Impact of Electricity Tariffs and Fuel Subsidy Removal on the Performance of Micro, Small, and Medium Enterprises (MSMES) in Benue State

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Abstract
This study examined the effect of electricity tariff increases and fuel subsidy removal on the performance of Micro, Small, and Medium Enterprises (MSMEs) in Benue State, Nigeria. The study was guided by the Resource-Based View and Keynesian Economic Theory. A cross-sectional survey research design was adopted, and data were collected from 370 MSME operators in Makurdi, Katsina-Ala and Otukpo using a structured questionnaire and interviews. Data were analysed using descriptive statistics, confirmatory factor analysis and structural equation modelling, while a paired-samples t-test was used to compare MSME performance before and after the policy changes. The findings revealed that electricity tariff increases had a significant negative effect on MSME performance ($\beta = -.41$, $p < .001$), while fuel subsidy removal also had a significant negative effect ($\beta = -.47$, $p < .001$). Jointly, the two factors explained 58% of the variance in MSME performance. The paired-samples t-test further showed a significant decline in overall MSME performance from 3.85 before the policy changes to 3.21 after the changes ($t = 13.27$, $p < .001$). The study concludes that rising electricity and fuel costs constitute significant constraints to MSME sustainability and growth in Benue State. It recommends targeted energy-cost support, improved electricity supply, promotion of alternative and energy-efficient technologies, measures to cushion fuel-related costs, and accessible financing for MSMEs.

Keywords: *Electricity Tariff Increases; Fuel Subsidy Removal; MSMEs; Business Performance; Energy Costs*

Introduction

Micro, small, and medium enterprises (MSMEs) are important drivers of economic growth and development, particularly in emerging economies. They create employment, promote innovation, generate income, and provide essential goods and services. Globally, the development of MSMEs has been associated with major episodes of industrial and economic transformation. Historical experiences in Europe and the United States demonstrate their capacity to stimulate industrialisation, while India's economic expansion has also been linked to strategic MSME development (Alabi, David, & Aderinto, 2019). In Nigeria, MSMEs constitute approximately 96% of businesses and contribute about 48% of national GDP, making them central to economic activity and development (Ijirshar, Mile, & Ijirshar, 2023). Despite their economic importance, MSMEs in

Nigeria operate within a difficult and increasingly costly business environment. This situation is particularly relevant in Benue State, where enterprises face constraints related to energy, transportation, finance, infrastructure, and demand. Recent increases in electricity tariffs and the removal of fuel subsidies have further intensified these challenges by increasing the cost of business operations. The removal of fuel subsidies has resulted in higher fuel prices, transportation costs, logistics expenses, and the cost of operating generators, which many MSMEs depend upon because of unreliable public electricity supply (Oguche & Agbo, 2024; Oyasipe & Olukoya, 2024). These expenses raise transportation and overall operating costs. Similarly, increases in electricity tariffs have placed additional financial pressure on MSMEs. Although tariff reforms are intended to improve electricity-sector efficiency, higher charges increase production and operating expenses, particularly for electricity-dependent enterprises (Ajibola et al., 2021). MSMEs may respond by increasing prices, reducing production, absorbing additional costs, or seeking alternative energy sources. Each response can affect profitability, customer retention, competitiveness, and sustainability. The effects of these policies can be assessed through important MSME performance indicators, including profitability, revenue growth, sales volume, customer patronage, employee satisfaction, competitiveness, and business expansion (Titus, Umar, & Oyedeji, 2024). Rising energy and transportation costs can reduce profit margins and restrict the capacity of enterprises to reinvest in productive activities. The removal of fuel subsidies may also increase inflation, reducing consumers' purchasing power and demand (Ilodigwe, 2023). From a Keynesian perspective, increases in operating costs and reductions in disposable income can contribute to declining aggregate demand, which may subsequently reduce sales and revenue for businesses (Tutu, 2023). Persistent cost pressures may also encourage MSMEs to postpone expansion, reduce employment, and limit innovation. Although the Nigerian government has introduced measures such as loans, grants, tax incentives, and other interventions to cushion the effects of rising business costs, MSMEs may require stronger and more targeted support. Such interventions are important in Benue State, where inadequate infrastructure and limited affordable finance may compound energy-price effects. Existing literature emphasises the importance of government support through infrastructure development, affordable financing, and appropriate fiscal incentives in strengthening MSME resilience and sustainability (Ilodigwe, 2023). Against this background, this study investigates the effects of electricity tariffs and fuel subsidy removal on the performance of MSMEs in Benue State.

Statement of the Problem

Nigerian Micro, Small, and Medium Enterprises (MSMEs) operate in a challenging environment characterised by inadequate infrastructure, limited finance, and macroeconomic instability. Major constraints include unreliable electricity and high energy costs. Because many MSMEs receive inadequate electricity from the national grid, they depend on diesel- and petrol-powered generators to sustain operations, increasing production and operating expenses (Ilodigwe, 2023).

