

Effect of energy price hikes on the survival of micro, small, and medium scale enterprises in Ekiti State

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Abstract

Purpose: This study examined the effect of energy price hikes on the survival of Micro, Small, and Medium Enterprises (MSMEs) in Ekiti State, Nigeria, with a focus on electricity tariff increases and fuel subsidy removal. The aim was to understand how changes in energy costs influence MSME continuity and resilience.

Methodology: Data was collected through a structured survey administered to MSME operators, yielding 388 valid responses. Ordinary Least Squares (OLS) regression was employed to assess the relationship between energy price changes and MSME survival, allowing for a quantitative evaluation of the effects of electricity and fuel cost fluctuations.

Results and conclusion: The analysis revealed that increases in electricity tariffs have a positive but statistically insignificant effect on MSME survival, indicating that electricity price hikes alone do not substantially affect business continuity. Conversely, the removal of fuel subsidies has a negative and statistically significant effect on MSME survival, demonstrating that higher fuel costs pose a tangible threat to the sustainability of these enterprises. These findings suggest that while electricity pricing may not critically hinder MSMEs, fuel costs are a major operational challenge that could undermine business stability if not addressed.

Implication of findings: Policymakers should prioritize measures to mitigate the adverse effects of rising fuel costs on MSMEs, such as targeted subsidies, fuel cost management strategies, or promotion of cost-effective energy alternatives. By focusing on energy cost components that significantly impact business survival, interventions can strengthen MSME resilience, support local economic development, and inform energy policy decisions in Ekiti State.

Keywords: Energy price, Fuel subsidy, Electricity tariff, MSMEs.

1. Introduction

The Nigerian economy massively depends on these MSMEs to fill the majority of economic gaps, like unemployment and production (Onugu, 2005; Umar, 2017; Zhang et al., 2024). According to the National Bureau of Statistics [NBS], MSMEs contribute 43 per cent of Nigerian gross domestic product, which is about 205 billion USD and employ over 80% of the nation's workforce as of 2023 (Aduloju, 2023). Beyond employment, MSMEs are increasingly leveraging digital tools to improve performance, with financial technology and financial inclusion identified as key mediating factors in their growth (Usman, 2025). However, their contributions are constrained by structural challenges, including low tax compliance, which Adigwe (2025) links to specific MSME characteristics within the Nigerian context. Thus, the survival of MSMEs cannot be overemphasised in the Nigerian economic parlance. One major input for their survival is energy.

The majority of Nigerian businesses need energy to carry out their operations effectively; while their energy needs vary based on the type of activities these businesses engage in, without power, many of these businesses will cease to operate (Oruwari & Ubani, 2023). This underscores the important role of electricity in the operation, growth, and survival of micro, small, and medium-scale enterprises [MSMEs] in any economy. Ekiti state, like in other states of the federation, the availability of power has been very sporadic and even sometimes non-existent (Oyedepo, 2014). Closingge has led to many businesses

closing down, especially those enterprises that cannot operate without the use of electricity. Thus, grossly affecting the ability of MSMEs to contribute to the growth and economic prosperity of the State.

The majority of these MSMEs operating within Ekiti have resorted to self-produced powers like electric generators and, more recently, solar power to mitigate the frequent lack of electricity (Wafiq et al., 2024). However, the use of electric generators comes with additional cost of fuelling either with petrol or diesel. Sadly, within the last year, the prices of these liquefied products have skyrocketed to unprecedented all-time highs. According to NBS, when compared to the same period in 2023, the average retail price of Premium Motor Spirit, or PMS, or petrol, increased by 176.02 per cent to N701.24 per litre in April 2024. Conversely, the average retail price of Automotive Gas Oil, or diesel, increased by 68.01 per cent year over year to N1415.06 in April 2024 from N842.25 in April 2023 (Eko, 2024). This hike in price has massively crippled the operation of many businesses and reduced their profits, with some operating at a loss. These hikes are mainly caused by the removal of fuel subsidies by the Nigerian government in 2023 (Abayomi, 2023).

