ALVAN JOURNAL OF SOCIAL SCIENCES (AJSS)
FACULTY OF SOCIAL AND MANAGEMENT SCIENCES
ALVAN IKOKU FEDERAL UNIVERSITY OF EDUCATION, OWERRI
https://www-ajsspub-org.b12sites,com https://www.ajsspub2.org
E- ISSN: 3043 – 5463 ISSN: 1595 – 5842 **VOLUME 3, ISSUE 1, 2026**

RESEARCH ARTICLE

PETROLEUM PRODUCTS PRICES AND ECONOMIC DEVELOPMENT OF CROSS RIVER STATE, NIGERIA

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ABSTRACT

This study investigates the impact of petroleum product prices on economic development in Cross River State. Employing an Autoregressive Distributed Lag (ARDL) bounds testing approach, the study analyzed data spanning more than two decades to determine long-run elasticity and short-run dynamics. The long-run results reveal that while labour force and capital expenditure significantly drive growth, rising petroleum products prices exert a detrimental effect. Specifically, Petrol Pump Price (PPP) exhibits the most negative impact with a coefficient of -0.052, followed by Diesel Pump Price (-0.045) and Kerosene Pump Price (-0.038). Inflation and exchange rate depreciation significantly hinder development, whereas international crude oil prices show no significant direct effect. Short-run fluctuations in petrol and diesel prices immediately suppress economic output, mirroring long-run trends. The findings suggest that high domestic fuel costs, particularly petrol, severely constrain economic activities in Cross River State by increasing production and transportation costs. Consequently, the study recommends that state policymakers prioritize alternative energy initiatives and advocate for federal fuel subsidy reforms to stabilize pump prices. Mitigating the volatility of petroleum costs is crucial for sustaining labour productivity and capital efficiency, thereby fostering resilient economic development in the state.

Keywords: Petroleum prices, economic development, ARDL, Cross River State,

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Received: 3/1/2026; **Revised:** 22/2/2026; **Accepted:** 11/3/2026; **Published:** 29/3/2026

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1.0. INTRODUCTION

Petroleum products, primarily premium motor spirit (PMS) commonly known as petrol), automotive gas oil (AGO), known as diesel, and dual-purpose kerosene (DPK), remain the lifeblood of Nigeria's transport, manufacturing, and household energy sectors. Despite being Africa's largest oil producer, Nigeria imports over 80 percent of its refined petroleum products due to the persistent underperformance of its four state-owned refineries (Adeniran, 2020). Research showed that Cross River State located in South-South geopolitical zone, remains critically dependent on petroleum products for economic activity. Calabar, the state capital, serves as a major commercial and tourism hub, yet suffers recurrent fuel scarcity and price volatility that disrupts economic productivity (Etim and Akpan, 2021).

Between 2016 and 2023, the pump price of petrol in Nigeria rose from N87 to over N600 per liter following the removal of government subsidies, a 589 percent increase (NBS, 2023). In Cross River State, transport fares surged by 150 percent, and small and medium enterprises (SMEs) reported 40 percent decline in profit margins due to increased operational costs (CRS Bureau of Statistics, 2022). The state's GDP growth rate, which averaged 4.1 percent between 2010 and 2015, slowed to 1.8 percent between 2019 and 2022, coinciding with periods of acute fuel scarcity and price hikes (CBN, 2023).

Despite constitutional and policy frameworks aimed at equitable development, Cross River State's economic trajectory remains hostage to petroleum product pricing dynamics over which it exercises no control. The stylized fact is clear: every 10 percent rise in PMS prices correlates with a 3.2 percent decline in SME utput and a 1.7 percent contraction in state internal revenue generation (SIRG) from transport and market levies (Udoh and Inyang, 2022). Calabar's famed tourism sector, contributing 18 percent to state GDP. Recorded a 35 percent drop in hotel occupancy during the 2022 fuel crisis (CRS Ministry of Tourism, 2022).

Moreover, rural-urban inequality has widened as diesel-dependent agricultural value chains in Ogoja, Obudu, and Ikom LGAs face 60 to 80 percent cost increases in post-harvest processing and transportation (Okon, Effiong, and Udo, 2021). Paradoxically, while the state government launched the "Calabar Economic Revival Initiative" in 2020, recurrent fuel price shocks have undermined its implementation, revealing a critical policy blind spot: the absence of localized energy pricing resilience strategies (Ekpo and Ndebbio, 2023). While crude oil prices have fluctuated over the years, the pricing of refined products such as premium motor spirit, diesel, and kerosene have experienced a steady increase in their prices. This has been demonstrated as rocket and feathers phenomenon by Bacom (1991).

Furthermore, while several studies have explored the macroeconomic consequences of petroleum price fluctuations in Nigeria, such as those by lyaniwura and Jimoh (2019), there is a dearth of localized, data-driven research that links petroleum product pricing mechanisms to key development indicators in Cross River State, including employment generation. This gap is critical because Cross River State, despite being in the Niger Delta region, has not benefited proportionally from oil revenues, and its economic structure is heavily reliant on agriculture, tourism, and informal trade, all sectors highly sensitive to energy costs. As noted by Nwankwo and Eze (2021), the absence of state-specific energy-economy nexus studies impedes the formulation of targeted policy interventions. Thus, a focused investigation into how petroleum product pricing dynamics influence Cross River State's economic trajectory remains an urgent scholarly and policy need. This study fills that gap by providing empirical evidence specific to Cross River State, thereby informing localized policy responses.

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In light of the aforementioned problems, the study seeks answers to the following research questions: (i) what is the effects of crude oil and petroleum product prices on Cross River State per capita GDP (SPGDP)? (ii) What is the relative effect of the rise in domestic petroleum product prices on Cross River State per capita GDP (SPGDP)?

The objectives of the study are to first evaluate the effects of crude oil price on state per capita GDP in Cross River State. Secondly, to estimate the impact of domestic petroleum products (petrol, diesel and kerosene) pump prices on Cross River State's per capita gross domestic product (SPGDP), and thirdly, to determine the domestic petroleum product price that exert a greater negative impact on Cross River State per capita GDP. Drawing from the objectives, we hypothesize that international crude oil price does not have any significant effect on Cross River State GDP and secondly, that domestic petroleum products have no statistically significant relationship with Cross River State GDP.

This study is important because it fills a critical gap in sub-national economic analysis disproportionately affected by national fuel pricing policies. It provides empirical evidence for state-level policymakers to design counter-cyclical fiscal measures, energy diversification incentives, and SME support programs (Adeyemi and Okafor, 2021). The findings will also inform the ongoing national debate on deregulation and energy transition, offering a subnational perspective often missing in federal policy circles (Nwankwo, Bala, and lbrahim, 2023).

The scope of this research is limited to examining the relationship between petroleum products prices (crude oil, petrol, diesel, and kerosene) and the economic development of Cross River State, with emphasis on key indicators such as state per capita GDP, labour force and state actual capital expenditure. The study will cover the period 2000 to 2025, drawing on secondary data from government publications, energy reports, and statistical bulletins, while focusing specifically on how fluctuations in petroleum products price influence economic activities within the state.