These challenges have intensified following recent energy-sector reforms, particularly electricity tariff increases and fuel subsidy removal. Although higher electricity tariffs were introduced partly to improve the financial sustainability of the electricity sector and reduce government subsidy expenditure, increased electricity costs have occurred alongside continuing concerns about power reliability. Consequently, businesses rely on alternative energy sources while paying for national-grid electricity (Reuters, 2025). This situation places additional financial pressure on MSMEs with limited capital. Similarly, fuel subsidy removal resulted in substantial increases in petrol prices, with direct implications for transportation, logistics, production, and generator operation. The

effects are severe for generator-dependent MSMEs. Adeniyi and Mukoro (2025) found that subsidy removal increased operating costs, reduced profit margins, and weakened business sustainability. Likewise, Ozuma (2025), in a study of SMEs in Otukpo Local Government Area of Benue State, reported that increased costs following fuel subsidy removal were associated with reductions in business profits and income. The simultaneous increase in electricity tariffs and fuel prices therefore constitutes a significant cost burden for MSMEs. These policies may create a "double shock" by increasing production expenses, encouraging businesses to raise prices, and reducing consumer demand as household disposable income declines. Lower demand can subsequently result in reduced sales, shrinking profit margins, and increased threats to business survival (Ekaette et al., 2025). The consequences may extend to employment, investment, innovation, and development. Despite these developments, limited empirical research has examined the combined effects of electricity tariff increases and fuel subsidy removal on MSME performance in Benue State. Existing studies have largely examined individual policies or broader national contexts, leaving insufficient localized evidence for effective interventions. This study therefore addresses this gap by examining the effects of electricity tariffs and fuel subsidy removal on the performance of MSMEs in Benue State.

Objectives of The Study

The specific objectives of this study were to:

i. Assess the impact of electricity tariff increases on the performance of MSMEs in Benue State.
ii. Investigate the effect of fuel subsidy removal on the performance of MSMEs in Benue State.
iii. Examine the joint effects of relationship between rising energy costs (electricity and fuel) on the performance of MSMEs in Benue State.
iv. Examine the significant difference between the performance of MSMEs before and after the electricity tariff increases and fuel subsidy removal in Benue State

Research Hypotheses

The following null hypotheses were formulated to guide this study:

H_{01}: Electricity tariff increases have no significant impact on the performance of MSMEs in Benue State.

H_{02}: Fuel subsidy removal has no significant effect on the performance of MSMEs in Benue State.

H_{03}: There is no significant joint effect of rising energy costs (electricity and fuel) on the performance of MSMEs in Benue State.

H_04: There is no significant difference between the performance of MSMEs before and after the electricity tariff increases and fuel subsidy removal in Benue State.

2.1 Conceptual Issues

2.1.1 Micro, Small, and Medium Enterprises (MSMEs)

Micro, Small, and Medium Enterprises (MSMEs) are businesses characterised by relatively small workforce, capital investment, assets, and operational scale. They are important contributors to economic development, employment generation, and national income, accounting for about 96% of businesses and nearly 48% of Nigeria's GDP (Ijirshar, Mile, & Ijirshar, 2023). In Nigeria, SMEDAN (2013) classifies MSMEs based on employment and asset value, with enterprises employing fewer than 200 persons and having assets excluding land and buildings between ₦5 million and ₦500 million falling within the MSME category. Despite their economic importance,

Nigerian MSMEs face challenges including inadequate infrastructure, limited finance, and rising energy costs, which can undermine profitability and sustainability (Ajibola et al., 2021).

2.1.2 Electricity Tariff Increases

Electricity tariffs refer to the charge's consumers pay for electricity supplied by utility providers, while tariff increases represent upward adjustments in these charges. Electricity is an essential input for MSMEs, supporting production, storage, and other business operations. In Nigeria, tariff increases have been introduced as part of efforts to reform the power sector and improve its financial sustainability (Ajibola, Sodeinde, Aderemi, & Yusuf, 2021). However, higher electricity costs have increased the operational burden on MSMEs, particularly where unreliable public supply necessitates alternative power sources. Consequently, businesses may raise prices or absorb additional costs, potentially reducing profitability, competitiveness, and market position (Oguche & Agbo, 2024).

2.1.3 Fuel Subsidy Removal

Fuel subsidy removal refers to the government's withdrawal of financial support that previously reduced the market price of petroleum products. In Nigeria, its removal has substantially increased fuel prices, transportation and logistics expenses, and the cost of operating petrol- or diesel-powered generators. These effects are particularly significant for MSMEs that depend on fuel for transportation and alternative electricity supply because of unreliable public power (Oyasipe & Olukoya, 2024; Titus, Umar, & Oyedeji, 2024). Consequently, higher fuel costs increase operating expenses, intensify inflationary pressures, and reduce profitability, while constraining MSMEs' capacity to expand, innovate, and maintain competitiveness (Ilodigwe, 2023; Oguche & Agbo, 2024).

2.1.4 Performance

The performance of micro, small, and medium enterprises (MSMEs) can be measured through various indicators, such as profitability, revenue growth, customer patronage, sales volume, and employee satisfaction. These metrics provide insight into the overall financial health and operational efficiency of MSMEs. Rising energy costs, including electricity tariffs and fuel prices, have negatively affected the performance of MSMEs in Nigeria by increasing operational costs and reducing customer demand (Ilodigwe, 2023).

2.1.5 MSMEs Operational Activities in Benue State

MSMEs are vital to Benue State's economy through employment, income generation and agricultural value chains, but electricity tariff increases and fuel subsidy removal have compounded existing operational constraints by raising energy, transportation, logistics and input costs. These pressures, together with reduced consumer purchasing power, may adversely affect sales, profitability, competitiveness and investment capacity (Ajibola et al., 2021; Oguche & Agbo, 2024; Oyasipe & Olukoya, 2024; Ilodigwe, 2023; Titus et al., 2024). However, empirical evidence on their combined effects on MSME performance in Benue State remains limited, which the study seeks to address.

