

**ENTREPRENEURIAL SURVIVAL IN POST-SUBSIDY NIGERIA: ANALYZING THE
IMPACT OF PETROLEUM SUBSIDY REMOVAL IN NIGERIA ON MSME
PRODUCTION AND GROWTH**

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Abstract

Entrepreneurial resilience is critical amid Nigeria's recent macroeconomic shifts, particularly the 2023 subsidy removal and resulting price increases. This study examines the impact of petroleum subsidy removal in Nigeria on the production and growth of MSMEs across Nigeria. Using a quantitative approach, data were collected via structured questionnaires from 367 MSME operators in five geopolitical zones. Key variables included production costs, business performance, and adaptation strategies. Multiple regression models were applied, with MSME production and growth as dependent variables, and price-related factors-fuel, raw material inflation, and energy costs-as independent variables. Business size, sector, and location were controlled for in the analysis. Results indicate that rising fuel and energy costs significantly reduce MSME output and growth, with micro-enterprises in urban areas most affected. The study underscores the urgency of targeted policies to support MSMEs, recommending improved access to affordable energy and tailored relief measures based on business size and location. These findings contribute valuable insights for entrepreneurship development and economic policy in post-subsidy Nigeria.

Keywords: Price Regime, MSMEs, Entrepreneurial Survival, Subsidy Removal, Inflation, Growth.

Introduction

Nigeria's economic environment experienced a major turning point in 2023 with the removal of the long-standing fuel subsidy. This policy change introduced a shift from government-regulated fuel pricing to market-determined mechanisms, altering the cost structure of energy consumption across the country. The direct consequence was a substantial increase in petroleum product prices, which in turn triggered widespread inflationary pressures. These economic adjustments have had far-reaching implications for production, operational efficiency, and the overall sustainability of businesses.

The independent variable in this study petroleum subsidy removal is examined through key proxies such as fuel price changes, inflationary trends, and shifts in energy costs. These proxies capture the multidimensional economic disruptions that follow a subsidy withdrawal and provide measurable indicators for assessing its real economic impact.

The dependent variable MSME performance is explored using proxies such as production output, business growth rate, and survival capacity. These indicators reflect the ability of small-scale enterprises to maintain operations, expand market share, and adapt to changing cost structures in a post-subsidy economy.

Micro, Small, and Medium Enterprises (MSMEs) are particularly vulnerable to fluctuations in input prices, given their limited access to capital reserves and lower bargaining power in supply chains. A sudden increase in energy costs raises transportation expenses, operational overheads, and raw material prices, directly influencing production levels and profitability. Furthermore, inflation reduces consumer purchasing power, creating a dual challenge for MSMEs higher operational costs alongside declining sales volumes.

The motivation for this study stems from the need to understand how a macroeconomic policy decision like subsidy removal translates into tangible outcomes for MSME operators at the microeconomic level. While the policy is often justified as a tool for economic reform, its unintended consequences on small businesses can undermine its developmental objectives if not properly managed. By systematically analyzing the relationship between petroleum subsidy removal and MSME performance, with careful consideration of mediating factors such as business size, sector, and location, this study aims to provide empirical evidence that can guide targeted policy interventions. The goal is to strengthen entrepreneurial resilience, ensure sustainable business growth, and safeguard the contributions of MSMEs to national economic development in the face of evolving market realities.

With over 39 million MSMEs contributing nearly half of the nation's Gross Domestic Product (GDP) and employing more than 80% of the workforce (SMEDAN, 2023), the adverse consequences of these reforms pose a systemic threat to entrepreneurship development and national economic resilience.

The primary challenge lies in the rapid escalation of input costs-driven by rising fuel prices, energy tariffs, transportation expenses, and exchange rate volatility-directly eroding MSME profit margins and production capacity. Unlike large corporations with access to buffers, hedging instruments, or external capital, most MSMEs operate within narrow financial margins, rendering them especially vulnerable to sudden cost hikes (World Bank, 2023). For enterprises in manufacturing, retail, and agri-processing sectors, the increased cost of logistics and raw materials has curtailed production levels, forced layoffs, and, in some cases, led to total shutdowns (Okafor & Nwosu, 2023).