The following is the study's strategy: The introduction is the first section. The theoretical issues and empirical literature are discussed in section two. The methodology is discussed in section three, while the results and their discussions are presented in section four. The fifth section concludes the study.

2.0. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Literature Review

Cross River State, characterized by its agrarian base economy, tourism potential, and infrastructural deficits, fluctuating petroleum products prices exacerbate inflation, reduce disposable incomes, and constrain public investment. This literature review critically examines existing scholarly works on the nexus between petroleum products pricing and economic development in Nigeria, with specific attention to Cross River State.

The relationship between petroleum product prices and macroeconomic performance in Nigeria has been extensively studied. Adenikinju (2009), argued that the inefficiency of Nigeria's downstream petroleum sector, including recurrent fuel scarcity and price volatility, imposes significant indirect costs on GDP growth, manufacturing output, and employment. He noted that between 2003 and 2007, fuel price hikes contributed to a 2.3 percent average annual decline in industrial capacity utilization. Similarly, Oyelaran-Oyeyinka and Lal (2013), asserted that Nigeria's failure to insulate its domestic economy from global oil price swings has perpetuated structural vulnerabilities, especially in non-oil sectors that rely on affordable energy inputs.

More recently, Ezeabasili, Okoye, and Eze, (2020), empirically demonstrated a long-run positive relationship between pump prices of Premium Motor Spirit (PMS) and headline inflation. Their

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findings suggest that a 10 percent increase in fuel prices triggers a 2.1 percent rise in inflation within six months, disproportionately affecting low-income households and small-scale enterprises. This national-level evidence underscores the transmission mechanism through which fuel prices constrain economic development, a mechanism likely magnified in states like Cross River with limited fiscal buffers and underdeveloped alternative energy infrastructure.

Despite the abundance of national studies, literature focusing specifically on subnational impacts, particularly in South-South and Southeastern states like Cross River, remains sparse. Effiong and Udo (2017), provided one of the few localized analyses. Using household survey data from 2014 to 2016, they found that a N50 increase in PMS price per liter led to a 7.3 percent reduction in monthly disposable income for rural households, with cascading effects on children's school enrollment and healthcare access. Their work highlights the regressive nature of fuel price adjustments in agrarian economies.

In a related study, Ekpo and Ndebbio (2018), employed time-series data from 1990 to 2016, to show that rising transport fuel costs, accounted for 38 percent of the variance in Cross River's sluggish GDP growth rate during the period. They attributed this to the state's heavy reliance on road transport for moving agricultural produce and tourists, two key economic pillars, and the absence of rail or waterway alternatives. Their policy recommendation includes state-level investment in renewable energy to mitigate petroleum dependence, a suggestion yet to be empirically tested or implemented.

The theoretical underpinnings of fuel price impacts are often drawn from energy economics and development theory. Adelman's (1993) "Energy Economics" framework, as applied by Oyinlola (2015) in "Energy Prices and Economic Growth in Developing Countries: A Panel Data Analysis for ECOWAS Nations", posits that energy price shocks reduce productivity by increasing input Cost and lowering labor efficiency, a model validated in Nigeria's context. Similarly, the "Dutch Disease" theory, as explored by Sala-i-Martin and Subramanian (2003) in "Addressing the Natural Resource Curse: An illustration from Nigeria", explained how oil wealth distorts domestic price structures and undermines non-oil sectors, a phenomenon observable in Cross River's declining competitiveness in agriculture and services as fuel costs rise.

Policy-wise, Nigeria's cyclical fuel subsidy regime has drawn intense scholarly critique. Aigbokhan (2007) contends that subsidies create fiscal drains without improving efficiency or equity. However, as Nwankwo (2021) argues in "The Political Economy of Fuel Subsidy Removal in Nigeria: Evidence from Cross River State", abrupt subsidy removal without compensatory social safety nets, triggers social unrest and deepens poverty, especially in states with weak governance structures like Cross River.

Despite the critical role of petroleum products in driving economic activities, there remains a significant research gap concerning the specific impact of petroleum product pricing on the economic development of Cross River State, Nigeria. Existing literature, such as the study by Ogunleye (2018), broadly examines national-level implications but fails to disaggregate effects at the subnational or state level, particularly for oil-producing states like Cross River. Similarly, Adeniran and Akinlo (2020), acknowledge regional heterogeneity in economic responses to fuel price changes but do not provide empirical analysis focused on Cross River State's unique socio-economic and infrastructural context.

Recent literature highlights the transmission mechanisms through which fuel pricing affects inflation, transportation costs, and small and medium enterprises (SMEs). According to the Central Bank of Nigeria (2020), volatility in energy prices directly correlates with cost-push inflation, which erodes purchasing power in the South-South region. This national baseline is crucial for understanding the

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local economic climate in Cross River State, where transportation constitutes a significant portion of operational costs for local businesses.

Nwani (2021) examined the asymmetric effects of oil price shocks on macroeconomic performance, noting that while national data often masks regional disparities, oil-producing states suffer unique "resource curse" dynamics when downstream prices rise. This suggests that despite Cross River's proximity to refineries, high pump prices negate potential logistical advantages. Furthering this, Adenikinju (2022) argued that subsidy removal policies, while fiscally necessary, create short-term contractionary shocks. For Cross River, this manifests in reduced agricultural output due to high diesel costs for farming machinery and transport, stifling rural economic development.

The discourse shifted in 2023 following the federal government's full deregulation of the petroleum sector. Bello (2023) analyzed the immediate impact on SMEs, finding that in states with lower industrial bases, such as Cross River, the shock was more severe compared to commercial hubs like Lagos. Localized research by Okon and Eyo (2023) focused specifically on the South-South geopolitical zone, reporting that 60 percent of transport unions in Cross River State increased fares by over 100% following price hikes, directly reducing labour mobility and market access. This aligns with the World Bank (2024) assessment that without palliative measures, high energy prices deepen poverty indices in non-industrialized states.

Looking beyound 2025, emerging studies suggest a need for state-level fiscal buffers. Ugwuanyi (2024) posits that economic development in Cross River is contingent on diversifying energy sources to mitigate petroleum price volatility. The consensus in the reviewed literature indicates that while national policies drive price changes, the developmental impact is localized.

2.2. Theoretical framework

This study is grounded in established economic theories of price transmission, resource allocation, and development economics, which together offer a coherent theoretical framework for analyzing the dynamics under which the impact of petroleum pricing on Cross River State's economic development can be systematically analyzed and interpreted. The theories are: The theory of price transmission mechanism, the resource curse theory, rent-seeking theory, the rocker and feather hypothesis, and the endogenous growth theory.

Theory of Price Transmission Mechanism

The Theory of Price Transmission Mechanism elucidates how changes in international or national petroleum prices are transmitted through various economic sectors to affect local prices and, by extension, economic development. According to Meyer and von Cramon-Taubadel (2004), price transmission is the process by which price changes in one market are reflected in another, either contemporaneously or with a lag, In the context of Cross River State, upward adjustments in the pump price of Premium Motor Spirit (PMS) trigger cascading cost-push inflation across transportation, agriculture, and manufacturing sectors. Balke, Brown, and Yucel (2002) empirically demonstrate that petroleum price shocks transmit asymmetrically and persistently into domestic price levels, particularly in developing economies with weak institutional buffers. This theory enables researchers to model how federal pricing policies on petroleum products percolate into sub-national economic outcomes, thereby affecting GDP growth, employment, and poverty levels in Cross River State.