Due to the unstable power supply and high fuel costs, many businesses have resorted to solar power, which has resulted in many using generators. However, more recently, the government has approved an increase in the electricity tariffs from a bearable 65 Naira per kWh to a staggering 225 Naira per kWh, representing a 330 per cent increase (Kolawole, 2024). These hikes in the prices of energy have been a cause for concerns from many businesses all over the Federation. Strategic responses to such disruptions are further shaped by how MSMEs configure their technology, organisational, and environmental frameworks in their business decision-making (Aina, 2025).

Numerous studies have looked at the impact that electricity has had on MSMEs throughout the years. For instance, Afukonyo (2023) looked at how SMEs in Taraba state's Takum local government area is affected by epileptic power supplies. Regarding fuel subsidies, Taiwo et al. (2024) examined how the elimination of fuel subsidies has affected Nigerian SMEs, especially those in the block-making sector, while Ilodigwe (2023) examined the negative consequences of the removal of fuel subsidies on SMEs in Anambra State. The effect of electricity on the performance of SMEs in Ado-Odo, Ota LGA, Ogun State, was investigated by Akinyemi et al. in 2021. Omokanmi et al. (2020) investigated the roles of renewable energy in reducing the prevalence of energy shortage that is impacting SMEs in Nigeria, with particular reference to the metropolitan areas of Lagos State. This study focuses on Ekiti State in examining the effect of energy prices specifically fuel subsidy removal and electricity tariff increases on the survival of micro, small, and medium-scale enterprises (MSMEs). Ekiti State presents a distinct context due to its predominantly rural economy, limited industrialization, and relatively high dependence of MSMEs on small-scale energy sources, unlike more industrialized states where firms may have greater access to alternative energy and capital buffers. These unique economic and infrastructural characteristics suggest that MSMEs in Ekiti may be more vulnerable to energy price fluctuations, and thus the results may differ from those obtained in other Nigerian states with higher urbanization and energy infrastructure.

2. Literature review

Theoretical review

The ability of micro, small, and medium-sized enterprises (MSMEs) to survive in an environment where energy prices are increasing can be understood in line with Resource Dependence Theory (RDT). The Resource Dependence Theory was first proposed by Pfeffer and Salancik (1978). According to this theory, organizations are dependent on resources from their environment. Therefore, changes in the availability or prices of these resources can impact an organization in a substantial way. MSMEs are dependent on

energy resources like electricity and fuel for production and transportation. Changes in energy prices in the form of an increase in electricity tariffs or the removal of fuel subsidy can be considered an external shock to these organizations, which can impact their operations and profitability in a substantial way (Pfeffer & Salancik, 1978).

While RDT is concerned with the above factors, the cost constraint perspective highlights the fact that the sustainability of small firms is subject to their capacity to manage fixed and variable costs. Energy costs may form a substantial proportion of MSMEs' costs, mainly in manufacturing, transportation, and service industries. As energy costs increase, some MSMEs may find it difficult to cope with the added costs, which may affect their competitiveness and even lead to business failure (Omitogun et al., 2021; Adekunle & Oseni, 2021).

In this study, RDT and cost-constraint perspectives are complementary theories that will be used to explain the influence of energy cost increases on MSME sustainability in Ekiti State. A business that cannot cope with energy cost increases through various means, such as energy-saving technologies or cost restructuring, is likely to be at risk of business collapse. Therefore, energy cost increases, as reflected by electricity tariffs and fuel prices, are expected to have a negative influence on business sustainability, especially among micro and small businesses as opposed to medium businesses. This theoretical background is consistent with this study's objective of evaluating the impacts of energy cost changes on MSME sustainability.

