

Post-Subsidy and Energy Price Shocks: A Comparative Analysis of SME Adaptation in Ghana and Nigeria.

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ABSTRACT

The removal of fuel subsidies in Nigeria in May 2023 triggered widespread economic disruption, with particularly severe consequences for small and medium enterprises (SMEs) that depend heavily on affordable energy and transportation. In contrast, Ghana has operated a deregulated petroleum pricing system since 2015 under the supervision of the National Petroleum Authority, resulting in a market-based fuel pricing regime without direct consumer subsidies. This study provides a comparative analysis of SME adaptation to post-subsidy and energy price shocks in both countries, examining how differences in policy timing and institutional structures shape enterprise resilience. Using a comparative, convergent mixed-methods design based on secondary data, the study integrates macroeconomic indicators from national and international institutions with qualitative evidence from SME surveys, policy reports, and peer-reviewed literature. Data sources were selected using a purposive document strategy that emphasized relevance, credibility, and direct linkage to SME performance under energy price changes. Findings reveal that Nigerian SMEs experienced acute cost shocks following the removal of subsidies, while Ghanaian SMEs have faced more gradual but persistent cost pressures. Across both contexts, SMEs demonstrate adaptive strategies such as digital transformation, energy substitution, and supply chain localization, although adaptive capacity remains uneven and shaped by access to finance, infrastructure, and institutional support. The study highlights that energy price reform affects SMEs differently depending on policy design and structural conditions, offering insights for managing enterprise resilience in energy-constrained environments.

Keywords: Fuel subsidy removal, SME resilience, Nigeria, Ghana, informal sector, coping strategies, economic policy, inclusive adaptation

INTRODUCTION

On May 29, 2023, Nigeria officially removed its long-standing fuel subsidy, marking one of the most consequential economic policy shifts in the country's recent history (Amangwai & Amos, 2025; Okoroafor et al., 2025). Although the reform was introduced to reduce fiscal leakages and redirect public resources toward infrastructure and social development, its immediate macroeconomic effects included sharp increases in fuel prices, transportation costs, food inflation, and business operating expenses (Nnadi, 2025; iTelemedia, 2025). These cost pressures are rapidly transmitted across production and distribution networks, disproportionately affecting small and medium enterprises (SMEs).

SMEs in Nigeria operate within fragile institutional environments characterized by erratic power supply, infrastructural deficits, limited access to affordable credit, and regulatory complexity (Okoroafor et al., 2025). The sudden escalation in fuel and logistics costs intensified these pre-existing vulnerabilities, forcing many SMEs to raise prices, reduce labor, compress profit margins, or scale down operations entirely (Ikechukwu et al., 2025). Informal enterprises, which dominate Nigeria's SME landscape, face even greater exposure due to exclusion from formal relief mechanisms (Nnadi, 2025).

Despite the national significance of subsidy removal, empirical research remains disproportionately concentrated on household welfare and macroeconomic aggregates (Amangwai & Amos, 2025; Okoroafor et al., 2025). There is limited systematic evidence on how SMEs themselves are adapting to the post-subsidy environment, particularly across regional and structural divisions (Ikechukwu et al., 2025).

In contrast to Nigeria's recent subsidy removal, Ghana has operated a deregulated petroleum pricing system since 2015, following reforms implemented by the National Petroleum Authority (NPA) to eliminate direct fuel subsidies and enable market-based pricing (Acheampong & Ackah, 2015; National Petroleum Authority [NPA], 2024). Under this regime, fuel prices in Ghana are adjusted periodically based on international oil prices, exchange rate movements, and domestic tax structures, rather than direct government subsidy interventions (International Monetary Fund [IMF], 2024). While this policy reduced fiscal pressure on the government, it has also exposed businesses to sustained energy price volatility, particularly during periods of currency depreciation and global oil price fluctuations (Kwakye et al., 2023). Evidence from Ghana further indicates that fuel price fluctuations have significant implications for production costs in sectors closely linked to small and medium enterprise (SME) activity, especially transport-dependent and agri-food value chains (Ussif et al., 2024). Given the central role of energy and logistics in SME operations, these recurring fuel price pressures have important consequences for business costs, operational adjustments, and enterprise resilience.