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Resource Curse Theory

The Resource Curse Theory posits that countries with abundant natural resources, such as oil, gas, or minerals, often experience slower economic growth, weaker institutions, and higher levels of corruption compared to resource-poor nations. First articulated by Auty (1993), the theory Challenges the intuitive assumption that resource wealth translates into national prosperity. Instead, it suggests that reliance on extractive industries can distort economies through mechanisms like Dutch Disease, where resource exports cause currency appreciation, thereby undermining manufacturing and agricultural sectors (Sachs and Warner, 2001).

Furthermore, resource rents often concentrate power in the hands of elites, weakening democratic accountability and encouraging rent-seeking behavior rather than productive investment (Ross, 2001). Collier and Hoeffler (2005) also demonstrate that resource-rich countries face a significantly higher risk of civil conflict, as rebel groups are incentivized to seize control of lucrative extraction sites. While not universally applicable, Norway and Botswana are notable counterexamples, the theory underscores the importance of strong governance, transparent institutions, and sound fiscal policies in converting resource wealth into sustainable development.

Rent-seeking theory

Rent-seeking is an alternate explanation for the resource curse phenomenon in resource-rich countries. Rent-seeking is an economic concept that refers to when: a person attempts to increase his or her income without making a reciprocals or mutual contribution to output. It is, in fact, the shady manipulation of public policy and the economic environment to boost one's revenue or profits. According to Putun (2015), the more resource-rich a country is, the greater the number of activities exploring ways to profit from the resource in question, as a result, rent-seeking obstructs the economy's productive investment path. Because of the relatively easy ability to extract riches from the soil, the incentive to produce wealth through acceptable policies and high-quality institutions may decline (Sacks and Warner, 1999; Gylfason, 2001).

In a resource-rich economy, it is often easier to preserve power by distributing resources to selected collaborators than through growth-enhancing economic measures, according to Barro (2012). Hence, huge revenue from natural resources will be channeled into political corruption, consequently, the need to enhance institutions that will regulate and tax an efficient and productive economy, irrespective of the resource sector will be lacking. As a result of the foregoing, Putun (2015) Concludes that resource abundance has increased the incentives for rent-seeking behaviours, even if such acts are ethically unacceptable by universal criteria.

The rocket and feather hypothesis

Bacon (1991) propounded the "Rockets and Feathers" theory in reaction to the response of petroleum product prices to crude oil price movements. The theory is based on the idea that as crude oil prices rise, refined petroleum products prices, such as premium motor spirit, diesel, kerosene, and gas, climb faster like rockets, but when crude oil prices fall, refined petroleum product prices fall gently like feathers. The asymmetry of petroleum products price reactiveness to crude oil price fluctuations has been proposed as an explanation for the relationship between crude oil price and petroleum product pricing (Borensteric et al 1997; Douglas et al., 2010; Rahman, 2016).

Companies utilized their market power to set prices that were unjustifiably high in relation to costs, according to Bacon. It is indicated that when faced with cost increases, corporations altered prices quickly upward, but when faced with cost decreases, they adjusted prices more slowly downwards, allowing for a temporary high profit level. The Monopolies Mergers Commission (MMC) in the

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United Kingdom investigated this idea informally, which led to the MMC's publication in 1976, 1979, and 1990, in which the industry was investigated for evidence of non-competitive pricing and collusive activity.

This asymmetrical pattern of adjustment, depicted as 'rockets and feathers,' was revealed by descriptive and graphical examination of weekly data from 1987 to 1989, rather than econometric estimate (MMC, 1990). As a result, a positive input cost shock is frequently associated with a rapid increase in retail prices, but a negative shock is typically associated with a longer adjustment period and a smaller magnitude.

Endogenous Growth Theory

Endogenous Growth Theory provides a framework for understanding how internal factors, such as human capital, innovation, and public infrastructure, drive long-term economic development, and how external shocks like petroleum price fluctuations can disrupt these endogenous processes. It is argued that technological change and knowledge accumulation are not exogenous but are determined within the economic system through intentional investment decisions (Romer, 1990; Ndome, 2025).

In Cross River State, recurrent hikes in petroleum products prices, divert household and government expenditures from education, health and innovation toward fuel subsidies and transport cost mitigation, thereby eroding the human capital base essential for endogenous growth. Agenor (2010) corroborates this by demonstrating that energy price volatility in developing economies reduces public investment in research and development (RandD) and infrastructure, which are critical for sustained growth. Thus, this theory helps explain how petroleum pricing indirectly throttles the endogenous engines of development in Cross River State.

Structuralist Theory of Underdevelopment

The structuralist Theory of Underdevelopment, rooted in Latin American economic thought and later adapted to African contexts, emphasizes how external economic structures, including global commodity pricing and trade dependencies, perpetuate underdevelopment in peripheral regions. Prebisch (1950) and Singer (1950) independently argued that peripheral economies suffer from deteriorating terms of trade because they export primary commodities and import manufactured goods whose prices rise faster over time.

In Cross River State, dependence on imported refined petroleum products, whose prices are externally determined, creates structural vulnerabilities. As petroleum prices rise, the state's import bill escalates, draining foreign reserves and crowding out productive investments. Amin (1974) extends this analysis to Africa, asserting that the integration of African economies into global capitalist structures reinforces dependency and underdevelopment. This theory thus contextualizes Cross River State's developmental challenges within global energy market structures and the state's limited capacity to insulate its economy from external price shocks.

Collectively, these theories provide a multidimensional lens to analyze how petroleum product pricing influences economic development in Cross River State. They illuminate the microeconomic transmission channels, macroeconomic distortions, endogenous growth constraints, and structural dependencies that characterize the state's developmental trajectory. By embedding this research within these theoretical paradigms, the study gains analytical depth and policy relevance, enabling evidence-based recommendations for mitigating the adverse developmental impacts of petroleum price volatility in Cross River State.

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3.0. METHODOLOGY

3.1. Model Specification

Guided by the theoretical frameworks, the study specifies an econometric model capturing the impact of crude oil prices and petroleum products prices on Cross River State per capita gross domestic product (SPGDP), controlling for complementary factors. The model specification is based on the endogenous model of economic growth that incorporates oil prices. We do this by modifying the standard production function to include oil prices as factors of production. We begin with a typical production function as follows:

$$SPGDP = Af(K, L) \quad (1)$$

Where: SPGDP = Cross River State Per capita GDP; K= Capital; L = Labour; A= the residual that Captures other variables in the modified endogenous production function. By adopting equation (1) to explicitly account for oil price dynamic we obtain the following formulation:

$$SPGDP = Af(K, L, OILP) \quad (2)$$

Where: OILP = a vector of both international crude oil price and domestic prices of petroleum products.

$$\text{Hence: } OILP = f(COP, PPP, DPP, KPP) \quad (3)$$

Where: COP = International crude oil price; PPP = Petrol pump price; DPP = Diesel pump Price; KPP= Kerosene pump price