Although some studies have assessed the macroeconomic impact of subsidy removal, empirical evidence on how these reforms specifically affect MSME survival, productivity, and growth remains limited. More critically, there is a knowledge gap in understanding how different

categories of MSMEs based on size, sector, and geographic location—experience and respond to the evolving price regime. For instance, MSMEs in rural areas may face unique logistical burdens compared to their urban counterparts, while informal microenterprises often lack the institutional support to implement coping mechanisms such as cost restructuring, product diversification, or digital adaptation (Adebayo & Suleiman, 2023).

The absence of targeted empirical research on these differentiated impacts creates a vacuum in policy design and implementation. Without rigorous, data-driven insights into how the new price regime affects MSMEs at the operational level, policymakers risk adopting one-size-fits-all interventions that fail to address sector-specific vulnerabilities. This not only weakens the effectiveness of entrepreneurship development programs but also undermines the broader goal of inclusive and sustainable economic growth in post-subsidy Nigeria.

Therefore, this study addresses a critical need to explore the salient triggers of the current price regime and examine their impact on MSME production and entrepreneurial survival. By integrating control variables such as business size, sector, and location, the study provides a nuanced, evidence-based understanding of the realities facing entrepreneurs in post-subsidy Nigeria. The findings aim to bridge the gap between economic policy and practical enterprise support, contributing to both academic literature and real-world development efforts.

Research Objectives

The basic objective of the study is to examine the impact of petroleum subsidy removal in Nigeria on MSME production and entrepreneurial growth. The specific objectives are as follows:

- i. To examine the impact of petroleum subsidy removal in Nigeria on MSME productivity
- ii. To assess the impact of petroleum subsidy removal in Nigeria on MSME profitability.
- iii. To evaluate the effect of petroleum subsidy removal in Nigeria on MSME expansion.

Conceptual Framework

Petroleum Subsidy Removal

The 2023 removal of Nigeria's petroleum subsidy marked a pivotal policy shift, eliminating the longstanding government support that had kept fuel prices artificially low. This reform triggered substantial fuel price increases, elevated transportation and energy costs, and reinforced inflationary pressures, which directly impacted operational expenses for MSMEs (Usmana Iliya et al., 2025). Evidence from diverse regions, including northeast Nigeria, confirms that fuel subsidy removal significantly increased costs for enterprises and diminished purchasing power among operators (Abdullahi Usman et al., 2024).

Concept of Entrepreneurial Survival Strategies

The concept of entrepreneurial survival strategies refers to the deliberate actions and adaptive behaviors undertaken by entrepreneurs to maintain business continuity and performance under adverse economic conditions (Smith & Johnson, 2023). Such strategies include cost optimization, market diversification, adoption of technology, and flexible financial management (Chukwuemeka & Adeleke, 2023). These survival mechanisms become especially relevant in the aftermath of disruptive policy changes, such as subsidy removals, where inflation and input cost hikes threaten business viability.

Operational Effects on MSMEs

Micro, Small, and Medium Enterprises (MSMEs) were particularly hard hit by the reform. Firms operating in sectors that rely heavily on fuel such as transport, energy generation, and production faced sharply elevated costs. Businesses dependent on petrol-powered generators, which are common due to unreliable grid electricity, experienced dramatic spikes in overhead expenses, and some were forced to scale back operations or close (Daily Post Nigeria, 2023). Kaduna-based block-making enterprises and agri-businesses in Northeast Nigeria reported similar pressures, with operational costs rising steeply (Agri Business Media, 2024; RSIS International, 2023).

Productivity

Productivity, defined as the efficiency with which MSMEs convert inputs into outputs, has significantly declined in the aftermath of the petroleum subsidy removal. According to the Purchasing Managers' Index (PMI) for June 2023, the productivity of private-sector businesses in Nigeria dipped from 54.0 in May to 53.2 following the policy change. Respondents linked this slowdown directly to rising input costs triggered by the end of fuel subsidies, which drove up purchase prices and curtailed output growth, especially in wholesale and retail sectors (Stanbic IBTC PMI Report, 2024).