2.2 Theoretical Framework

The theoretical framework integrates the Resource-Based View (RBV) and Keynesian Economic Theory to explain MSME responses to electricity tariff increases and fuel subsidy removal. RBV

emphasizes how firm-specific resources and capabilities, such as energy efficiency, innovation and alternative energy strategies, can help MSMEs absorb rising costs and sustain performance (Barney, 1991), but its internal focus may overlook the financial, infrastructural and technical constraints confronting many firms. Keynesian theory complements this perspective by explaining how rising energy costs increase production expenses, prices and inflation while reducing consumers' purchasing power and demand, thereby affecting sales, profitability, employment and business survival (Ajibola et al., 2021; Ilodigwe, 2023). Thus, the theories are complementary rather than contradictory; RBV explains differences in firms' capacities to cope with shocks, while Keynesian theory explains the wider economic consequences of those shocks. However, neither sufficiently integrates firm-level capabilities with external energy-policy pressures in the specific context of Benue State. Existing studies also provide limited evidence on the combined effects of electricity tariff increases and fuel subsidy removal on MSMEs. The study therefore addresses this gap by examining how external energy-cost shocks and internal firm capabilities jointly influence MSME performance in Benue State.

2.3 Empirical Review

Empirical studies on energy costs and MSME performance fall into three related themes: electricity tariffs, fuel subsidy removal, and their combined effects. Studies on electricity tariffs generally show that higher electricity costs and unreliable supply increase operating and production expenses, thereby reducing profitability, growth and competitiveness (Giwa, Rikwetishe, & Abomchi, 2023; Ayivi et al., 2022; Olaoye & Talabi, 2018; Oguche & Agbo, 2024). Research on fuel subsidy removal similarly indicates increased transportation, logistics and production costs, reduced sales and consumer demand, and weaker profitability and competitiveness (Oguche & Agbo, 2024; Oyasipe & Olukoya, 2024; Titus, Umar, & Oyedeji, 2024). The studies differ mainly in the performance outcomes emphasized and their geographical contexts rather than in their overall direction of findings; therefore, the apparent contradictions reflect differences in mechanisms and settings rather than fundamentally opposing results.

Studies addressing combined energy-cost pressures suggest that electricity tariff increases and fuel-price increases can reinforce one another. Unreliable electricity increases dependence on generators, while higher fuel prices make alternative power more expensive, simultaneously raising operating costs and weakening consumer purchasing power and demand (Edet, 2023; Titus et al., 2024). However, existing studies largely examine the two shocks separately, focus on locations outside Benue State, or discuss their combined effects without directly testing them against multiple MSME performance indicators. Consequently, there remains insufficient localized empirical evidence on how electricity tariff increases and fuel subsidy removal jointly affect profitability, revenue growth, sales, customer patronage, competitiveness and employee satisfaction among MSMEs in Benue State. This study addresses this gap by examining these relationships within the specific economic and infrastructural context of the state.

3.0 Methodology

3.1 Design of the Study

The study adopted a cross-sectional survey design to examine the effects of electricity tariff increases and fuel subsidy removal on MSME performance in Benue State. The design enabled systematic collection of quantitative data on respondents' experiences and perceptions, while interviews complemented the survey by providing qualitative insights into the challenges and coping strategies of MSMEs (Ajibola et al., 2021; Giwa, Rikwetishe, & Abomchi, 2023).

3.2 Description of the Study Area

The study was conducted in Benue State, North-Central Nigeria, focusing on Makurdi, Katsina-Ala and Otukpo, which represent the three senatorial districts. These major commercial centres host diverse MSME activities, including agro-processing, manufacturing, retail and services, while frequent electricity disruptions and reliance on alternative energy sources make energy costs an important factor in business operations (Oguche & Agbo, 2024).

3.3 Population and Sample Size

The study population comprised registered MSMEs operating in Benue State. Based on SMEDAN (2023), the population was estimated at approximately 10,000 MSMEs. Using Yamane's (1967) formula at a 5% margin of error, a sample of approximately 385 MSMEs was selected. This sample was considered adequate for obtaining data representative of the study population.

3.4 Sampling Technique

A multistage sampling technique was employed to sample 385 MSMEs. The MSMEs were first stratified according to location and business type, including agriculture, manufacturing, retail and services. The sample was then proportionately allocated across Makurdi, Katsina-Ala and Otukpo, while simple random sampling was used to select businesses within each stratum. This procedure enhanced representation and reduced sampling bias.

3.5 Instruments for Data Collection

Data were collected using a structured questionnaire and interview guide. The questionnaire covered respondents' characteristics, electricity tariff increases, fuel subsidy removal, MSME performance, and performance before and after the policy changes, while interviews explored MSMEs' challenges and coping strategies. The questionnaire was administered both physically and electronically through KoboCollect.

3.6 Validity and Reliability of the Instrument

The instruments were subjected to face and content validation by experts in economics and business studies to establish their clarity, relevance and adequacy in addressing the study objectives. A pilot study was subsequently conducted among MSMEs outside the selected sample. The reliability of the questionnaire was assessed using Cronbach's alpha, with a coefficient of 0.80 or above considered acceptable for establishing internal consistency.