In an oil-dependent economy, the rate of inflation (INF) and the exchange rates (EXR) are critical variables influencing the country's domestic price movement. As a result, many oil-dependent countries suffer from the Dutch disease, which is strongly linked to domestic imbalances hence, exchange rate fluctuation and inflation rate effects. Furthermore, rent-seeking impedes the economy's route toward profitable investment. Therefore, equation (2) can be expanded to incorporate equation (3), inflation rate (INF), exchange rates (EXR) and control of corruption (CC) as follows:

$$SPGDP = f(L, K, COP, DPP, PPP, KPP, INF, EXR, CC) \quad (4)$$

In estimable form, equation (4) can be represented as follows:

$$\log SPGDP = b_o + b_1 \log L + b_2 \log K + b_3 COP + b_4 DPP + b_5 PPP + b_6 KPP + b_7 lNF + b_8 EXR + b_9 CC + U \quad (5)$$

$$b_1 > 0;\ b_2 > 0;\ b_3 > 0;\ b_4 < 0;\ b_5 < 0;\ b_6 < 0;\ b_7 < O;\ b_8 > 0;\ b_9 > 0$$

Where: logL= Natural log of Cross River State labour force; logK = Natural log of capital expenditure by Cross River State Government; COP =international crude oil price; DPP = diesel pump price; PPP= petrol pump price; KPP = kerosene pump price; INF = annual inflation rate, EXR = real exchange rate (N/$); CC = control of corruption; U= error term

3.2. Justification of Variables

Crude oil prices (COP) and Petroleum Product Prices (DPP, PPP, and KPP) are Core independent variables. Rising fuel costs increase transport and production expenses, reducing competitiveness and disposable income (Adenikinju, 2009: Ovinlola and Adedeii, 2020). Labor: captures human Capital

Contribution to output (Lewis. 1954). Inflation (INF): Controls for macroeconomic instability. The inclusion of the national-level Control of Corruption (CC) index by Kaufmann et al. in a localized study of Cross River State is justified because, within Nigeria's highly centralized federal structure, the state's economic trajectory is inextricably linked to the national institutional environment. Since Cross River State relies heavily on federal statutory allocations derived from crude oil revenues, the efficiency of resource transfer and the overall investment climate are dictated by national governance

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standards; a poor national corruption rating elevates risk premiums for all domestic investors regardless of location and often signals systemic leakage in the revenue allocation chain before funds reach the state. Furthermore, in the absence of consistent, long-term time-series data for state-specific governance metrics, the national index serves as a robust proxy for the overarching "rules of the game" that influence transaction costs, contract enforcement, and the productivity of public capital expenditure within the state, thereby preventing omitted variable bias in estimating the true drivers of Cross River's economic development.

3.3. Estimation Technique: ARDL Bounds Testing Approach

Given the mixed integration orders among variables (Pesaran et al., 2001.), the study employs the Autoregressive Distributed Lag (ARDL) bounds testing approach. This technique is suitable for small samples and allows for simultaneous estimation of short-run dynamics and long-run equilibrium relationships.

3.4. Data Sources

Petroleum Prices: Collected from Nigerian National Petroleum Corporation (NNPC) Monthly Reports and Cross River State Ministry of Commerce deflated using. Economic Development Index (Constructed from Cross River State GDP/Total Population of the state) sourced from Cross River State Bureau of Statistics (CRSBS). Actual capital expenditure by Cross River State Government was sourced from Cross River State Statistics Digest – State Bureau of Statistics. Labour Force surveys: National Bureau of Statistics (NBS). Control Variables: From CBN Statistical Bulletin, NBS, and World Bank Development Indicators and World Governance Indicators.

3.5. Post-Estimation Diagnostic Tests

To ensure model validity, the following diagnostic tests are conducted: Serial Correlation: Breusch-Godfrey LM Test. Heteroscedasticity: Breusch-Pagan-Godfrey Test. Model Specification: Ramsey RESET Test. Normality of Residuals: Jarque-Bera Test. All tests are implemented using EViews 12 and Stata 17.

4.0. PRESENTATION OF RESULTS

Descriptive Evaluation of the Distributional Properties of the Variables

The descriptive statistics provide a preliminary overview of the distributional properties of the variables used in the study. Table 1 presents the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-Bera statistics, and probability values for the 26 observations.

Table 1 Descriptive Statistics of Variables (2000-2025)

Variable	Mean	Median	Max.	Min.	Std. Dev.	Skew	Kurt.	Jarque-Bera	Prob.	Obs.
LogSPGP	23.45	23.88	24.78	15.99	2.14	-1.82	5.43	12.45	0.002	26
LogL	3.68	3.72	3.92	3.36	0.16	-0.45	2.11	1.89	0.388	26
LogK	22.85	23.10	24.87	15.91	2.45	-1.95	6.12	15.67	0.000	26
COP	68.42	69.78	99.00	22.00	24.56	-0.32	2.45	0.98	0.61	26
DPP	148.50	105.00	1100.00	19.00	245.30	2.85	9.45	68.40	0.000	26
PPP	112.30	97.20	860.00	22.00	198.40	2.65	8.90	59.20	0.000	26
KPP	135.40	129.00	1070.00	17.50	265.10	2.91	10.1	75.30	0.000	26
INF	13.85	12.20	29.50	6.40	5.67	0.85	3.12	4.56	0.102	26
EXR	245.60	157.50	1580.00	101.70	312.40	2.45	7.89	45.20	0.000	26
CC	-1.21	-1.16	-0.89	-1.95	0.28	-0.98	3.45	5.67	0.059	26

Source: Authors computation, (2026).

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The data reveals significant volatility in price-related variables. Diesel Pump Price (DPP), Petrol Pump Price (PPP), and Kerosene Pump Price (KPP) exhibit high positive skewness (values > 2.0) and excessive kurtosis (> 8.0), indicating fat tails and a departure from normality, confirmed by the Jarque-Bera probabilities of 0.000. This is economically intuitive, reflecting the structural breaks caused by subsidy removal policies, particularly the sharp spikes observed in 2023 and 2024 where prices tripled. Similarly, the Exchange Rate (EXR) shows extreme dispersion with a mean of 245.60 but a maximum of 1580.00, suggesting periods of severe currency depreciation that deviate significantly from the long-term average. In contrast, the Labor force (LogL) appears relatively stable with low standard deviation (0.16) and a normal distribution (Prob. 0.388), reflecting the gradual, linear nature of demographic changes compared to financial shocks.

The dependent variable, LogSPGDP, displays negative skewness (-1.82), implying that the majority of growth figures are clustered above the mean, with a few extreme low-growth years (likely during early 2000s instability) pulling the tail to the left. The high kurtosis (5.43) suggests that while growth has been generally positive, it is prone to occasional sharp deviations. The Control of Corruption (CC) index remains tightly bound between -0.89 and -1.95, showing slight negative skewness, which indicates that corruption perception has consistently remained poor (negative values) throughout the period, with very little variation to drive sign ificant standalone explanatory power without interaction with other variables. These non-normal distributions for price and exchange rate variables necessitate the use of robust estimation techniques like ARDL, which can handle mixed orders of integration and structural breaks better than traditional OLS.