Empirical review

Akinola et al. (2024) discuss the impacts of removing petrol subsidies on Nigerian SMEs in the block-making industries while presenting other remedies that could support these companies in overcoming constraints and exploiting opportunities. The study specifically focused on fuel subsidies, block-making industries, and small and medium-sized enterprises. The objective was to assess the financial impact of fuel subsidy removal on SMEs and identify possible mitigations to support survival and growth. Adopting an exploratory and qualitative approach, the research captured entrepreneurs' experiences and intentions. The study found that SMEs, especially those in block-making, were severely affected by subsidy removal, resulting in higher operating costs, reduced profitability, unemployment, and inflation, thereby threatening enterprise survival.

Ilodigwe (2023) investigated the potential effects of fuel subsidy elimination on SMEs in Anambra State over a recent period. Using a mixed-method approach, data were collected from 105 SMEs across 21 Local Government Areas via structured questionnaires and interviews. Quantitative data were analyzed with frequency tables, charts, and graphs, while qualitative data were thematically analyzed. The study established that fuel subsidy removal adversely affected SME operations through increased production costs, reduced profit margins, lower sales, and operational financial challenges, thus negatively influencing their survival.

Afukonyo (2023) examined the effect of epileptic power supply on small and medium-scale enterprises in Takum Local Government, Taraba State. Using a cross-sectional survey design, 30 SMEs were selected through simple random sampling. The study found that SMEs relying on inconsistent power spent 20–30% of their budget on backup energy, limiting resources for other operations. While access to energy was limited, the results highlighted the operational strain and survival risk associated with unreliable electricity supply.

Adanlawo and Vezi-Magigaba (2021) assessed how power interruptions affected SMEs' business operations and economic contributions in Lagos State. Structured questionnaires were administered to 110 SME operators across Mainland, Shomolu, and Agege LGAs. Descriptive statistics and Chi-square analysis were used. The findings indicated that frequent power disruptions significantly threatened SME development and survival, limiting expansion and economic contribution.

Akinyemi et al. (2021) studied the impact of electricity on SME performance in Ado-Odo, Ota LGA, Ogun State. Purposive questionnaires were distributed to 120 SMEs, with 90 valid responses analyzed using SPSS, ANOVA, correlation, and OLS methods. Results showed that power availability significantly influenced SME performance, and alternative electricity sources were critical for sustaining operations and survival.

Omokanmi et al. (2020) investigated renewable energy's role in mitigating energy deficits for SMEs in Lagos metropolitan areas. Using 500 systematically selected SMEs and structured questionnaires, the study applied logistic regression to analyze operational costs, profitability, and competitiveness. Findings revealed that energy scarcity negatively affected SME performance, while renewable energy adoption positively correlated with profitability and enterprise sustainability, supporting continued survival.

Agbi and Ibidunni (2024) explored sustainability strategies for SMEs beyond environmental shocks, highlighting innovative practices that can enhance resilience in developing economies. Their findings suggest that proactive measures are vital for long-term sustainability.

Akomolafe (2024) examined the effects of power outages on SMEs in Ekiti State, revealing a direct correlation between power reliability and the performance of small and medium enterprises, further emphasizing the necessity for stable energy sources.

Babatunde and Adebayo (2025) assessed the effects of fiscal policy on the performance of micro, small, and medium-scale enterprises in Nigeria, finding that policy frameworks significantly impact business growth and operational stability.

Bolaji et al. (2024) identified factors affecting the growth of SMEs in Nigeria, underscoring the role of financial access, market conditions, and regulatory environments in shaping enterprise development.

The hypotheses for this study were formulated in a null:

H1: Fuel subsidy has no significance effect on the survival of micro, small, and medium scale enterprises in Ekiti state.

H2: Electricity tariff has no significance effect on the survival of micro, small, and medium scale enterprises in Ekiti state.