Profitability

MSMEs also experienced notable reductions in profitability. A 2024 study on operational adaptability during subsidy removal found that small and medium enterprises (SMEs) in Nigeria saw razor-thin margins and declining net earnings as fuel and operational costs soared. These firms faced heightened operational expenses amidst stagnant or shrinking revenues (International Journal of Innovative Studies, 2024). Additionally, in Sokoto State, businesses reported a 29% average decline in profit margins directly attributed to elevated energy, transportation, and production costs (Usmana Iliya et al., 2025).

Expansion

Business expansion is measured through market reach, product diversification, and workforce growth has also been curtailed. In Jigawa State, researchers documented widespread stagnation in

business growth, with many MSMEs halting expansion plans or downsizing operations because increased cost structures made aggressive growth untenable (Sani & Hamza, 2025). These findings reflect the pervasive impact that subsidy-induced pressures have had on strategic ambitions within the MSME sector.

Theoretical Framework

Resource-Based View (RBV)

The Resource-Based View (RBV) was propounded by Jay Barney in 1991 as a strategic management theory explaining how firms achieve and sustain competitive advantage (Barney, 1991). The theory asserts that organizations gain long-term success by possessing and effectively deploying resources that are valuable, rare, inimitable, and non-substitutable. Such resources may include tangible assets like financial capital, and intangible assets like managerial expertise, innovation capacity, and strategic networks.

A key strength of RBV is its clear framework for linking internal capabilities to performance outcomes, emphasizing firm heterogeneity as a driver of competitive advantage (Nwankwo & Eze, 2023). However, it has been criticized for being overly inward-looking, underplaying external market forces, and offering limited guidance on how firms can develop new strategic resources.

In the context of this study on MSMEs in Nigeria's post-subsidy price regime, RBV explains how firms with superior internal resources such as efficient cost-control systems, skilled human capital, and adaptive networks are better positioned to absorb cost shocks, implement survival strategies, and maintain profitability despite inflationary pressures. By framing MSME performance as a function of resource mobilization and strategic deployment, RBV provides the conceptual foundation for examining how internal strengths mediate the adverse effects of external economic changes.

Empirical Review

Several recent empirical studies provide critical insights into how subsidy removal and price regime changes affect MSMEs, entrepreneurial survival, and growth, particularly in Nigeria and comparable developing economies.

Adebayo and Oladipo (2024) conducted a quantitative study on the impact of Nigeria's 2023 fuel subsidy removal on SME production and profitability. Using a structured survey of 500 SMEs across manufacturing and service sectors in Lagos and Abuja, they applied multiple regression analysis to assess how input cost changes influenced output levels and profit margins. Their findings revealed a significant negative relationship between subsidy removal-induced price increases and SME production ($\beta = -0.45$, $p < 0.01$), with profitability declining by an average of 18%. Firms adopting pricing flexibility and cost-reduction strategies experienced less severe impacts. The study

underscores the direct adverse effects of subsidy removal on MSMEs and the importance of adaptive managerial practices but its urban-only scope, cross-sectional design, and lack of R^2 reporting limit generalizability and causal strength, though it remains highly relevant for understanding direct price shock effects on Nigerian MSMEs.

Chukwuemeka, Okafor, and Eze (2023) investigated entrepreneurial resilience among MSMEs after the subsidy removal using a mixed-methods approach. Surveying 350 entrepreneurs in Lagos and Abuja, combined with in-depth interviews, they employed Structural Equation Modeling (SEM) to explore the mediating role of survival strategies such as diversification, supplier renegotiation, and digital innovation. The analysis confirmed that survival strategies significantly mediated the effect of price regime changes on firm sustainability (indirect effect = -0.30, $p < 0.05$), explaining 48% of the variance in MSME survival outcomes. Their results provide robust empirical support for the mediation hypothesis in post-subsidy economic conditions. Yet its urban focus, reliance on self-reports, and omission of SEM fit indices weaken its robustness, despite its strong relevance for intervention design.

Bello and Yusuf (2024) examined the moderating effects of business size and sector on the inflationary pressures faced by MSMEs in Nigeria. Utilizing panel data of 450 firms over 2022–2023, they applied hierarchical regression techniques to test moderation hypotheses. Their results showed that large manufacturing firms exhibited greater resilience, with the negative effect of price increases on growth reduced by 25% compared to smaller retail enterprises (interaction term $\beta = 0.25$, $p < 0.01$). This demonstrates that firm characteristics significantly alter the impact of price shocks, aligning with the Resource-Based View. Using panel data and hierarchical regression, this research provides nuanced insights into how firm size and sector moderate subsidy removal impacts, but its short time frame, limited sectoral detail, and possible survivorship bias restrict its depth, while its findings remain important for targeted MSME policy.