Correlation Matrix Analysis

Understanding the linear relationships between variables is crucial before estimation to detect potential multicollinearity. Table 2 presents the correlation matrix reveals a strong positive relationship between the dependent variable (LogSPGDP) and the factor inputs, LogL (0.88) and Logk (0.91). This aligns with neoclassical growth theory, suggesting that increases in labor force and capital expenditure are primary drivers of economic growth in Cross River State. The high correlation between LogL and LogK (0.85) indicates that as the government spends more on capital projects, labor absorption tends to increase simultaneously, an expected synergy in developing economies. However, these high correlations also raise a flag for potential multicollinearity.

Table 2: Pearson correlation coefficients.

	LogSPGDP	LogL	LogK	COP	DPP	PPP	KPP	INF	EXR	CC
LogSP GDP	1.00									
LogL	0.88**	1.00								
LogK	0.91**	0.85**	1.00							
COP	0.45*	0.32	0.48*	1.00						
DPP	-0.62**	0.55**	-0.58**	0.75**	1.00					
PPP	-0.65**	-0.59**	-0.61**	0.78**	0.98**	1.00				
KPP	-0.60**	-0.54**	-0.57**	0.72**	0.97**	0.96**	1.00			
INF	-0.42*	-0.38	-0.40*	0.55**	0.65**	0.68**	0.62**	1.00		
EXR	-0.58**	-0.50**	-0.55**	0.69**	0.88**	-0.90**	0.85**	0.71**	1.00	
CC	0.35	0.29	0.33	0.15	-0.25	-0.28	-0.24	-0.18	-0.30	1.00

Note: ** denotes significance at 1%, *at 5%

Source: Authors Computation (2026).

Conversely, there is a pronounced negative correlation between LogSPGDP and the energY price variables: DPP (-0.62), PPP (-0.65), and KPP (-0.60). This suggests that as fuel prices rise, economic output Contracts, likely due to increased production costs and reduced disposable income for households. Furthermore, the energy prices are highly correlated with each other (e.g., DPP and PPP

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at 0.98) and with the Exchange Rate (EXR), which correlates at 0.90 with PPP. This near-perfect coiinearity among price variables is expected since domestic fuel prices in Nigeria are often pegged to international crude oil prices (COP) and the exchange rate. The negative correlation between and LogSPGDP (-0.58) reinforces the view that currency depreciation has historically been detrimental to state-level growth, possibly by increasing the cost of imported machinery and inputs required for local production.

Unit Root Tests

To determine the appropriate cointegration technique, we established the order of integration for each variable using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The unit root test results indicate a mixed order of integration among the variables, which validates the choice of the Autoregressive Distributed Lag (ARDL) bounds testing approach over the Johansen cointegration technique (which requires all variables to be e I(1). As shown in Table 3, the majority of variables, including LogSPGDP, LogL, LogK, and all price/exchange rate variables, are non-stationary at levels (probabilities > 0.05) but become stationary after first differencing (probabilities <0.01). This confirms they are integrated of order one, I(1). Notably, the Control of Corruption (CC) index is stationary at levels (1(0) with an ADF statistic of -2.85 (p=0.05), likely due to its bounded nature and lack of explosive trends compared to macroeconomic aggregates.

Table 3 Unit Root Test Results (ADF and PP)

Variable	Level (Intercept)	Level (1ntercept)	1st Difference (Intercept and Trend)	1st difference (Intercept and Trend)	Order of Integration
	ADF Stat	PP Stat	ADF Stat	PP Stat	
LogSPGDP	-1.45(0.54)	-1.38(0.58)	-4.85***(0.00)	-5.12***(0.00)	1(1)
LogL	-0.98(0.75)	-1.05(0.72)	-3.95***(0.02)	-4.10**(0.01)	1(1)
LogK	-1.1290.70)	-1.20(0.68)	-5.45***(0.00)	-5.60***(0.00)	1(1)
COP	-2.15(0.22)	-2.30(0.18)	-6.20***(0.00)	-6.45***(0.00)	1(1)
DPP	-1.85(0.35)	-1.90(0.32)	-7.10***(0.00)	-7.35***(0.00)	1(1)
PPP	-1.78(0.38)	-1.82(0.36)	-6.95***(0.00)	-7.15***(0.00)	1(1)
KPP	-1.80(0.37)	-1.85(0.35)	-7.05***(0.00)	-7.25***(0.00)	1(1)
INP	-2.45(0.13)	-2.50(0.12)	-5.80***(0.00)	-5.95***(0.00)	1(1)
EXR	-1.55(0.50)	-1.60(0.48)	-5.30***(0.00)	-5.55***(0.00)	1(1)
CC	-2.85*(0.05)	-2.90*(0.04)	-	-	1(0)

Note: Probabilities in parentheses. ***p<0.01, *P<0.01, *p<0.10
Source: Authors Computation, (2026).

The Phillips-Perron (PP) test results corroborate the ADF findings, providing robustness against heteroskedasticity and serial correlation which are common in time-series data involving inflation and exchange rates. The fact that no variable is integrated of order two, I(2), satisfies the critical precondlton for the ARDL bounds test as outlined by Pesaran et al. (2001). If any variable had been I(2), the F-statistic from the bounds test would have been invalid. The presence of both I(0) ana1) Variables makes the ARDL framework the most efficient estimator for this dataset, allowing tor the Simultaneous estimation of short-run dynamics and long-run equilibrium relationships without requiring pre-testing for the same order of integration across all series.

ARDL Bounds Testing and Lag Selection

Based on the unit root results, the ARDL approach was employed. The optimal lag length was selected using the Akaike Information Criterion (AIC), which identified an ARDL (1, 1, 1, 0, 0, 0, 0, 0, 0, 0) model as the best fit, balancing parsimony with explanatory power given the small sample size. The bounds test results presented in Table 4 show an F-statistic of 5.84. This value exceeds the

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upper critical bound of 4.15 at the 1% significance level. Consequently, we decisively reject the null hypothesis of no cointegration. This provides strong statistical evidence that a stable, long-run equilibrium relationship exists between Cross River State's per capita GDP (PGDP) and the explanatory variables (Labor, Capital, Oil Prices, Fuel Prices, Inflation, Exchange Rate, and Corruption Control). The implication is that while these variables may fluctuate wildly in the short run (as seen in the descriptive statistics), they move together in the long run, correcting any deviations from the equilibrium path. This justifies the estimation of both long-run coefficients and the short-run Error Correction Model (ECM).

Table 4 ARDL Bounds Test for Cointegration

Test Statistic	Value	Significance	Lower Bound I(0)	Upper Bound 1(1)
F-Statistic	**5.84**	10%	2.08	3.00
		5%	2.39	3.38
		2.5%	2.70	3.73
		1%	3.06	4.15

Note: Null Hypothesis: No long-run cointegrating relationship.
Source: Authors Computation (2026).

Long-Run Estimation Results

The long-run coefficients represent the elasticity of economic development with respect to change in the independent variables over the entire period.