The differing reform trajectories of Nigeria and Ghana provide a valuable comparative context for understanding how the timing, structure, and implementation of energy pricing policies influence SME resilience. Whereas Nigerian SMEs are responding to an abrupt subsidy shock, Ghanaian SMEs have been operating within a market-adjusted energy environment for nearly a decade, allowing for more gradual adaptation but continued exposure to cost pressures. Examining these two contexts together enables a deeper understanding of how SMEs navigate energy-driven economic disruptions under varying institutional and policy conditions.

THEORETICAL FOUNDATION

This study is anchored in Resilience Theory and Inclusive Policy Frameworks, which together explain both adaptive capacity and structural vulnerability within SME sectors in energy-constrained environments.

Resilience Theory conceptualizes resilience as the ability of systems to absorb shocks, reorganize, and continue functioning without collapse (Holling, 1973; Walker et al., 2004). Applied to SMEs, resilience reflects operational restructuring, labor realignment, digital transition, and market diversification in response to rising energy costs and economic disruption. In the Nigerian context, subsidy removal represents an acute external shock that forces rapid firm-level adaptation, including cost restructuring and survival-oriented decision-making (Ikechukwu et al., 2025). In contrast, Ghana's deregulated petroleum pricing system, introduced in 2015, represents a prolonged exposure to market-based energy pricing rather than a sudden policy shock (Acheampong & Ackah, 2015). Under such conditions, resilience is shaped not by immediate shock absorption alone, but by firms' ability to continuously adjust to recurring cost fluctuations driven by exchange rate volatility and global oil price movements. Evidence from Ghana indicates that fuel price changes significantly affect production costs in key sectors such as agriculture and food systems, which are closely linked to SME activity (Ussif et al., 2024). This suggests that resilience in Ghanaian SMEs is more incremental and adaptive over time, rather than reactive to a single disruptive event.

Inclusive Policy Frameworks emphasize that economic reforms disproportionately affect structurally marginalized groups and that policy responses must address unequal access to institutional support (George et al., 2012; Foster & Heeks, 2013). In Nigeria, the removal of subsidies has intensified existing inequalities, particularly among informal enterprises, micro-businesses, and rural firms that lack access to formal financial systems and government relief mechanisms (Nnadi, 2025; Okoroafor et al., 2025). Similarly, in Ghana, although deregulation reduced fiscal burdens on the state, market-based pricing has continued to expose smaller and informal enterprises to energy cost pressures without equivalent access to financial protection or adaptive infrastructure. Empirical evidence suggests that fuel price increases have broader implications for cost structures in sectors that underpin SME operations, reinforcing disparities between firms with access to capital and those operating under resource constraints (Ussif et al., 2024). Across both contexts, these frameworks highlight that

SME resilience is not solely a function of entrepreneurial capability but is deeply shaped by institutional inclusion, policy design, and access to supportive systems.

Qualitative Component

Qualitative evidence was derived from regional SME surveys, sectoral studies, policy briefs, and peer-reviewed literature from both Nigeria and Ghana. Rather than conducting primary qualitative analysis, this study employs a thematic synthesis approach to identify recurring patterns in SME adaptation and response to energy price changes across the reviewed literature. Key themes identified include digital adaptation, energy substitution, labor restructuring, and supply chain localization. In the Ghanaian context, the literature was used to interpret how enterprises and production systems respond to sustained market-based fuel pricing and recurring fluctuations in energy costs following the 2015 deregulation reforms.

Data Integration

Quantitative trends were merged with qualitative insights derived from the literature to explain how macroeconomic and energy price changes translate into firm-level responses. To enhance methodological rigor and transparency, this study adopts a convergent mixed-methods approach that integrates quantitative macroeconomic indicators with qualitative evidence synthesized from existing studies. While Nigeria serves as the primary empirical focus, Ghana is incorporated as a comparative case to provide contextual insight into how a longer-standing deregulated pricing regime influences enterprise adaptation.

Table 1 presents the structure of the mixed-methods approach, including data sources and analytic strategies used to triangulate findings.