3. Methodology

The study employed a survey research design as its primary method of data collection. Data was collected directly from MSMEs in Ekiti State to examine the effect of energy price hikes on business survival. A structured questionnaire was used as the main instrument for collecting primary data from respondents. The questionnaire was designed to capture information on electricity tariffs, fuel subsidy removal, and indicators of MSME survival, including profitability, operational continuity, and business sustainability. A convenient sampling technique was adopted to select participants. Based on the SMEDAN survey, there are 967,468 MSMEs in Ekiti State (Dagunduro et al., 2022).

Using Yamane’s (1967) formula, the sample size was calculated as follows:

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

Where:

N represents the population of the study

n represents the sample size of the population

e represents the error margin

$$n = \frac{967,468}{1 + 967,468(0.05)^2}$$

$$n = \frac{967,468}{1 + 967,468(0.0025)}$$

$$n = \frac{967,468}{1 + 2,418.67}$$

$$n = \frac{967,468}{2,415.67}$$

$$n = 400.49 \text{ or } 400$$

Therefore, the sample size of the study is 400 MSMEs in Ekiti State.

The study utilised 388 responses obtained from the survey after distributed the calculated 400.

The Variable Measurements and Descriptions are as follows:

MSMEs’ Survival (MSS): Dependent variable, measured through indicators such as business continuity, profitability, and operational performance.

Fuel Subsidy (FSB): Independent variable, measured as the presence or removal of government fuel subsidies affecting operational costs.

Electricity Tariff (ELT): Independent variable, measured as the level of electricity pricing impacting business expenditures.

Data was analyzed using descriptive statistics to summarize the responses and Ordinary Least Squares (OLS) regression to test the relationships between energy price changes and MSME survival. A simple regression model was specified as: The study utilised simple regression; the mathematical model is expressed thus:

$$MSS = f(FSB, ELT) \dots\dots\dots (1)$$

The linear regression model is presented below:

$$MSS = \beta_0 + \beta_1 FSB + \beta_2 ELT + \varepsilon \dots\dots\dots (2)$$

Where MSS is MSMEs’ Survival, FSB is fuel subsidy, ELT is electricity tariff. β_0 is the intercept, β_1 and β_2 are the coefficients of the regressors, ε is the error term.

4. Results and discussion

This section provides details on descriptive statistics and estimation of the regression results on the formulated hypotheses. The study got three hundred and eighty-eight (388) valid responses. Table 1 presents the descriptive demographic background for the study.

Table 1: Descriptive analysis

Demographic Details	Options	Frequency	Percentage %
Gender	Male	200	51.5
	Female	188	48.5
Energy Need	Low	75	19.3
	Moderate	215	55.4
	High	98	25.3
Education	Basic	89	22.9
	Secondary	100	25.8
	Tertiary	199	51.3
Total		388	100.0

Source: Field Report, 2025.

Table 1 presents the demographic details of the respondents, including gender, education, and energy needs. The gender distribution shows that male respondents accounted for 200 (51.5%), while female respondents accounted for 188 (48.5%), indicating a fairly balanced representation of both genders in the study. This balance suggests that the findings reflect perspectives from both male- and female-led MSMEs in Ekiti State. Regarding educational qualification, 89 respondents (22.9%) had basic education, 100 respondents (25.8%) had secondary education, and 199 respondents (51.3%) had tertiary education. This indicates that a majority of the respondents are relatively well-educated, which may influence their understanding of energy costs, business operations, and strategies to cope with energy price hikes. The high level of tertiary education among MSME operators could also suggest a greater capacity to adopt alternative energy solutions or manage operational challenges. The energy needs distribution shows that 215 respondents (55.4%) moderately depend on energy, 98 respondents (25.3%) highly depend on energy, and 76 respondents (19.3%) have low energy needs. This suggests that most MSMEs in the sample rely on energy to some extent for their daily operations, with a significant portion being highly dependent. Firms with high energy dependence are likely more vulnerable to increases in electricity tariffs or fuel costs, highlighting the relevance of this study in examining how energy price changes affect MSME survival.

Table 2: Correlation analysis

	Fuel subsidy	Electricity tariff
Fuel subsidy	1	
Electricity tariff	-.090	1

Source: Authors' Computation, 2025.