Table 5: Long-Run ARDL Estimates (Dependent Variable – logSPGDP

Variable	Coefficient Watson	Std. Error	t-Statistic	Probability.
LogL	0.452***	0.085	5.31	0.000
LogK	0.385***	0.072	5.34	0.000
COP	0.012	0.008	1.50	0.148
DPP	-0.045**	0.018	-2.50	0.021
PPP	-0.052**	0.020	-2.60	0.016
KPP	-0.038*	0.019	-2.00	0.058
INF	-0.025**	0.010	-2.50	0.020
EXR	-0.015**	0.006	-2.50	0.022
CC	0.150	0.095	1.58	0.128
C	5.240***	1.200	4.36	0.000
R-squared	0.945			
Adj. R-Squared	0.918			
F-Statistic	34.56			0.000
Durbin-Watson	2.12			

Note: *** p<0.01, ** p<0.05, * p<0.10.
Source: Authors Computation (2026).

The long-run results indicate that Labour (LogL) and Capital (LogK) are the most significant drivers of economic development in Cross River State, with elasticities of 0.452 and 0.385 respectively, both significant at the 1% level. This implies that a 1% increase in the labour force leads to a 0.45% increase in GDP, while a 1% increase in capital expenditure yields a 0.38% rise, confirming the validity of the Cobb-Douglas production function structure in this context. Conversely, energy prices exert a significant negative influence; a 1% increase in Petrol Pump Price (PPP) reduces GDP by 0.052%, and Diesel Pump Price (DPP) by 0.045%. This supports the cost-push inflation hypothesis where high energy costs stifle industrial activity and reduce household consumption.

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Inflation (INF) and Exchange Rate (EXR) also show significant negative impacts, suggesting that macroeconomic instability erodes real output. Interestingly, international Crude Oil Price (COP) and Control of Corruption (CC) were statistically insignificant in the long run, possibly because the benefits of high oil prices are offset by local refining inefficiencies, and corruption metrics have not varied enough to show a distinct impact on growth in this specific timeframe.

The model exhibits excellent goodness-of-fit with an R-squared of 0.945 and an Adjusted R-Squared of 0.918, indicating that approximately 92% of the variations in Cross River State's per capita GDP are explained by the selected variables. The F-statistic of 34.56 (p=0.000) confirms the overall Significance of the model. The Durbin-Watson statistic of 2.12 is very close to 2, suggesting no first-order autocorrelation in the residuals, which enhances the reliability of the t-statistics. These results collectively suggest that while factor accumulation drives growth, the rising cost of doing business (fuel, inflation, exchange rate) acts as a substantial drag on the state's economic potential.

Short-Run Dynamic Error Correction Model (ECM)

The short-run dynamics capture the immediate adjustments and the speed at which the system returns to equilibrium after a shock.

Table 6: Short-Run ARDL-ECM Estimates (Dependent Variable-SPGDP)

Variable	Coefficient	Std. Error	t-Statistic	Probability
D(LogL)	0.320**	0.110	2.90	0.009
D(LogL)(-1)	0.150	0.105	1.42	0.168
D(LogK)	0.280* *	0.095	2.94	0.008
D(LogK)(-1)	0.110	0.090	1.22	0.235
D(COP)	0.005	0.004	1.25	0.224
D(DPP)	-0.030**	0.012	-2.50	0.020
D(DPP)(-1)	-0.015	0.011	-1.36	0.186
D(PPP)	-0.035**	0.014	-2.50	0.021
D(PPP)(-1)	-0.018	0.013	-1.38	0.180
D(INE)	-0.018*	0.008	-2.25	0.035
D(EXR)	-0.010* *	0.004	-2.50	0.020
D(CC)	0.080	0.060	1.33	0.196
ECT(-1)	-0.685*	0.120	-5.70	0.000

Note: ECT = Error Correction Term. *** p<0.01, ** p<0.05, *p<0.10.
Source: Authors Computation (2026**).**

The short-run results mirror the long-run trends but with varying magnitudes. Current changes In Labor (D(LogL)) and Capital (D(LogK) positively and significantly affect growth, while lagged values are insignificant, suggesting that the impact of investment and employment is felt almost immediately in Cross River State. The negative coefficients for D(DPP), D(PPP), and D(EXR) confirm that sudden spikes in fuel prices and currency depreciation have an immediate contractionary effect on the economy. The most critical parameter in this table is the Error Correction Term (ECT(-1)), which is -0.685 and highly significant (p=0.000). The negative sign confirms the existence of a stable adjustment mechanism, while the magnitude indicates a relatively fast speed of adjustment: approximately 68.5% of any disequilibrium from the previous year is corrected within the current year. This implies that shocks to the system (such as a sudden fuel price hike) are absorbed and the economy returns to its long-run growth path in roughly 1 year.

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Diagnostic Tests and Stability

To ensure the robustness of the model, several diagnostic tests were conducted and the results presented in Table 7. The diagnostic tests confirm the validity of the model. The Breusch-Godfrey test (p=0.245) and Breusch-Pagan test (p=0.112) indicate the absence of serial correlation and heteroscedasticity, respectively. The Jarque-Bera test (p=0.562) confirms that the residuals are normally distributed, validating the inference drawn from the t and F statistics. Furthermore, the Ramsey RESET test suggests the model is correctly specified with no omitted variables.

Table 7: Diagnostic Tests Results

Test	Statistic	Prob. Value	Decision
Breusch-Godfrey Serial Correlation	1.45	0.245	No Serial Correlation
Breusch-Pagan-Godfrey Heteroskedasticity	1.82	0.112	Homoscedastic
Jarque-Bera Normality	1.15	0.562	Residuals are Normal
Ramsey RESET Specification	2.10	0.160	Model Correctly Specified

Source: Authors Computation (2026).

4.2. DISCUSSION OF FINDINGS

The empirical analysis reveals that labour and capital are the primary drivers of economic development in Cross River State, both in the long and short run. The long-run coefficients indicate that a 1 percent increase in the labour force (LogL) and capital expenditure (LogK) leads to a 0.452 percent and 0.385 percent increase in per capita GDP, respectively. These findings align with the neoclassical growth theory and corroborate the work of Mankiw, Romer, and Weil (1992); Ndome, Ugbaka and Enighe (2025), who established that human capital and physical investment are fundamental determinants of output. Similarly, Ogundipe *et al.* (2014) found a positive and significant relationship between government capital spending and economic growth in Nigeria, supporting the result that state- level infrastructure investment is critical for Cross River's development.

Conversely, energy prices and macroeconomic instability exert a negative pressure on the state's economy. In the long run, increases in diesel pump price (DPP), petrol pump price (PPP), and kerosene pump price (KPP) significantly reduce per capita GDP. This suggests that Cross River State's production structure is highly energy-intensive, where rising fuel costs act as a tax on productivity. This finding resonates with Sekumade (2009), who argued that fuel price hikes invariably stifle economic activity in developing regions by increasing operational costs. Furthermore, inflation (INF) and exchange rate depreciation (EXR) show significant negative impacts, confirming that macroeconomic volatility erodes purchasing power and investment capacity. This contrast slightly with Adeniran et al. (2014) who found mixed results depending on the sector: however, for Cross River, the data clearly indicates that currency weakness and inflation are detrimental.

Interestingly, international crude oil prices (COP) and control of corruption (CC) were statistically insignificant in the long run. The insignificance of oil prices may seem counterintuitive for a Nigerian state, but it supports the "resource curse" hypothesis discussed by Sala-i-Martin and Subramanian (2013), suggesting that resource wealth does not automatically translate to local per capita growth without effective transmission mechanisms.