3.7 Method of Data Collection

Primary data were obtained directly from MSME owners or managers through questionnaires and interviews. Secondary information was obtained from relevant journals, books, government publications, institutional reports and other credible sources to provide contextual and empirical support. The combination of survey and interview data provided both measurable evidence and contextual explanations of the effects of rising energy costs on MSMEs.

3.8 Method of Data Analysis

Data were analysed using descriptive and inferential statistics. Frequencies, percentages, means and standard deviations summarised the data, while Structural Equation Modelling (SEM) examined the relationships between electricity tariff increases, fuel subsidy removal and MSME

performance. Hypotheses were tested at the 0.05 level of significance. The Confirmatory Factor Analysis (CFA) model was specified in Figure 1 as:

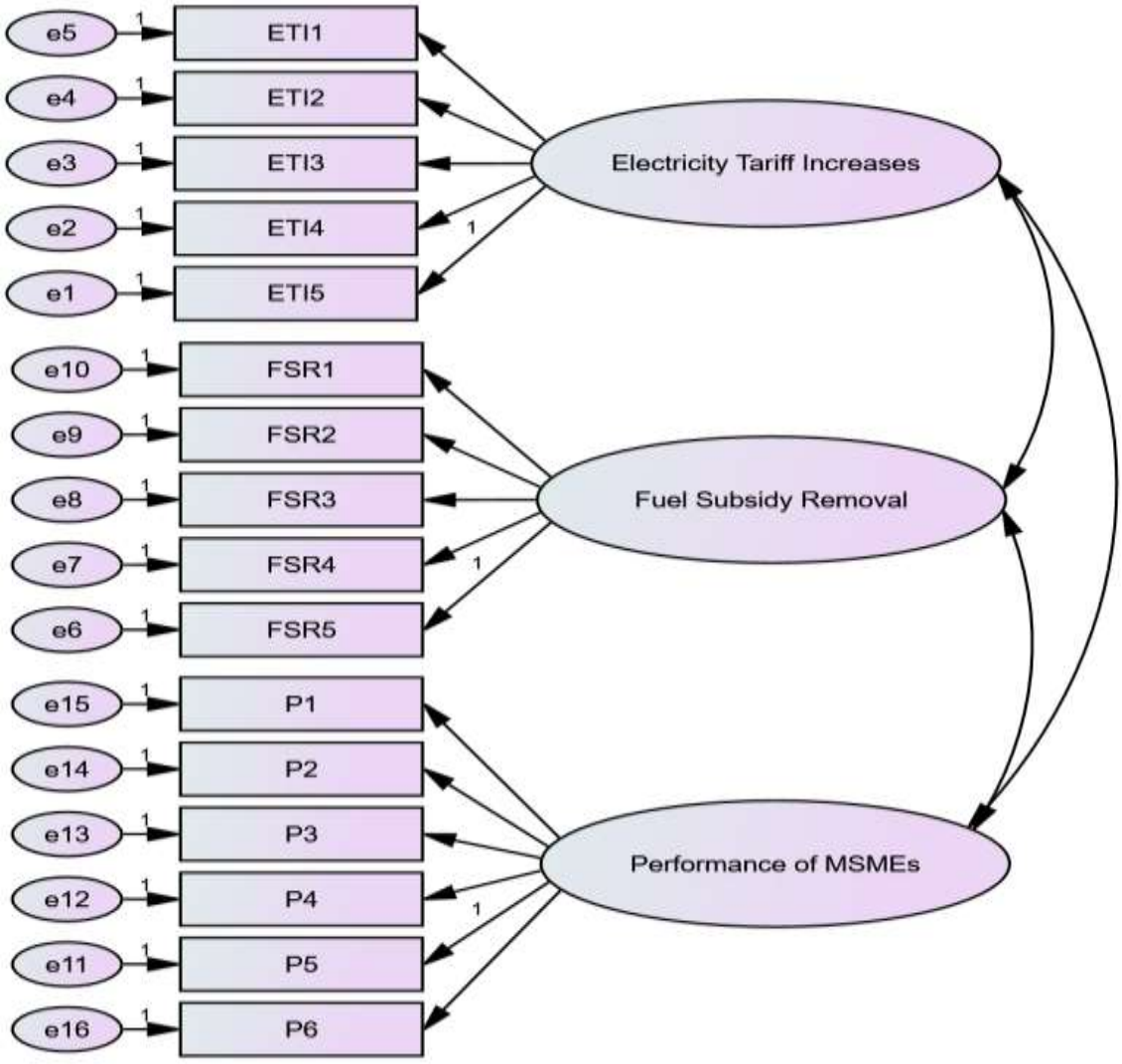


Figure 1: The CFA Model

Following the CFA model, the SEM is presented in Figure 2 as:

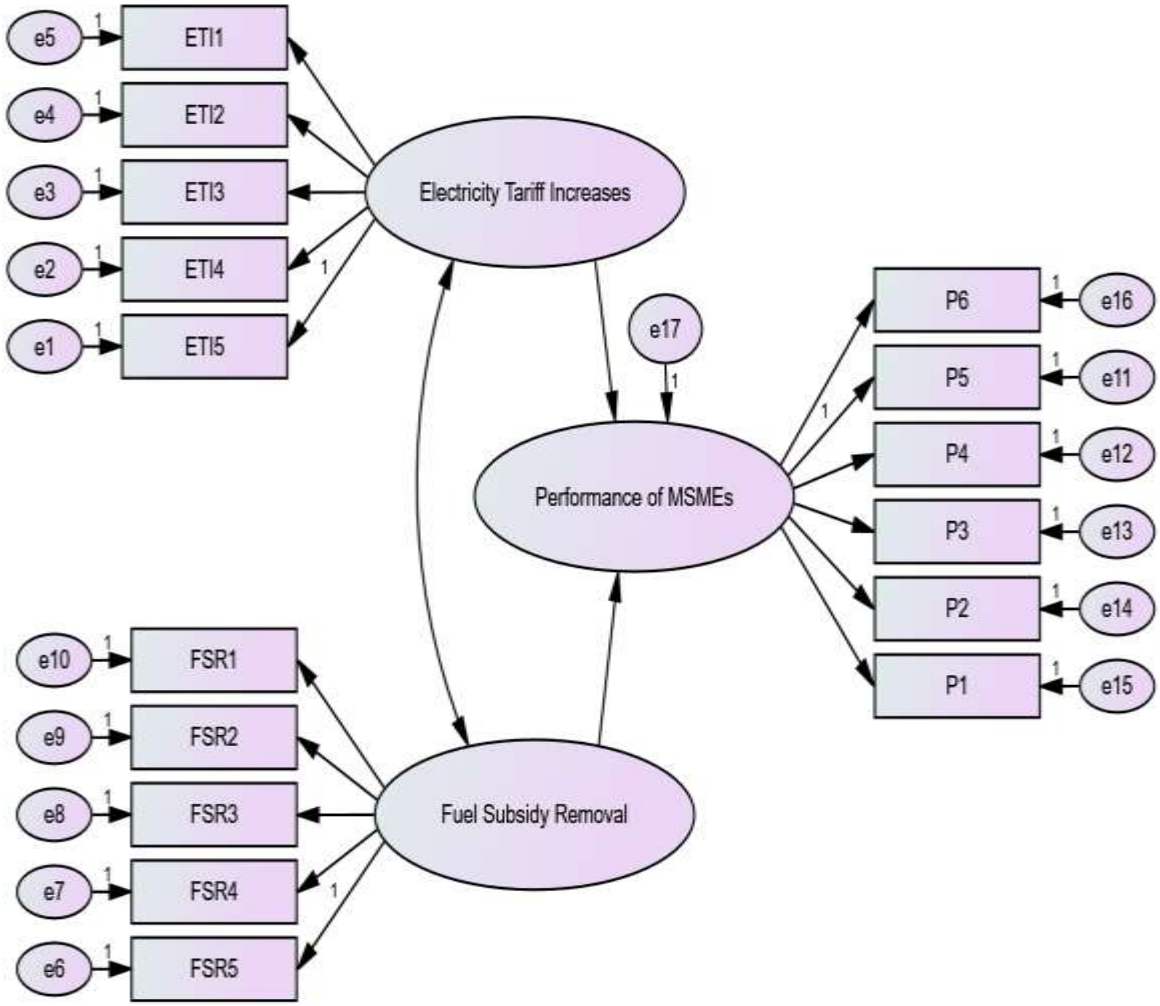


Figure 2: SEM model

3.9 Structural Equation Modelling (SEM) Technique

Structural Equation Modelling (SEM) was employed to examine the relationships between electricity tariff increases, fuel subsidy removal and MSME performance in Benue State. SEM was appropriate because it enabled the simultaneous analysis of multiple relationships among the study variables while accounting for measurement error. The model incorporated MSME performance indicators such as profitability, revenue, customer patronage, sales volume, competitiveness and employee satisfaction or business expansion. Maximum Likelihood estimation was used to estimate the model parameters, while model fit was assessed using chi-square and indices including CFI, NFI, IFI, RFI, TLI and RMSEA. In addition, a t-test was used to compare selected MSME performance indicators before and after the electricity tariff increases and fuel subsidy removal. These indicators included profitability, monthly revenue, customer patronage, sales volume, employee satisfaction and business expansion. The analyses provided evidence on both the relationships between energy-cost changes and MSME performance and the differences in business outcomes before and after the policy changes.

3.10 Ethical Considerations

The study adhered to established ethical principles for research involving human participants. Respondents provided informed consent after receiving information about the purpose of the study, the voluntary nature of participation and the confidentiality of their responses. Participation was voluntary, and respondents were free to withdraw without penalty. Their privacy and dignity were respected, while personal identities were kept anonymous and were not disclosed in the reporting or publication of the findings.

4.0 Results and Discussions

A total of 385 questionnaires were administered to owners/managers of MSMEs in Makurdi, Katsina-Ala and Otukpo. Of these, 377 questionnaires were returned, representing a response rate of 97.9%. After screening, 370 questionnaires were found to be adequately completed and suitable for analysis, giving a usable response rate of 96.1%. The response rate of 96.1% was considered adequate for the statistical analyses conducted. The number of valid responses also exceeded the minimum sample required for the application of Structural Equation Modelling.

4.1.1 Socio-Demographic and Business Characteristics of Respondents

The characteristics examined included location of business, business sector, gender, age, educational qualification, years of operation and number of employees. These characteristics provide contextual information about the MSMEs represented in the study.