Component	Data Type	Source	Analysis
Quantitative	Fuel prices, inflation, and SME-related output indicators	CBN, NBS (Nigeria); World Bank, IMF, Ghana Statistical Service	Trend & descriptive analysis
Qualitative	SME surveys, policy briefs, sectoral studies, peer-reviewed literature	SMEDAN, academic journals, Ghana energy, and SME studies	Thematic synthesis of literature
Integration	Policy interpretation and comparative insights	All datasets	Joint interpretation

By integrating numerical economic trends with qualitative evidence from existing studies, surveys, and policy reports, this mixed-methods approach strengthens the study’s capacity to explain not only what changed following fuel subsidy reform and energy price shifts, but also how and why SMEs adapted differently across sectors and policy contexts.

METHODOLOGY

Research Design

This study adopts a **comparative convergent mixed-methods design** to examine how small and medium enterprises (SMEs) in Ghana and Nigeria respond to energy price shocks. The approach integrates quantitative macroeconomic indicators with qualitative evidence derived from existing studies, enabling a comprehensive analysis of both economic trends and firm-level adaptation strategies across two distinct policy environments.

Comparative Context

The study focuses on Ghana and Nigeria, two major West African economies experiencing energy-related pressures along different trajectories. Nigeria’s 2023 fuel subsidy removal represents an **acute policy-driven**

shock, while Ghana's deregulated petroleum pricing system, introduced in 2015, reflects **prolonged exposure to market-based energy pricing**. This distinction forms the basis of the comparative framework, allowing the study to assess how differences in policy timing, institutional capacity, and economic structure influence SME resilience. The comparative framework adopted in this study is not intended to treat Nigeria and Ghana as structurally identical economies, but rather to examine how different energy pricing regimes interact with distinct institutional and economic conditions to shape SME adaptation. Nigeria's subsidy removal represents a rapid policy transition within an oil-dependent economy characterized by high informal sector exposure and infrastructural instability, whereas Ghana's deregulated pricing system reflects a longer-term adjustment process within a comparatively smaller and more market-stabilized energy environment. Comparing these contexts enables a more nuanced understanding of how policy timing, institutional capacity, and structural economic conditions influence enterprise resilience under energy price volatility.

Data Sources and Scope

The study relies exclusively on **secondary data collected** from credible institutional and scholarly sources.

Quantitative data include fuel price trends, inflation rates, and SME-related indicators obtained from:

- Central Bank of Nigeria (CBN)
- National Bureau of Statistics (NBS)
- Ghana Statistical Service
- World Bank
- International Monetary Fund (IMF)

Qualitative evidence is derived from:

- SME surveys
- policy briefs
- sectoral studies
- peer-reviewed literature

The analysis focuses on SMEs operating in energy-sensitive sectors such as agriculture, retail, logistics, and production.

\ Data Selection and Sampling Strategy

A **purposive document sampling strategy** was employed to identify sources relevant to SME performance under energy price fluctuations. Sources were selected based on:

1. relevance to SME operations
2. explicit connection to energy or fuel price changes
3. credibility of the publishing institution or journal

Multiple data sources were used to enable **triangulation**, improving the robustness and reliability of findings.

Survey Selection and Validation

SME survey evidence incorporated into the study was selected based on methodological transparency, sector relevance, geographic applicability, and direct examination of fuel price or energy-related impacts on enterprise performance. Priority was given to surveys conducted by recognized institutions, including government agencies and development organizations, as well as peer-reviewed academic studies. Surveys were reviewed for sample

clarity, consistency of findings, and relevance to SME adaptation strategies. To strengthen validity, findings were triangulated across multiple sources and compared with macroeconomic indicators and policy reports to identify recurring patterns and reduce reliance on isolated findings.

Data Analysis

Quantitative data were analyzed using descriptive and trend analysis to identify patterns in macroeconomic indicators.

Qualitative data were analyzed using thematic synthesis, identifying recurring patterns in SME adaptation across the literature. Key themes include:

- cost escalation
- digital adaptation
- energy substitution
- labor restructuring
- supply chain localization

Data Integration

Quantitative and qualitative findings were integrated at the interpretation stage to explain how macroeconomic changes translate into firm-level responses. This integration strengthens the study's ability to explain both the extent of economic disruption and the mechanisms of SME adaptation.

Methodological Rigor and Limitations

To enhance rigor, the study employs **data triangulation across multiple institutional and scholarly sources**, reducing reliance on any single dataset. However, the reliance on secondary data limits the depth of firm-level insights, and differences in data availability between Ghana and Nigeria may affect comparability. Despite these limitations, the approach provides a robust comparative analysis of SME adaptation under different energy pricing regimes.