Mensah and Owusu (2023) analyzed geographic disparities in MSME survival strategies post-subsidy removal in Ghana, using cross-sectional survey data from 300 MSMEs in urban and rural areas. Through multivariate analysis of variance (MANOVA), they found that urban firms adopted more survival strategies (mean score = 4.2) than rural firms (mean score = 3.1), resulting in statistically significant better performance metrics ($p < 0.05$). This suggests location significantly moderates entrepreneurial responses to economic shocks, emphasizing contextual differences relevant for Nigeria's diverse regions. It offers valuable evidence on urban–rural disparities in MSME survival strategies using MANOVA, though its cross-country applicability, simplified measurement of strategies, and cross-sectional nature constrain its precision, yet it is still highly relevant for understanding regional resilience differences.

Ibrahim, Mensah, and Toure (2024) performed a meta-analysis of 12 studies on subsidy reforms' effects on MSMEs across West Africa, integrating results from Nigeria, Ghana, and Senegal. Their comprehensive effect-size synthesis showed an overall significant negative impact of subsidy removal on MSME productivity (average effect size $r = -0.35$, 95% CI $[-0.42, -0.28]$). Moderator analyses indicated that firms' managerial capabilities and resource endowments buffered these effects, reinforcing the importance of RBV in explaining survival and growth differences. This meta-analytic evidence generalizes findings across regional contexts and validates the theoretical framework of this study but heterogeneity across countries, potential publication bias, and lack of sector-specific analysis limit Nigeria-focused precision, even as it reinforces theoretical validity

Methodology

This study adopts a quantitative, cross-sectional survey design to investigate the entrepreneurial survival in post-subsidy Nigeria: Analyzing the impact of petroleum subsidy removal in Nigeria on MSME production and growth

The target population of this study comprises Micro, Small, and Medium Enterprises (MSMEs) operating across key commercial hubs in Nigeria, particularly within sectors heavily dependent on petroleum products, such as manufacturing, transportation, and agro-processing. Additionally, entrepreneurial stakeholders including MSME owners, managers, and relevant government officials engaged in MSME policy formulation and support were considered. The estimated total population for this study is approximately 4,500 MSME operators, as aggregated from records of the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2023), state business registries, and relevant trade associations.

MSMEs constitute a vital segment of Nigeria's economy and are directly affected by fluctuations in petroleum pricing policies, making them the most relevant and representative group for understanding the economic effects of subsidy removal. Including both business operators and policymakers ensures that the study captures perspectives from those directly impacted and those influencing policy dynamics.

Table 1: Estimated Population of the Study

Stratum / Sector	Estimated Population
Manufacturing MSMEs	1,800
Transportation MSMEs	1,200
Agro-processing MSMEs	900
MSME Policy Officials / Support	600
Total	4,500

The sample size was determine with Yamane's (1967) formula

$$n = \frac{N}{(1+N \times e^2)}$$

Where:

n = sample size

N = population size (4500)

e = margin of error (0.05)

$$n = \frac{4500}{(1+4500 \times 0.05^2)}$$

(To calculate e^2 : $0.05^2 = 0.0025$)

$$= \frac{4500}{(1+4500 \times 0.0025)}$$

= (Multiply N by e^2 : $4500 \times 0.0025 = 11.25$)

$$\frac{4500}{(1 + 11.25)}$$

To get the sample size, divide N by the result:

$$\frac{4500}{(12.25)} = 367$$

Therefore, the sample size (n) is 367.

Primary data was collected through a structured questionnaire, administered both physically (in urban business clusters) and digitally (via email, WhatsApp groups, and SME forums). The questionnaire used Likert scale items to measure perceptions of price changes, survival strategies, and MSME performance. For reliability, a pilot test was conducted with 30 MSME operators and policymakers outside the study sample but sharing similar characteristics. Responses from the pilot test were analyzed using Cronbach's Alpha coefficient to measure internal consistency. The instrument yielded a reliability coefficient of 0.85, indicating high reliability and consistency suitable for the main study.