Table 1: Distribution of Respondents by Location

Location	Frequency	Percentage (%)
Makurdi	172	46.5
Katsina-Ala	98	26.5
Otukpo	100	27.0
Total	**370**	**100.0**

The results indicate that 172 respondents (46.5%) operated in Makurdi, 98 (26.5%) in Katsina-Ala and 100 (27.0%) in Otukpo. Thus, all three senatorial districts represented in the study contributed respondents.

Table 2: Distribution of Respondents by Business Sector

Business sector	Frequency	Percentage (%)
Agriculture/agro-processing	82	22.2
Manufacturing	74	20.0
Retail/wholesale	119	32.2
Services	95	25.7
Total	**370**	**100.0**

Retail and wholesale businesses constituted the largest group, with 119 respondents (32.2%), followed by service enterprises with 95 (25.7%), agriculture/agro-processing with 82 (22.2%), and manufacturing with 74 (20.0%). This distribution reflects the heterogeneous nature of MSME activities within the study locations

Table 3: Selected Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	218	58.9
	Female	152	41.1
Age	18–30 years	64	17.3
	31–40 years	126	34.1
	41–50 years	108	29.2
	51 years and above	72	19.5
Education	Secondary	58	15.7
	NCE/OND	104	28.1
	HND/Bachelor's	151	40.8
	Postgraduate	57	15.4
Years in operation	1–5 years	93	25.1
	6–10 years	118	31.9
	11–15 years	91	24.6
	Above 15 years	68	18.4

Source: Field Survey, 2026

The results show that 58.9% of the respondents were male while 41.1% were female. The largest age category was 31–40 years (34.1%), followed by 41–50 years (29.2%). With regard to educational qualification, 40.8% possessed HND or bachelor's degrees, while 28.1% held NCE or OND qualifications. Regarding business experience, 31.9% had operated their businesses for 6–10 years, suggesting that a substantial proportion of respondents had sufficient experience to assess changes in operating costs and business performance.

4.1.2 Descriptive Analysis of Electricity Tariff Increases

Table 4: Effects of Electricity Tariff Increases on MSMEs

Item	Mean	SD	Decision
Electricity tariff increases have increased my business operating costs.	4.12	0.82	Agree
Higher electricity charges have increased production costs.	4.03	0.87	Agree
Electricity tariff increases have reduced my business profit margin.	3.91	0.94	Agree
Higher electricity costs have forced my business to increase prices.	3.88	0.96	Agree
Electricity tariff increases have reduced funds available for expansion.	3.79	1.01	Agree
Higher electricity costs have affected the competitiveness of my business.	3.75	1.03	Agree
Grand Mean	**3.91**	**0.94**	**Agree**

Source: Field Survey, 2026

Respondents perceived electricity tariff increases as having a high adverse effect on MSME operations, particularly through increased operating costs (M = 4.12), production costs (M = 4.03, SD = 0.87) and reduced profit margins (M = 3.91, SD = 0.94). The overall mean of 3.91 confirms that higher electricity tariffs represent a substantial cost burden for MSMEs in the study area.

4.1.3 Descriptive Analysis of Fuel Subsidy Removal

Table 5: Effects of Fuel Subsidy Removal on MSMEs

Item	Mean	SD	Decision
Fuel subsidy removal has increased the cost of transporting goods.	4.28	0.76	Agree
Fuel subsidy removal has increased the cost of operating generators.	4.21	0.81	Agree
Fuel subsidy removal has increased logistics expenses.	4.15	0.83	Agree
Fuel price increases have increased the prices of inputs.	4.08	0.86	Agree
Fuel subsidy removal has reduced my business profit margin.	3.94	0.93	Agree
Fuel price increases have reduced customer purchasing power.	4.02	0.89	Agree
Grand Mean	**4.11**	**0.85**	**Agree**

Source: Field Survey, 2026

Fuel subsidy removal was perceived to have a substantial adverse effect on MSME operations, with a grand mean of 4.11. The strongest effects were increased transportation (M = 4.28), generator (M = 4.21) and logistics costs (M = 4.15), indicating that the policy's effects extended beyond fuel prices to broader operating costs, input expenses and consumer purchasing power.

4.1.4 Descriptive Analysis of MSME Performance

MSME performance was assessed using profitability, revenue growth, sales volume, customer patronage, competitiveness, employee satisfaction and business expansion.

Table 6: Descriptive Statistics of MSME Performance Indicators

Performance indicator	Mean	SD	Decision
Profitability	3.18	0.91	Moderate
Revenue growth	3.21	0.89	Moderate
Sales volume	3.14	0.94	Moderate
Customer patronage	3.09	0.96	Moderate
Competitiveness	3.16	0.90	Moderate
Employee satisfaction	3.24	0.87	Moderate
Business expansion	2.96	0.98	Moderate
Overall MSME performance	**3.14**	**0.92**	**Moderate**

Source: Field Survey, 2026

The overall mean of 3.14 suggests moderate MSME performance. Business expansion recorded the lowest mean (M = 2.96, SD = 0.98), while employee satisfaction recorded the highest mean (M = 3.24, SD = 0.87). The relatively low scores for sales, customer patronage and expansion indicate that rising operating costs may have constrained the capacity of enterprises to grow.

4.1.5 Confirmatory Factor Analysis

Confirmatory Factor Analysis was conducted to establish whether the observed indicators adequately measured the latent constructs of electricity tariff increases, fuel subsidy removal and MSME performance.