FINDINGS

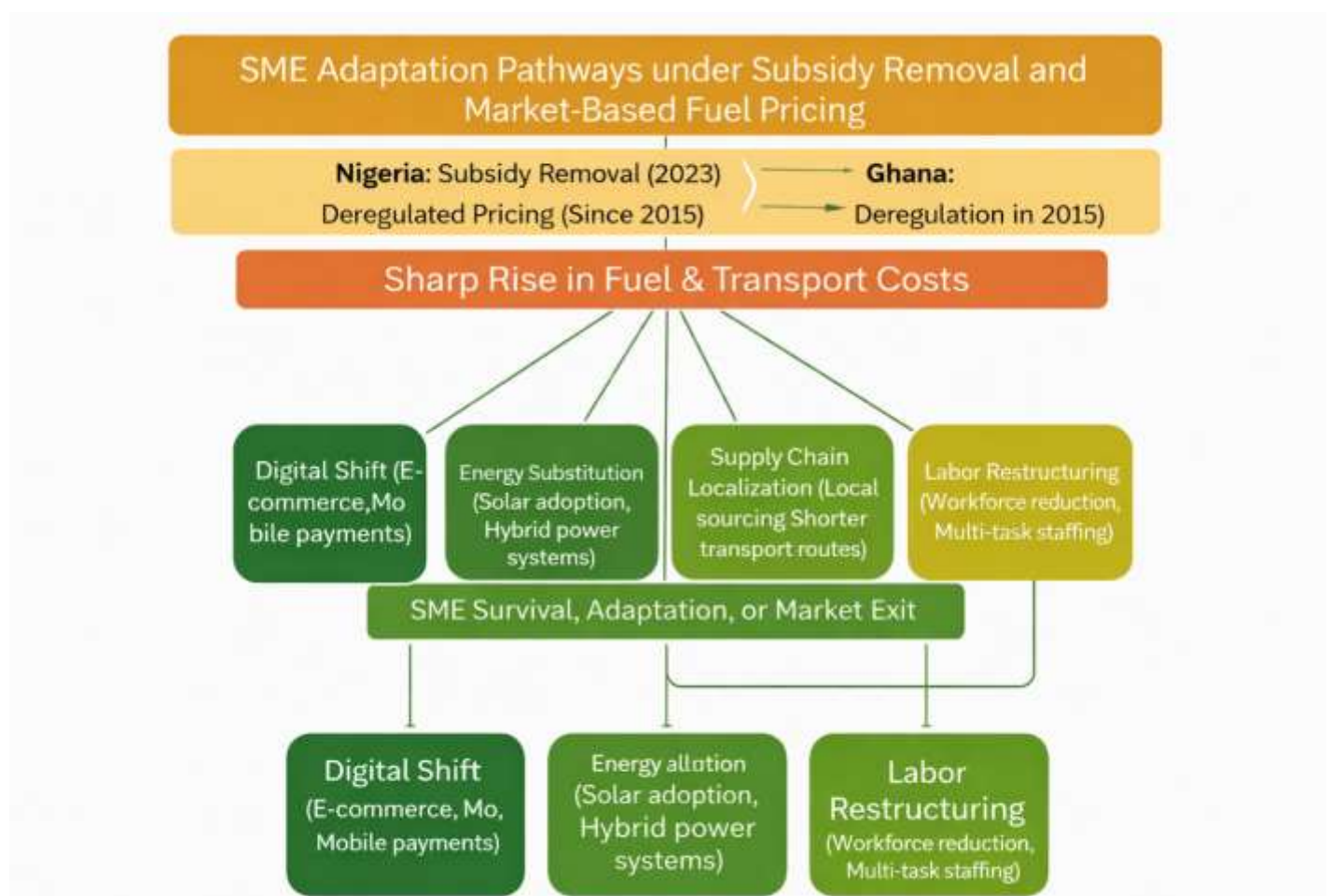
Fuel price escalation significantly increased operational expenses across transportation-dependent sectors in Nigeria, including retail distribution, logistics, food processing, and agriculture (Amangwai & Amos, 2025; Okoroafor et al., 2025). Margin compression was most pronounced among small retailers and agro-processors operating with high logistics exposure (Ikechukwu et al., 2025). In Ghana, the literature points to a different but related pattern. Because petroleum pricing has been deregulated since 2015, firms have operated under a market-based pricing regime in which fuel costs are influenced by import parity pricing, taxes, margins, and exchange rate movements, rather than direct subsidy protection (Acheampong & Ackah, 2015). Recent evidence from Ghana also shows that significant increases in fuel prices significantly affect output in the agri-food sector, indicating that energy cost pressures are transmitted to productive sectors closely connected to SME activity and supply chains (Ussif et al., 2024). A Ghanaian SME study further reports that fuel price adjustments negatively affected turnover, output, and employment among surveyed SMEs in the New Juaben Municipality, although that evidence should be interpreted as localized rather than nationally representative (Ayakwah & Mohammed, 2014).