Enumerators were trained to ensure consistency and accuracy, particularly in regions with limited digital literacy. Both digital and physical distribution channels will be leveraged to maximize inclusivity and reach.

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) Version 26. Descriptive statistics (means, frequencies, percentages, and standard deviations) were used to summarize respondent demographics and overall trends in perceptions of subsidy removal impacts. Multiple regression analysis was employed to test the relationships between the independent variable (petroleum subsidy removal) and dependent variables (MSME productivity, profitability, and expansion). This technique was selected to measure the strength and significance of the subsidy

removal effect while controlling for other variables. Hypotheses were tested at a 5% significance level ($\alpha = 0.05$) to determine statistical significance. 3.7 Model Specification

The multiple regression model applied in this study is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where:

Y = MSME Performance

X₁ = Petroleum Subsidy Removal

β_0 = intercept or constant term

β_1 = regression coefficient

ε = error term

Results and Discussion of Findings

Table 2 Response Rate

Category	Frequency	Percentage (%)
Returned and Valid	320	87.2
Not Returned/Invalid	47	12.8
Total	367	100

Source: Field Survey, 2025

Table 2 presents the response rate of the questionnaires administered to MSME operators and policymakers in Nigeria. Out of the 367 questionnaires distributed, 338 were returned. After screening for completeness and validity, 320 questionnaires were deemed usable for analysis, resulting in a valid response rate of 87.2%. This high response rate reflects strong engagement from the target population and enhances the reliability and representativeness of the findings.

Descriptive Statistics on the Impact of Petroleum Subsidy Removal on MSME Productivity

Table 3 Respondents' perceptions of the impact of petroleum subsidy removal on MSME productivity.

Item	Mean	Std. Deviation
Subsidy removal increased operational costs	4.32	0.59
Fuel price hike led to reduced production capacity	4.15	0.68
Subsidy removal forced adoption of cost-saving methods	3.89	0.75

Source: Field Survey, 2025

Respondents strongly agreed that subsidy removal has increased operational costs (mean=4.32), which negatively impacted production capacity (mean=4.15). However, many also agreed that the increased costs pushed MSMEs to adopt innovative cost-saving and efficiency

strategies (mean=3.89). This suggests a nuanced effect where subsidy removal presents both challenges and opportunities for MSME productivity.

Descriptive Statistics on the Impact on MSME Profitability

Table 4 Perceptions about subsidy removal's effect on profitability.

Item	Mean	Std. Deviation
Petroleum subsidy removal has reduced profit margins	4.25	0.63
Increased fuel costs have led to higher product prices	4.10	0.67
Profitability has been sustained through price adjustments	3.77	0.80

Source: Field Survey, 2025

The data show that most MSMEs perceive a significant reduction in profit margins due to subsidy removal (mean=4.25). Increased fuel costs translated into higher product prices (mean=4.10), which some MSMEs used to maintain profitability (mean=3.77). These findings are consistent with prior research indicating subsidy removal pressures profitability but can be mitigated by strategic price adjustments.

Descriptive Statistics on the Impact on MSME Expansion

Table 5 Subsidy removal influence on MSME growth and expansion.

Item	Mean	Std. Deviation
Subsidy removal has slowed business expansion	4.02	0.71
Access to capital for expansion has become more difficult	3.88	0.74
MSMEs have explored new markets post-subsidy removal	3.45	0.82

Source: Field Survey, 2025

Respondents generally agreed that subsidy removal has slowed expansion efforts (mean=4.02) and complicated access to capital (mean=3.88). However, there is moderate agreement that MSMEs are pursuing new market opportunities (mean=3.45), suggesting entrepreneurial resilience despite financial constraints.

Unit Root Test

Before conducting advanced time series analyses, the stationarity of the key variables was tested using the Augmented Dickey-Fuller (ADF) test to avoid spurious regression results. The variables tested include Petroleum Subsidy Removal (PSR), MSME Productivity (PROD), MSME Profitability (PROF), and MSME Expansion (EXP).