The correlation's outcome demonstrates that the independent variable's multicollinearity is absent. This is because a weak and negative association is implied by the correlation coefficient of -0.90. This suggests that there is probably no evidence of erroneous findings and that the variables in question are suitable for regression analysis. After analysing the correlation, the research moves on to validate the construct of the questionnaire item and ensure its reliability. The outcome is shown in the table below.

Table 3: Reliability and validity of the construct

Construct	Indicators	Factor Loading	Alpha	Skewness	Kurtosis
Fuel Subsidy	FSB1	0.782	0.782	0.263	-0.428
	FSB2	0.742			
	FSB3	0.744			
	FSB4	0.856			
	FSB5	0.870			
Electricity Tariff	ELT1	0.879	0.867	0.607	1.282
	ELT2	0.919			
	ELT3	0.871			
	ELT4	0.874			
	ELT5	0.812			
MSMEs' Survival	MSS1	0.763	0.631	-0.280	-1.064
	MSS2	0.751			
	MSS3	0.791			
	MSS4	0.904			
	MSS5	0.931			

Source: Authors' Computation, 2025.

Skewness and kurtosis are utilised in this research to evaluate the data's normalcy. The findings show that the data are normally distributed since all of the construct's skewness and kurtosis values fall within the allowed range of 2. Additionally, Hitt et al. (1996) believe that factors loading of 0.50 and above is considered appropriate in social science. As a result, all factor loadings are more than 0.50, as shown in Table 4. Furthermore, Cronbach alpha is employed to evaluate the instrument's dependability. The outcome of the analysis shows that all constructs are dependable and consistent. This is so because all constructs have Cronbach alpha values that are higher than the allowable cut-off of 0.70. The study proceeds to estimate the relationship between the independent variable construct and the dependent variable construct. The results of the estimations are summarised in Table 4.

Table 4: Regression result

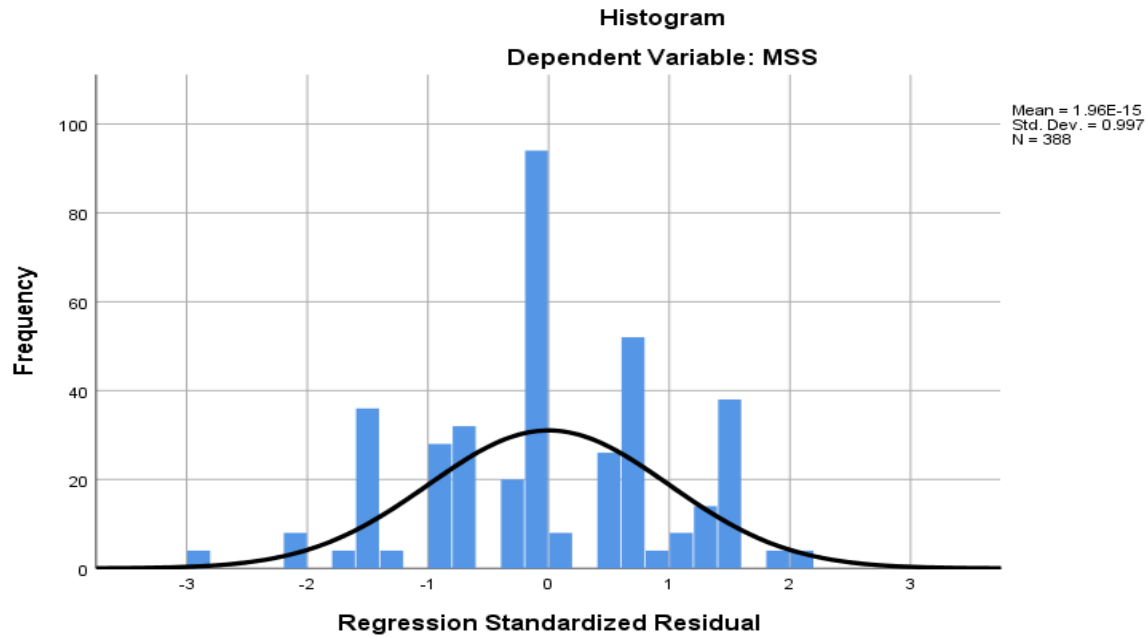
R	R ²	Adjusted R ²	Std Error	Durbin-Watson
0.653 ^a	0.608	0589	0.26175	2.273
Relationship	Std. Beta	t-value	p-value	
FDB »MSS	-0.136	-2.292	0.025	
ELT »MSS	0.016	0.339	0.736	