Digital adaptation emerged as a dominant survival mechanism in Nigeria, particularly through mobile payments, social commerce, and e-commerce platforms (iTelemedia, 2025; Ikechukwu et al., 2025). Energy substitution through solar adoption reduced generator dependence but remained concentrated among urban and medium-sized firms due to high upfront costs (Nnadi, 2025; Okoroafor et al., 2025). Supply chain localization allowed firms to reduce transport exposure but limited access to diversified inputs. The Ghana literature reviewed for

this study does not provide equally detailed national evidence on digital adaptation pathways among SMEs after fuel price increases. However, the available evidence supports the broader conclusion that sustained fuel price volatility raises business costs and places pressure on production and distribution systems, especially in sectors that are highly dependent on transport and energy (Ayakwah & Mohammed, 2014; Ussif et al., 2024).

Regional disparities were pronounced in Nigeria. Urban SMEs benefited from proximity to digital infrastructure, financial institutions, and customer density, while rural enterprises faced compounded constraints stemming from poor road networks, insecurity, and institutional absence (SMEDAN, 2024). Informal SMEs remained largely excluded from formal adaptation financing. Compared with the evidence, the major difference between the two countries lies in the timing and intensity of adjustment rather than in the existence of cost pressures. Nigeria reflects a sharper post-2023 subsidy shock, whereas Ghana reflects a longer-running exposure to market-based fuel pricing and recurrent energy cost volatility under deregulation (Acheampong & Ackah, 2015).

Figure 1. SME Adaptation Pathways under Subsidy Removal and Market-Based Fuel Pricing



As shown in Figure 1, SME adaptation follows multiple pathways in response to rising energy costs. In Nigeria, these responses are triggered by the abrupt removal of fuel subsidies in 2023, whereas in Ghana, they reflect sustained exposure to market-based fuel pricing since 2015. Across both contexts, firms adopt strategies such as digitalization, energy substitution, supply chain localization, and labor restructuring. However, adaptation outcomes vary depending on financial capacity and institutional support, with some firms achieving resilience while others remain at risk of market exit.

DISCUSSION

The findings of this study provide important insight into how energy pricing reforms shape SME resilience under different policy environments. In Nigeria, the removal of fuel subsidies in 2023 led to an immediate increase in

operational costs, particularly in sectors dependent on transportation and energy inputs. This abrupt policy shift disrupted existing business structures and required rapid firm-level adjustments, including price increases, labor restructuring, and operational downsizing. In contrast, Ghana's deregulated petroleum pricing system, in place since 2015, reflects a different adjustment trajectory characterized by sustained exposure to market-based fuel pricing rather than a single disruptive event. While both contexts impose cost pressures on SMEs, the nature and timing of these pressures differ significantly, influencing the speed and form of enterprise adaptation.

However, a more nuanced understanding of these findings requires consideration of the broader structural and institutional differences between the two economies. Nigeria's larger economy, greater dependence on oil revenues, and more complex governance environment shape both the magnitude of subsidy reform impacts and the challenges of policy implementation. In this context, subsidy removal represents not only a pricing reform but a systemic economic shift affecting multiple sectors simultaneously. By contrast, Ghana's earlier transition to deregulated pricing reflects a different institutional pathway, in which firms have adapted over time to recurring fluctuations driven by exchange rate volatility and global energy markets. These structural differences influence not only the intensity of economic shocks but also the range of adaptive options available to SMEs, including access to finance, infrastructure, and technological systems. As a result, comparative findings must be interpreted within the broader context of national economic systems and institutional capacity rather than as uniform responses to energy price changes.