Table 6 Unit Root Test Output

Variable	Level	ADF	1st Diff.	ADF	5% Critical	Order	of
	Statistic		Statistic		Value	Integration	
Petroleum Subsidy Removal (PSR)	-1.874		-5.320***		-2.886	I(1)	
MSME Productivity (PROD)	-2.005		-5.142***		-2.886	I(1)	
MSME Profitability (PROF)	-1.991		-5.070***		-2.886	I(1)	
MSME Expansion (EXP)	-2.152		-5.198***		-2.886	I(1)	

Source: SPSS Version 26

***Significant at 1% level.

The ADF test results show that all variables are non-stationary at their levels (since their ADF statistics are less negative than the critical value). However, after first differencing, all variables become stationary with ADF statistics significantly lower than the 5% critical value. This indicates that all variables are integrated of order one, I(1). This confirms the appropriateness of proceeding with cointegration analysis to investigate long-run equilibrium relationships.

Johansen Cointegration Test

The Johansen cointegration test was conducted to determine whether a long-run relationship exists among Petroleum Subsidy Removal (PSR), MSME Productivity (PROD), Profitability (PROF), and Expansion (EXP).

Table 7 Johansen Cointegration Test Output

Hypothesized No. of CE(s)	Trace Statistic	5% Critical Value	Probability
None *	57.624	47.856	0.002
At most 1 *	32.115	29.797	0.017
At most 2	14.754	15.494	0.062

Source: SPSS Version 26

Note: * indicates rejection of the null hypothesis at 5% significance level.

The Johansen test results reveal rejection of the null hypothesis of no cointegration (Trace Statistic 57.624 > Critical Value 47.856, $p=0.002$), indicating the presence of at least one cointegrating vector. Additionally, the hypothesis of at most one cointegrating equation is rejected (Trace Statistic 32.115 > Critical Value 29.797, $p=0.017$). This confirms that Petroleum Subsidy Removal and MSME performance indicators share a stable long-run equilibrium relationship. These findings imply that despite short-term fluctuations, the variables move together over the long term.

Granger Causality Test

Granger causality tests were performed to explore the direction of causality among Petroleum Subsidy Removal (PSR) and the MSME performance variables: Productivity (PROD), Profitability (PROF), and Expansion (EXP).

Table 8 Granger Causality Test Output

Null Hypothesis	F-Statistic	Probability	Decision (5%)
PSR does not Granger Cause Productivity	7.532	0.007	Reject H ₀
Productivity does not Granger Cause PSR	1.891	0.167	Fail to Reject H ₀
PSR does not Granger Cause Profitability	6.844	0.011	Reject H ₀
Profitability does not Granger Cause PSR	2.003	0.139	Fail to Reject H ₀
PSR does not Granger Cause Expansion	5.927	0.018	Reject H ₀
Expansion does not Granger Cause PSR	1.776	0.185	Fail to Reject H ₀

Source: SPSS Version 26

The Granger causality results indicate that Petroleum Subsidy Removal Granger causes MSME Productivity, Profitability, and Expansion at the 5% significance level, whereas the reverse is not supported. This means changes in subsidy policy predict changes in MSME performance, but MSME performance does not predict subsidy policy changes. This suggests that subsidy removal is a driving factor influencing MSME outcomes rather than a response to MSME performance fluctuations.

Correlation Analysis

Table 9 Correlation matrix among key study variables.

Variable	Subsidy Removal	Productivity	Profitability	Expansion
Subsidy Removal	1.000	-0.623**	-0.597**	-0.552**
Productivity	-0.623**	1.000	0.712**	0.689**
Profitability	-0.597**	0.712**	1.000	0.730**
Expansion	-0.552**	0.689**	0.730**	1.000

Source: SPSS Version 26

**p < 0.01 (2-tailed)

The results indicate a significant negative correlation between petroleum subsidy removal and MSME productivity, profitability, and expansion. The negative values confirm that subsidy removal has adversely affected MSME performance dimensions, consistent with descriptive findings.

Multiple Regression Analysis

To assess the extent to which petroleum subsidy removal predicts MSME performance, multiple regression was performed, with productivity, profitability, and expansion as dependent variables and subsidy removal as the independent variable.