Source: Authors' Computation, 2025.

The results of the regression analysis, which were obtained using SPSS statistical analysis, are shown in Table 4. This model's components that affect the MSMEs' Survival in Ekiti state accounts for 60.8% of the variation. This implies that the fuel subsidy and electricity tariff rise explain the 60.8 per cent variation in MSMEs' Survival in Ekiti state. The results indicate the individual effects of energy price components on MSMEs' survival in Ekiti State. Specifically, fuel subsidy removal has a significant negative effect on MSME survival, with a coefficient of $\beta = -0.136$ and $p < 0.05$. This suggests that the removal of fuel subsidies reduces the likelihood of MSMEs surviving, as higher fuel costs increase operational expenses and strain business continuity. Electricity tariff rise ($\beta = 0.016$, $p > 0.05$) revealed a positive, insignificant relationship with MSMEs' Survival in Ekiti state.

Diagnostic tests

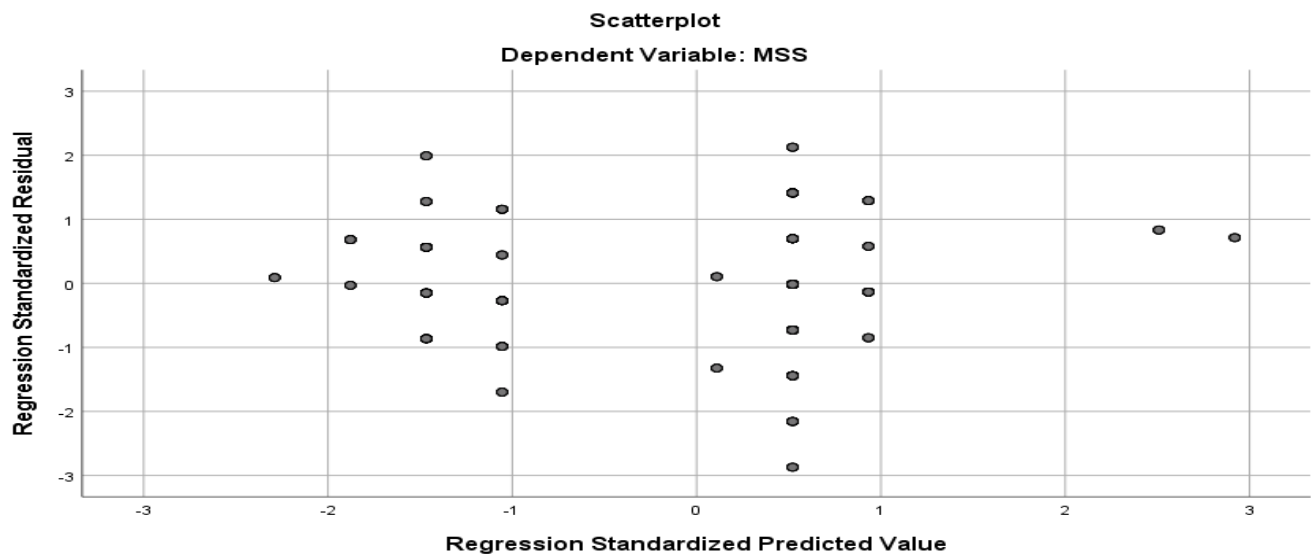
Figure 1: Normality Test



Source: Authors' Computation, 2025.