Resilience Theory helps explain variation in SME responses across both contexts by emphasizing the role of adaptive capacity in the face of disruption. Firms with diversified revenue streams, access to digital platforms, and the ability to adopt alternative energy solutions demonstrated stronger resilience. In Nigeria, these capabilities enabled certain SMEs to respond quickly to the shock of subsidy removal through digital transactions, cost restructuring, and operational flexibility. In Ghana, resilience is reflected in firms' ability to continuously adjust to ongoing cost pressures rather than respond to a single crisis event. This suggests that resilience operates differently under acute and chronic stress conditions, with Nigerian SMEs engaging in rapid shock absorption and Ghanaian SMEs relying more on incremental adaptation strategies over time. Despite these differences, adaptation remains uneven, particularly among firms with limited financial resources or restricted access to infrastructure.

The findings also reinforce the relevance of Inclusive Policy Frameworks in explaining SME vulnerability across both countries. In Nigeria, the removal of subsidies without sufficient compensatory mechanisms intensified existing inequalities, particularly among informal and micro-enterprises that lack access to formal financial systems and institutional support. In Ghana, although the transition to market-based pricing reduced fiscal pressure on the state, evidence suggests that sustained fuel price increases continue to affect production costs, particularly in energy-dependent sectors such as agriculture and food systems. This indicates that prolonged exposure to deregulated pricing does not eliminate vulnerability, especially for enterprises operating with limited resources. Across both contexts, the absence of inclusive support mechanisms constrains SMEs' ability to sustain adaptation strategies and transition toward long-term resilience.

Taken together, the comparative analysis demonstrates that SME resilience cannot be understood solely in relation to energy pricing reforms but must be situated within broader structural and institutional conditions. Both abrupt policy shocks and sustained market-based pricing systems generate significant pressure on SMEs, but the outcomes depend on the availability of support systems that enable firms to adapt effectively. The study contributes to the literature by showing that the timing, structure, and implementation of energy pricing policies shape not only the intensity of economic disruption but also the pathways through which SMEs respond. Ultimately, strengthening SME resilience requires policy approaches that extend beyond pricing reforms to include financial inclusion, infrastructure development, and access to energy alternatives, particularly for smaller and informal enterprises.

CONCLUSION AND MULTI-STAKEHOLDER RECOMMENDATIONS

The removal of fuel subsidies has fundamentally reshaped the operating environment of Nigerian SMEs, triggering widespread cost escalation, market uncertainty, and structural disruption across multiple sectors.

While some enterprises have demonstrated resilience through digital innovation, renewable energy adoption, and localized sourcing, a large proportion, particularly informal, rural, and micro enterprises, remain trapped in heightened vulnerability (Amangwai & Amos, 2025; Ikechukwu et al., 2025; Okoroafor et al., 2025). In contrast, Ghana follows a different but related trajectory, in which SMEs have operated under a deregulated petroleum pricing system since 2015, resulting in sustained exposure to fuel price fluctuations driven by global oil prices and exchange rate movements (Acheampong & Ackah, 2015). Evidence from Ghana shows that fuel price increases continue to affect production costs and sectoral output, particularly in energy-dependent activities such as agriculture and food systems (Ussif et al., 2024). The findings of this study, therefore, demonstrate that SME adaptation in both contexts is uneven, resource-dependent, and strongly shaped by institutional inclusion. Without deliberate, coordinated, and inclusive interventions, energy pricing reforms risk widening enterprise inequality, suppressing job creation, and weakening long-term productivity growth (Nnadi, 2025).

To translate energy price shocks into an opportunity for sustainable SME transformation, a shared-responsibility approach among government, the private sector, development partners, and SME owners is essential. The comparative evidence from Nigeria and Ghana shows that both sudden policy changes and sustained market-based pricing systems can impose significant pressure on SMEs, although the pathways of adjustment differ. The following recommendations are structured for short-term stabilization, medium-term restructuring, and long-term transformation and are differentiated by key stakeholder groups.