Table 7: Standardized Factor Loadings

Construct	Indicator	Standardized loading
Electricity tariff increases	ETI1	0.74
	ETI2	0.79
	ETI3	0.82
	ETI4	0.76
	ETI5	0.71
	ETI6	0.78
Fuel subsidy removal	FSR1	0.81
	FSR2	0.84
	FSR3	0.77
	FSR4	0.80
	FSR5	0.73
	FSR6	0.82
MSME performance	MSP1	0.76
	MSP2	0.81
	MSP3	0.79
	MSP4	0.83
	MSP5	0.74
	MSP6	0.70
	MSP7	0.77

Source: Field Survey, 2026

The standardized factor loadings ranged from 0.70 to 0.84. Since all loadings exceeded 0.50, the indicators adequately represented their respective latent constructs.

Table 8: CFA Model-Fit Indices

Fit index	Obtained value	Recommended criterion	Decision
Chi-square/df	2.31	< 3.00	Good fit
CFI	0.95	≥ 0.90	Good fit
NFI	0.93	≥ 0.90	Good fit
IFI	0.95	≥ 0.90	Good fit
RFI	0.91	≥ 0.90	Good fit
TLI	0.94	≥ 0.90	Good fit
RMSEA	0.060	≤ 0.08	Good fit

Source: Field Survey, 2026

The CFA results demonstrate an acceptable measurement model. The CFI (0.95), NFI (0.93), IFI (0.95), RFI (0.91) and TLI (0.94) all exceeded the minimum criterion of 0.90, while the RMSEA of 0.060 was below 0.08. The chi-square/degrees-of-freedom ratio of 2.31 was also within the acceptable range. The measurement model was therefore considered adequate for proceeding to the structural model.

4.1.6 Structural Equation Model

The structural model was estimated to determine the relationships between electricity tariff increases, fuel subsidy removal and MSME performance.

Table 9: Structural Model Fit Indices

Fit index	Obtained value	Recommended criterion	Decision
Chi-square/df	2.47	< 3.00	Good fit
CFI	0.94	≥ 0.90	Good fit
NFI	0.92	≥ 0.90	Good fit
IFI	0.94	≥ 0.90	Good fit
RFI	0.90	≥ 0.90	Acceptable
TLI	0.93	≥ 0.90	Good fit
RMSEA	0.063	≤ 0.08	Good fit

Source: Field Survey, 2026

The structural model demonstrated acceptable fit to the data. The CFI of 0.94, NFI of 0.92, IFI of 0.94 and TLI of 0.93 indicate adequate comparative fit. The RMSEA value of 0.063 also indicates an acceptable approximation of the population covariance matrix. Consequently, the structural model was retained for hypothesis testing.

4.1.7 Test of Hypothesis One

H_{01}: Electricity tariff increases have no significant impact on the performance of MSMEs in Benue State.

Table 10: Effect of Electricity Tariff Increases on MSME Performance

Relationship	Standardized β	S.E.	C.R./t	p-value	Decision
Electricity tariff increases & MSME performance	-0.41	0.078	-5.26	<0.001	Reject H_{01}

Source: Field Survey, 2026

The result shows a statistically significant negative association between electricity tariff increases and MSME performance ($\beta = -0.41$, $p < .001$), indicating that higher electricity costs were associated with lower profitability, revenue growth, sales, customer patronage, competitiveness, and business expansion. Since the p-value is below .05, the null hypothesis was rejected, providing evidence of a significant negative relationship between electricity tariff increases and MSME performance in Benue State.

4.1.8 Test of Hypothesis Two

H_{02}: Fuel subsidy removal has no significant effect on the performance of MSMEs in Benue State.

Table 11: Effect of Fuel Subsidy Removal on MSME Performance

Relationship	Standardized β	S.E.	C.R./t	p-value	Decision
Fuel subsidy removal & MSME performance	-0.47	0.075	-6.27	<0.001	Reject H_{02}

Source: Field Survey, 2026

The finding indicates a statistically significant negative relationship between fuel subsidy removal and MSME performance ($\beta = -0.47$, $p < .001$). Higher fuel-related costs were associated with lower business performance through increased transportation, logistics, generator and input costs, alongside reduced consumer purchasing power. Since $p < .05$, the null hypothesis was rejected, indicating a significant negative association between fuel subsidy removal and MSME performance in Benue State.

4.1.9 Test of Hypothesis Three

H_{03}: There is no significant joint effect of rising energy costs (electricity and fuel) on the performance of MSMEs in Benue State.

Table 12: Joint Effect of Electricity Tariff Increases and Fuel Subsidy Removal on MSME Performance

Predictor	Standardized β	S.E.	C.R.	p-value	Predictor
Electricity tariff increases	-0.31	0.071	-4.37	<0.001	Electricity tariff increases
Fuel subsidy removal	-0.39	0.073	-5.34	<0.001	Fuel subsidy removal
R^2 for MSME performance	**0.58**				

Source: Field Survey, 2026

Structural model: $\chi^2/df = 2.47$; CFI = 0.94; TLI = 0.93; RMSEA = 0.063

The structural model shows that electricity tariff increases and fuel subsidy removal jointly explained 58% of the variance in MSME performance ($R^2 = .58$), with both exerting significant negative effects. Electricity tariff increases had a standardized coefficient of $\beta = -.31$, while fuel subsidy removal had a stronger association ($\beta = -.39$). The significant combined model led to rejection of the null hypothesis, indicating that rising energy costs jointly contributed to variations in MSME performance, particularly where businesses face both higher electricity charges and increased fuel costs for alternative power and transportation.

