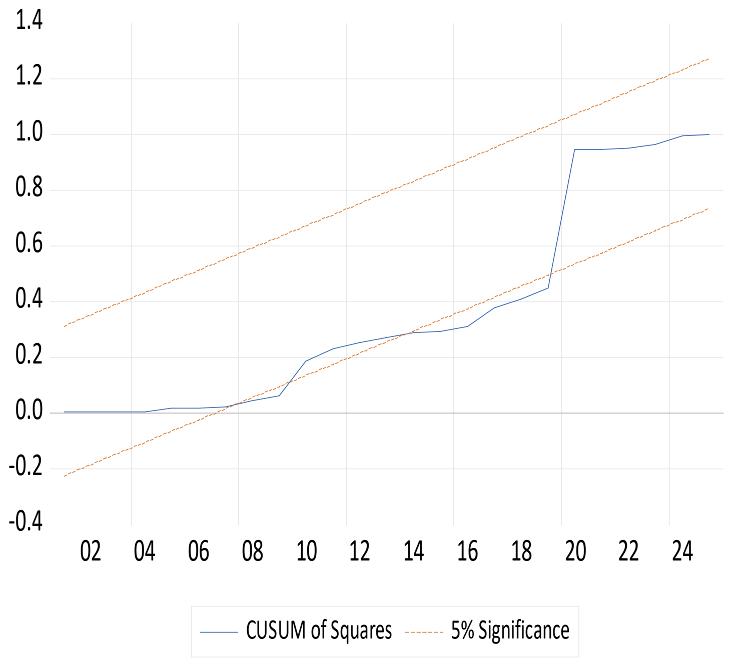
The Breusch–Godfrey LM test indicates that the null hypothesis of no serial correlation cannot be rejected since the probability of the F-statistic (0.0773) exceeds the 5% significance level. This suggests that the residuals are free from serial correlation and the model is adequately specified.

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	1.393088	Prob. F(8,25)	0.2476
Obs*R-squared	10.48342	Prob. Chi-Square(8)	0.2327
Scaled explained SS	11.87704	Prob. Chi-Square(8)	0.1568

The Breusch–Pagan–Godfrey heteroskedasticity test indicates that the null hypothesis of homoskedasticity cannot be rejected since the probability values exceed 0.05. This confirms that the residuals have constant variance.





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The CUSUM and CUSUM of Squares plots remain within the 5% critical bounds throughout most of the sample period, indicating that the estimated model is structurally stable and suitable for policy interpretation.

V. SUMMARY OF FINDINGS

This study examined the nexus between oil price shocks and microeconomic fundamentals in Nigeria, with specific focus on wage dynamics, inflation, energy use, and money supply using the ARDL framework. Empirical results reveal that inflation exhibits the highest volatility among the variables, reflecting persistent instability in the general price level. Correlation analysis indicates moderate associations among the variables without evidence of severe multicollinearity. The unit root results show a mixed order of integration, validating the application of the ARDL bounds testing approach.

The bounds test confirms the existence of a long-run equilibrium relationship among oil price shocks, wages, inflation, energy use, and money supply. However, the long-run coefficients indicate that oil price shocks exert a positive but statistically insignificant effect on wages, while other explanatory variables also show weak and insignificant impacts. In the short run, oil price shocks demonstrate only marginal influence on wage dynamics, suggesting limited transmission effects. Overall, the findings indicate that although oil price shocks are theoretically relevant, their direct impact on microeconomic fundamentals particularly wages, is weak in both the short and long run. Diagnostic and stability tests further confirm that the model is well-specified, stable, and reliable.

5.2 Conclusion

The study concludes that oil price shocks do not significantly influence microeconomic fundamentals in Nigeria, particularly wage dynamics. Despite the existence of a long-run relationship among the variables, the individual effects of oil price shocks and other macroeconomic indicators remain weak. This outcome reflects underlying structural characteristics of the Nigerian economy, including heavy dependence on crude oil exports, weak domestic refining capacity, and policy interventions that may dampen the transmission of external shocks. Additionally, the limited responsiveness of wages suggests that labor market outcomes are largely driven by institutional and structural factors rather than oil price fluctuations alone. Therefore, while oil price volatility remains an important macroeconomic concern, its direct effect on microeconomic variables appears limited, highlighting the need for broader structural and policy considerations in economic management.

5.3 Policy Implications and Recommendations

1. **Economic Diversification:** The Nigerian government should intensify efforts to diversify the economy away from overdependence on crude oil by promoting sectors such as agriculture, manufacturing, and technology. This will reduce vulnerability to external oil price shocks and enhance economic resilience.
2. **Strengthening Domestic Refining Capacity:** Investment in local refining infrastructure should be prioritized to reduce dependence on imported petroleum products. Improved refining capacity will help stabilize domestic energy prices and limit the transmission of global oil price volatility.
3. **Enhancing Monetary Policy Effectiveness:** The Central Bank of Nigeria should strengthen monetary policy coordination to better manage inflation and liquidity conditions. This is important given the weak transmission of oil price shocks to microeconomic variables observed in the study.
4. **Labor Market Reforms:** Policies aimed at improving wage determination mechanisms, employment generation, and labour productivity should be implemented. This will enhance the responsiveness of wages to broader economic conditions.
5. **Energy Sector Reforms:** The government should implement reforms that promote efficiency, transparency, and competition in the energy sector. This will reduce production costs and improve overall economic performance.
6. **Macroeconomic Stabilization Policies:** Establishing stabilization funds or fiscal buffers can help cushion the economy against external shocks arising from fluctuations in global oil prices.
7. **Further Research:** Future studies should incorporate additional variables such as exchange rate dynamics, fiscal policy, and institutional factors to provide deeper insights into the transmission mechanisms of oil price shocks in Nigeria.

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