The insignificance of corruption control implies that while governance is theoretically important, current measures in Cross River have not yet reached a threshold where they statistically alter economic outcomes, a view supported by Akinlo and Egbetunde (2010) who noted lagged effects of institutional reforms.

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In the short run, the Error Correction Term (ECT-1) is -0.685 and significance, indicating that approximately 68.5 percent of any disequilibrium in the previous period is corrected within the current year. This speed of adjustment is robust, suggesting the system returns to equilibrium relatively quickly after shocks. Short-run dynamics mirror long-run trends, where changes in labour, capital, and fuel prices immediately impact growth, reinforcing the need for stable energy policies and d consistent capital injection to sustain immediate economic momentum.

5.0. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The study concludes that the trajectory of economic development in Cross River State is fundamentally anchored on the mobilization of its labour force and the strategic deployment of government capital expenditure. The robust positive elasticity of both variables confirms that the state possesses the requisite human and financial potential to drive per capita GDP growth. However, this potential is currently being severely undermined by the high cost of energy and macroeconomic instability. The significant negative impact of diesel, petrol, and kerosene prices reveals a critical vulnerability: the state's economy is overly sensitive to energy costs, likely due to its reliance on power and high transportation costs resulting from inadequate public infrastructure.

Furthermore, the adverse effects of inflation and exchange rate depreciation highlight that Cross River State cannot insulate itself from national macroeconomic trends. While the state government has limited control over national monetary policy, the inability of crude oil price fluctuations and current anti-corruption efforts to significantly boost local per capita income suggests a disconnect between federal revenue allocation, governance frameworks, and grassroots economic reality.

The rapid speed of adjustment (68.5 percent) indicates that the state's economy is responsive; therefore, immediate policy corrections regarding energy subsidies and capital project execution can yield quick improvements in living standards. Ultimately, without addressing the energy cost burden and stabilizing the investment climate, the gains from labour and capital accumulation will continue to be eroded by external shocks.

5.2. Recommendations

To foster sustainable economic development in Cross River State, the government must prioritize aggressive investment in alternative energy infrastructure to decouple local productivity from volatile petroleum products pump prices. Given the significant negative impact of diesel, petrol, and kerosene costs, the state should leverage its natural gas reserves and hydroelectric potential, such as the Kwa Falls and Agbokim Water Falls, to provide subsidized, stable electricity for industries and households. By reducing the reliance on expensive fossil fuels for power generation and transportation, the state can lower the cost of doing business, thereby enhancing the competitiveness of local enterprises and protecting household incomes from fuel price shocks.

Simultaneously, there is an urgent need to optimize the efficiency of capital expenditure rather than merely increasing the budgetary allocation. Since capital expenditure (logk) is a major driver of growth, the state government should institute rigorous monitoring and evaluation frameworks to ensure that funds allocated for infrastructure are not lost to leakage or abandoned projects. This should be coupled with targeted vocational training programs to enhance the quality of the labour

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force (logL), ensuring that the workforce possesses the technical skills required to operate new infrastructure and drive industrialization. Enhancing human capital will maximize the positive elasticity observed in the study, turning population growth into a demographic dividend.

Ultimately, while the state cannot directly control national inflation or exchange rates, 1t Can create a resilient local economy by diversifying its revenue base away from federal allocations linked to crude oil. The insignificance of oil prices on local per capita GDP Suggest that the current benefit transmission mechanism is flawed: thus, Cross River should focus on developing non-oil sectors such as agriculture, tourism, and solid minerals.

Additionally, although the control of corruption variable was statistically insignificant, this should not deter governance reforms. Instead, it calls for more transparent, digitized financial systems that make corruption harder to conceal, ensuring that the benefits of economic development are felt directly by the citizens, thereby strengthening the link between good governance and economic performance in the long term.

Conflict of Interest

The authors declare no conflict of interest.

REFERENCES

Adegbite, O. O., & Ayadi, F. S. (2020). Oil price shocks and economic growth in Nigeria: A sectoral analysis. *Energy Policy*, 145, 111723.

Adenikinju, A. (2009). Analysis of the cost of infrastructure failures in a developing Economy: The Case of the Power Sector in Nigeria. *The Nigerian Economic Society Conference Proceedings*, pp. 45–68.

Adenikinju, A. (2022). Energy subsidy reform and economic growth in Nigeria. *Journal of Energy in Southern Africa*, *33*(2), 105–118.

Adenikinju, A. F. (2009). Analysis of the cost of infrastructure failures in a developing economy: The case of the power sector in Nigeria. African Economic Research Consortium Research Paper, p. 148.

Adeniran et al. (2014). Exchange rate fluctuation and economic growth in Nigeria, *International Journal of Academic Research in Accounting*, *4*(3), 234.

Adeniran, A. (2020). Fuel import dependency and economic costs in Nigeria. *Energy Policy*, 138, 111 - 245.

Adeniran, A., and Akinlo, A. (2020). Petroleum pricing policy and regional economic disparities in Nigeria. *Journal of Energy in Southern Africa, 31*(2), pp. 45–59.

Adeyemi, O. and Okafor, C. (2021). *Regional economic development in Nigeria: Subnational strategies*. Springer, p. 157.

Agenor, P. R. (2010). Fiscal policy, public investment, and endogenous growth, *Journal of Macroeconomics*, Vol. 32, No. 4, , pp. 1013–1039).

Aigbokhan, B.E. (2007). Growth and macroeconomic performance in Nigeria: 1960–2004. *African Economic Research Consortium Research Paper 171*, pp. 34–37.

Akinlo and Egbetunde (2010). Corruption and economic growth in Nigeria, *Journal of Social Sciences*, 22(2), 165.

Amin, S. (1974). Accumulation on a world scale: A critique of the theory of underdevelopment, *Monthly Review Press*, p. 215.

Auty, R. M. (1993). *Sustaining development in mineral economies: The resource curse thesis*. Routledge, p. 12.

Bacon, R. W. (1991). Rockets and feathers: The asymmetric speed of adjustment of UK retail gasoline prices to cost changes. *Energy Economics*, *13*(3), 211 – 218.

Balke, N. S., Brown, S. P. A., and Yucel, M. K. (2002). Oil price shocks and the U.S. economy: Where does the asymmetry originate? *Energy Journal*, *23*(3), 27–52.

Barros, C. P. (2012). The resource curse and rent-seeking in Angola. *Centro de*

Bello, K. (2023). Fuel price deregulation and SME survival in Nigeria. *CBN Journal of Applied Statistics*, *14*(1), 65–89.

Central Bank of Nigeria (CBN). (2023). *State economic performance review*. Lagos: CBN Research Dept., p. 33.

Central Bank of Nigeria. (2020). *Statistical Bulletin*. Abuja: CBN Press.

Central Bank of Nigeria. (2025). *Statistical Bulletin*. Abuja: CBN Press.

Collier, P., & Hoeffler, A. (2005). "Resource Rents, Governance, and Conflict." *Journal of Conflict Resolution*, 49(3), 453–463.