The normality of the residuals was validated utilising the histogram, the histogram showing a vaguely bell-shaped distribution. These findings provide evidence in favour of the assumption of normality of the residuals.

Figure 2: Homoscedasticity Test



Source: Authors' Computation, 2025.

The homoscedasticity was checked by examining the scatterplot for spread patterns. It shows no funnel shape, indicative of ever-increasing or decreasing spread with an increase or decrease in the predicted

values. Therefore, there is the assumption of equal variance of the residual, hence further validating the model. In conclusion, the diagnostic tests confirmed that assumptions of normality and homoscedasticity are satisfied. Therefore, the results reached from the estimated regression are regarded as valid evidence for inference.

Discussion of findings

From the results of this study, it has been established that the removal of energy price hikes has a significant negative impact on the survival of MSMEs in Ekiti State ($\beta = -0.136$, $p < 0.05$). This study's result is consistent with the Resource Dependence Theory (RDT), which highlights that firms are susceptible to changes in external resources, including energy (Pfeffer & Salancik, 1978). MSMEs in Ekiti State, which depend significantly on fuel as a production input, face increased operating costs as a result of the removal of fuel subsidy, which affects their survival. The study results are consistent with Akinola et al. (2024) and Ilodigwe (2023), which revealed that the removal of fuel subsidy increases operating costs, which affects the profit margin of SMEs, hence affecting their survival. In the same vein, Afukonyo (2023) revealed that energy dependence exposes SMEs to operating risks, as resources are not reliable or are costly.

On the other hand, the increase in electricity tariffs showed a positive but statistically insignificant relationship with MSMEs' survival. This means that in the case of Ekiti State, MSMEs may not be heavily reliant on electricity or may be using alternative sources of energy, hence not being affected by the increase in electricity tariffs. This finding resonates with the findings of Omokanmi et al. (2020) and Akinyemi et al. (2021) on the use of alternative sources of energy, which reduces the influence of electricity tariffs on SMEs' performance. The cost constraint approach also supports this finding, which asserts that the ability of MSMEs to cope with the increase in electricity tariffs determines their survival (Omitogun et al., 2021; Adekunle & Oseni, 2021).

The overall coefficient of determination ($R^2 = 0.608$) indicates that 60.8% of the variation in MSME survival is explained by the components of energy prices; the remaining 39.2% may be influenced by other operational or environmental factors. This indicates that energy prices, especially those of fuel, have a significant impact on the sustainability of MSMEs, thereby validating the relevance of the RDT and Cost Constraint approaches in understanding the impact of external shocks such as increased energy prices.

5. Conclusion

The study sought to determine the effect of energy price hikes, focusing on fuel subsidies and electricity tariff rises on the survival of micro, small, and medium-scale enterprises in Ekiti State. The study found that the Electricity tariff rise has a positive, insignificant relationship with MSMEs' Survival in Ekiti state, while fuel subsidy has a negative, significant relationship with MSMEs' Survival in Ekiti state. The study concludes that energy price increases have differential effects on MSME survival in Ekiti State. Fuel subsidy removal has a significant negative impact on the survival of micro and small enterprises. On the other hand, electricity tariff increases have a positive but insignificant impact on MSME survival. This indicates that most MSMEs do not rely on electricity as a source of energy or that they use other sources of energy. Fuel tariff increases have a greater risk to MSME survival than electricity tariff increases. Therefore, policymakers need to take this into consideration when developing policies to support small businesses. Based on the above findings, this study recommends to the government to cushion the impact of fuel price increase on MSMEs, perhaps by introducing support measures, subsidies to fuel-intensive industries, or encouraging the use of alternative energy sources. The government should focus on

measures to address the most important cost pressures facing MSMEs, which is the fuel price increase, being the greatest threat to the sustainability of small and medium-sized enterprises in Ekiti State.

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