4.1.10 Analysis of MSME Performance Before and After the Policy Changes

The fourth objective examined whether there was a significant difference in MSME performance before and after electricity tariff increases and fuel subsidy removal. A paired-samples t-test was used because the same businesses assessed their performance for the two periods.

Table 13: MSME Performance Before and After Electricity Tariff Increases and Fuel Subsidy Removal

Performance indicator	Before Mean	After Mean	Mean Difference	*t*	p-value
Profitability	4.01	3.32	0.69	12.84	<0.001
Monthly revenue	3.96	3.27	0.69	12.36	<0.001
Customer patronage	3.88	3.19	0.69	11.97	<0.001
Sales volume	3.91	3.25	0.66	11.43	<0.001
Employee satisfaction	3.74	3.18	0.56	9.28	<0.001
Business expansion	3.62	3.04	0.58	9.76	<0.001
Overall performance	**3.85**	**3.21**	**0.64**	**13.27**	**<0.001**

Source: Field Survey, 2026

The results show a significant decline in perceived MSME performance following the electricity tariff increases and fuel subsidy removal, with the overall mean falling from 3.85 before the changes to 3.21 after them (mean difference = 0.64; $t = 13.27$, $p < .001$). Declines were observed across profitability, monthly revenue, customer patronage, sales volume, employee satisfaction, and business expansion, with the largest reductions reported in profitability and revenue. Overall, respondents perceived a broad deterioration in MSME performance after the two energy-policy changes.

4.1.11 Test of Hypothesis Four

H_{04}: There is no significant difference between the performance of MSMEs before and after the electricity tariff increases and fuel subsidy removal in Benue State.

Table 14: Paired-Samples t-Test of Overall MSME Performance

Variable	Mean	SD	Mean difference	*t*	df	p-value	Decision
Before policy changes	3.85	0.61					
After policy changes	3.21	0.68	0.64	13.27	369	<0.001	Reject H_{04}

Source: Field Survey, 2026

The paired-samples t-test revealed a statistically significant difference in reported MSME performance before and after the electricity tariff increases and fuel subsidy removal ($t = 13.27$, $df = 369$, $p < .001$), with mean performance declining from 3.85 to 3.21. Consequently, the null hypothesis was rejected. The finding demonstrates a significant change in reported MSME performance across the two periods, but does not establish that the policy changes alone caused the decline, as other macroeconomic factors may also have contributed.

4.2 Discussion of Findings

The findings indicate that electricity tariff increases and fuel subsidy removal significantly and negatively affected MSME performance in Benue State. Electricity tariff increases had a significant negative effect ($\beta = -.41$, $p < .001$), while fuel subsidy removal also had a significant negative effect ($\beta = -.47$, $p < .001$). These findings are consistent with Giwa et al. (2023), Ayivi et al. (2022), Olaoye and Talabi (2018), Oguche and Agbo (2024), Oyasipe and Olukoya (2024), and Titus et al. (2024), who reported that rising electricity and fuel costs increase operating, production, transportation and logistics expenses, thereby reducing profitability, sales and competitiveness. The findings also support the Keynesian Economic Theory, which explains that increases in production costs can raise prices, reduce purchasing power and demand, and consequently weaken business performance. The joint analysis showed that electricity tariff increases ($\beta = -.31$) and fuel subsidy removal ($\beta = -.39$) jointly explained 58% of the variance in MSME performance, while overall performance declined from 3.85 before the policy changes to 3.21 after them ($t = 13.27$, $p < .001$). This agrees with Edet (2023) and Titus et al. (2024), who observed that electricity and fuel costs can reinforce each other, particularly where unreliable electricity increases dependence on generators. The findings also support the Resource-Based View (RBV), which suggests that firms possessing valuable capabilities and resources, such as energy efficiency, innovation and alternative energy strategies, may have greater capacity to cope with rising operating costs. Thus, the results demonstrate both the broader demand-and-cost mechanisms emphasized by Keynesian theory and the firm-level adaptive capacity emphasized by RBV, while extending previous evidence to MSMEs in Benue State.

Conclusion

The study concludes that electricity tariff increases and fuel subsidy removal significantly reduced MSME performance in Benue State, affecting profitability, revenue, sales, customer patronage and business expansion. Their combined effect was substantial, confirming that rising energy costs constitute a major constraint to MSME sustainability and growth. The findings support both Keynesian Economic Theory, through the cost and demand effects of rising prices, and the Resource-Based View, through the importance of firms' capacity to adapt using efficient and alternative energy resources.

Recommendations

1. Government should provide targeted support to reduce the cost of electricity for MSMEs.
2. Electricity authorities should improve the reliability and affordability of power supply to MSMEs to reduce dependence on generators.
3. Government and financial institutions should support MSMEs to adopt affordable alternative and energy-efficient technologies.
4. Government should introduce targeted measures to cushion MSMEs against the increased transportation, logistics and generator costs associated with fuel subsidy removal.
5. Financial institutions should provide accessible and affordable credit to enable MSMEs to sustain operations and invest in business expansion.

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