Connection? *Center for Economic Studies and Institute for Economic*

Corden, W. M. and Neary, J. P. (1982). Booming Sector and De-industrialization in a

Cross River State Bureau of Statistics. (2022). *Quarterly Economic Digest*. Calabar: CRS Govt. Press, p. 12.

Cross River State Bureau of Statistics. (2025). *Cross River State Annual Economic Survey*. Calabar: CRBS.

Czech, K. (2018). Dutch disease in oil-exporting countries: A Survey of theory and evidence, Proceedings of the 2018 International Scientific Conference 'Economic Sciences for Agribusiness and Rural Economy'

Effiong, E.L. & Udo, I.A. (2017). Fuel price volatility and rural household welfare in Cross River State, Nigeria. *Journal of Sustainable Development Studies*, *10*(2), 89–104.

Ekpo, A. and Ndebbio, J. (2023). Policy incoherence in non-oil states: The case of Cross River. *Policy and Development Review*, *5*(2), 98–115.

Ekpo, A.H. & Ndebbio, J.E.U. (2018). Infrastructure deficit and economic Growth in Cross River State: The role of energy costs. *African Journal of Economic Review, VI*(2), 112–130.

Etim, N. and Akpan, E. (2021). Fuel price volatility and SME survival in Calabar. *Journal of Sustainable Development in Africa*, 23(2), 45–62.

Ezeabasili, C.B., Okoye, P.V. & Eze, O.R. (2020). Petroleum price shocks and inflation dynamics in Nigeria: An ARDL approach. *Cogent Economics & Finance*, 8(1), 1 – 15.

Gylfason, T. (2001). Natural resources and economic growth: What is the

Ighosewe, E., Akan, D. and Agbogun, O. (2021). Crude oil price dwindling and Nigerian Economy: A research-dependence approach. *Modern Economy, 12*, 1160 – 1184.

Iyaniwura, J., and Jimoh, A. (2019). The impact of fuel price changes on household welfare in Nigeria. *Nigerian Journal of Economic and Social Studies, 61*(1), pp. 77–96.

Lewis, W. A. (1954). Economic development with unlimited supplies of labour. *The Manchester School, 22*(2), 139 – 191.

Mankiw, Romer, and Weil (1992). A contribution to the empirics of economic Growth, *The Quarterly Journal of Economics, 107*(2), 425.

Meyer, J., and von Cramon-Taubadel, S. (2004). Asymmetric price transmission: A survey. *Journal of Agricultural Economics*, 55(3), 385.

National Bureau of Statistics (NBS). (2023). *Petroleum products pricing report, Q3 2023*. Abuja: NBS Publications, p. 7.

Ndome, J. N. (2025). Contract enforcement, investment, and economic development in Nigeria, *Journal of Arid Zone Economy, 6*(2), 109 – 123.

Ndome, J. N., Ugbaka, M. A. and Enighe, E. N. (2025). Effect of selected tax revenue heads on industrial investment in Nigeria, *Journal of Ariz Zone Economy, 6(*4), 25 – 45.

Nwani, C. (2021). Oil price shocks and macroeconomic performance in Nigeria. *African Journal of Economic Review, 9*(3), 40 – 58.

Nwankwo, C., and Eze, P. (2021). Energy pricing and subnational development in Nigeria: Evidence from the South-South Zone. *West African Journal of Applied Economics, 23*(1), 112 – 130.

Nwankwo, C., Bala, Y., & Ibrahim, M. (2023). *Energy economics and policy in Africa: Transition Challenges*. Routledge, p. 88.

Nwankwo, O. (2021). The political economy of fuel subsidy removal in Nigeria: Evidence from Cross River State. *International Journal of Politics and Good Governance*, 12(2.2), 1–18.

Ogundipe et al. (2014). Public expenditure and economic growth in Nigeria, *Journal of Economics and Sustainable Development, 5*(11), 48.

Ogunleye, E. K. (2018). Fuel price liberalization and economic growth in Nigeria. *African Journal of Economic and Management Studies, 9*(3), 321–335.

Okafor, G. (2021). Fuel subsidy removal and household welfare in Nigeria: Evidence from micro-data. *Journal of African Economies*, *30*(2), 112 – 135.

Okon, B., Effiong, C., and Udo, I. (2021). Rural Energy Costs and Agricultural Value Chains in Cross River. *Nigerian Journal of Rural Economy*, *7*(1), 20–35.

Okon, J., & Eyo, I. (2023). Transportation costs and market access in south-south Nigeria. *University of Calabar Journal of Economics*, 5(1), 15–30.

Oyelaran-Oyeyinka, B. & Lal, K. (2013). *Latecomer development: Knowledge and innovation for economic growth*. Routledge Studies in Development Economics, p. 112.

Oyinlola, M. A., & Adedeji, O. A. (2020). Fuel price volatility and SMEs performance in Lagos State, Nigeria. *African Journal of Economic Review*, *8*(1), 112 – 130.

Oyinlola, M.A. (2015). Energy prices and economic growth in developing countries: A panel data analysis for ECOWAS Nations. *Journal of African Economies*, 24(3), 401–425.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289 – 326.

Prebisch, R.(1950). The economic development of Latin America and its principal problems, United Nations Department of Economic Affairs. *Economic Bulletin for Latin America*, 7, 12.

Putun, M. (2015). Linking renting-seeking activities to natural resource curse phenomenon: The case of Africa. *C. U. Sosyal Bilimler Enstitusu Dergisi*, Cilt 24, Sayi 1. PP. 351 – 368.

Research CESi fo Working Papers, No. 530, PP. 1 – 26.

Research CESi fo Working Papers, No. 530, PP. 1 – 26.

Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy*, 98(5), Part 2, p. S71.

Ross, M. L. (2001). Does oil hinder democracy? *World Politics*, *53*(3), 325–361.

Ross, M. L. (2012). *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations*. Princeton University Press, 67–89.

Sachs, J. D., & Warner, A. M. (2001). The curse of natural Resources. *European Economic Review*, 45(4–6), 827–838.

Sachs, J. D., and Warner, A. M., (1995). Natural resource abundance and economic growth. *National Bureau of Economic Research*, Working Paper Number 5398, 4.

Sala-i-Martin and Subramanian (2013). Addressing the natural resource curse, *Journal of International Economics*, 91(2), 580.

Sala-i-Martin, X. & Subramanian, A. (2003). Addressing the natural resource curse: An illustration from Nigeria. *NBER Working Paper Number 9804*, 22.

Sekumade (2009). Fuel Subsidy Removal and the Nigerian Economy, *Journal of Research in National Development*, *7*(1), 112.

Singer, H. W. (1950). The distribution of gains between investing and borrowing countries, *American Economic Review, 40*(2), 473 – 485.

Small Open Economy. *The Economic Journal,* 825 – 848.

Small Open Economy. *The Economic Journal,* 825 – 848.

Udoh, E. & Inyang, A. (2022). Petroleum shocks and subnational fiscal stress. *African Journal of Economic Review*, X(1), 85–102.

Ugwuanyi, J. (2024). Regional economic impacts of fuel subsidy removal. *Nigerian Journal of Economic Policy*, 12(1), 10–25.

World Bank. (2024). *Nigeria development update: The continuing urgency of business unusual*. Washington, DC: World Bank Group.