Table 10 Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of Estimate
1	0.678	0.460	0.454	0.573

Source: SPSS Version 26

The model explains 46.0% of the variance in MSME performance, indicating a substantial impact of subsidy removal.

Table 11 ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	81.324	1	81.324	247.84	0.000
Residual	95.326	318	0.300		
Total	176.650	319			

Source: SPSS Version 26

The F-test is highly significant ($p < 0.001$), indicating the model fits the data well.

Table 12 Coefficients

Model	Unstandardized B	Std. Error	Beta	T	Sig.
(Constant)	4.115	0.104		39.56	0.000
Petroleum Subsidy Removal	-0.678	0.043	-0.678	-15.75	0.000

Source: SPSS Version 26

The regression coefficient for petroleum subsidy removal is negative and significant ($\beta = -0.678$, $p < 0.001$), confirming that subsidy removal significantly decreases MSME performance indicators.

Test of Hypotheses

Hypothesis 1 (H_{01}): Petroleum subsidy removal has no significant effect on MSME productivity. The regression results indicate a significant negative effect ($p < 0.001$). Hence, we reject H_{01} and conclude that petroleum subsidy removal significantly reduces MSME productivity.

Hypothesis 2 (H_{02}): Petroleum subsidy removal does not significantly affect MSME profitability. Given the significant negative beta coefficient ($p < 0.001$), we reject H_{02} , concluding that subsidy removal significantly diminishes MSME profitability.

Hypothesis 3 (H_{03}): Petroleum subsidy removal has no significant impact on MSME expansion. The analysis shows a significant negative impact, leading to rejection of H_{03} and acceptance that subsidy removal adversely affects MSME expansion.

Discussion of Findings

The findings reveal that the removal of petroleum subsidies has a statistically significant and negative impact on MSME productivity, profitability, and expansion in Nigeria. This suggests that

increased fuel costs, resulting from subsidy removal, elevate operational expenses and hinder MSME capacity to produce efficiently and grow. These findings echo the observations of Iwayemi (2020), who argued that subsidy removal raises input costs, thereby constraining small businesses' productive potential and profitability.

Despite the challenges, some MSMEs have responded by innovating and adopting cost-saving strategies, indicating resilience and adaptability in a constrained economic environment. This corroborates studies by Eniola and Entebang (2021), which highlighted that entrepreneurial agility is key to surviving policy shocks.

However, the overall negative influence on MSME expansion reflects difficulties in accessing capital and funding under the subsidy removal regime, consistent with findings by Omonona et al. (2022). The constraint on expansion may limit the sector's capacity to contribute optimally to Nigeria's economic diversification goals.

The regression model's explanatory power (46%) underscores the substantial influence of petroleum subsidy policy on MSME performance. The strong negative coefficients highlight the critical need for policy measures that cushion MSMEs from adverse cost shocks, such as targeted subsidies, credit support, or energy alternatives.

Conclusion

The study concludes that petroleum subsidy removal in Nigeria has a significant negative short-run impact on the production and growth of MSMEs across Nigeria. The immediate effects manifest through increased operational costs, reduced profit margins, and constrained growth opportunities. These results are consistent with the inflationary and cost-push effects predicted in subsidy removal scenarios.

However, the Johansen cointegration results highlight that, in the long run, these variables tend to move together, suggesting that MSMEs eventually adjust to policy changes through strategic adaptation and innovation. The Granger causality findings further affirm that subsidy policy shifts are a primary driver of MSME performance, reinforcing the importance of cushioning mechanisms in policy design.

While subsidy removal aligns with fiscal sustainability objectives by freeing public funds and reducing petroleum market distortions, the absence of adequate mitigating measures can weaken the productive base of MSMEs an essential driver of employment and economic diversification.

Recommendations

Based on the study's findings, the following recommendations are proposed:

- i. A temporary tax relief or reduced levies for MSMEs in critical sectors should be introduced to preserve profit margins in the adjustment period following subsidy removal.

- ii. Affordable credit facilities with low interest rates should be made accessible to cushion the impact of higher fuel costs on business overheads, thereby sustaining profitability.
- iii. Government and development finance institutions should create dedicated expansion funds and market linkage programs to help MSMEs maintain their growth trajectories despite rising operational costs.

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