Short-Term Recommendations (0–12 Months): Crisis Stabilization

For Government & Public Agencies

- Deploy temporary micro-enterprise energy relief programs targeted at informal traders, transport operators, agro-processors, and food retailers, particularly in contexts experiencing sharp cost increases such as Nigeria's post-subsidy environment.
- Implement transport cost stabilization schemes for rural production corridors to protect food supply chains and reduce the immediate impact of fuel price volatility on SMEs in both Nigeria and Ghana.
- Expand emergency SME working-capital facilities through national development finance institutions, recognizing that both sudden subsidy removal and sustained price fluctuations constrain liquidity.

For SME Owners & Entrepreneurs

- Form transport and logistics cost-sharing cooperatives to reduce individual fuel burdens and improve efficiency.
- Accelerate the use of mobile payments, social commerce, and digital ordering systems to reduce physical transaction costs and improve market reach.
- Participate in community-based purchasing clusters to negotiate better bulk input prices and stabilize supply costs.

For Banks & Fintech Institutions

- Introduce fuel-price-indexed micro-loans that adjust repayment schedules to cost volatility, particularly in economies with fluctuating fuel prices.
- Expand instant mobile working-capital products for informal and micro-enterprises with limited collateral.

Medium-Term Recommendations (1–3 Years): Adaptive Restructuring

For Energy & Technology Firms

- Scale pay-as-you-go solar systems and hybrid energy solutions designed specifically for SMEs to reduce dependence on fuel-based energy and improve cost stability.

- Expand digital supply-chain platforms that reduce middleman dependency and transport inefficiencies across SME ecosystems, particularly in sectors with high logistics exposure.

For Development Partners & NGOs

- Fund digital literacy and financial inclusion programs targeting informal traders and women-owned SMEs across both Nigeria and Ghana.
- Support rural solar mini-grid SME hubs to stimulate regional enterprise resilience and reduce long-term energy vulnerability.
- Establish SME shock response funds that address both sudden subsidy shocks and sustained energy price volatility.

For Government

- Expand SME digital infrastructure, particularly broadband penetration in underserved regions where adaptation capacity remains limited.
- Introduce partial credit guarantees for green SME investments to reduce lending risks and encourage energy transition among small and medium enterprises.

Long-Term Recommendations (3–10 Years): Structural Transformation

For National Development Planners

- Develop SME industrial clusters powered by renewable energy to reduce long-term exposure to fuel price volatility in both Nigeria and Ghana.
- Integrate informal enterprises into simplified formalization pathways supported by tax incentives and digital registration platforms.
- Institutionalize green SME transition financing within national climate, energy, and enterprise development strategies.
- Strengthen transport, storage, and market infrastructure that supports SME productivity and reduces the long-term cost effects of energy and logistics disruptions.

For Financial Markets & Impact Investors

- Launch green SME bonds and climate resilience enterprise funds to support long-term business sustainability.
- Promote equity-based financing models that support scalable innovation and enterprise transformation in energy-constrained environments.
- Expand blended finance mechanisms that reduce risk for private investment in SME energy transition and digital modernization.
- Support long-term investment vehicles targeted at women-owned, youth-led, and rural SMEs that remain underserved by traditional financing systems.

For Large Enterprises and Corporate Value-Chain Anchors

Large domestic firms and multinational corporations play a pivotal intermediary role in shaping SME adjustment in both Nigeria and Ghana, particularly as supply chain anchors, cost transmission agents, technology gatekeepers, and major buyers within production and distribution networks. Their operational decisions significantly influence input costs, payment timelines, logistics arrangements, market access, and the diffusion of innovation among SMEs embedded in their value chains. In periods of energy price volatility and broader fuel pricing reforms, these firms can either absorb some of the pressure through supportive value chain practices or intensify their vulnerability by passing rising costs directly to smaller enterprises with limited financial buffers. As such, large enterprises should be actively integrated into national and sectoral

strategies aimed at strengthening SME resilience, promoting inclusive adjustment, and supporting longer-term enterprise competitiveness under changing energy market conditions.

Short-Term (0–12 Months):

Large enterprises should implement temporary mechanisms for absorbing fuel costs and sharing logistics costs for SME distributors, transport contractors, and outgrower networks to reduce immediate supply chain disruption during periods of sharp energy price increases. Accelerating payment cycles for SME suppliers and service providers will be especially important for stabilizing cash flow and preventing working capital shortages. Firms can also expand access to bulk procurement for smaller enterprises to reduce exposure to fragmented, high-cost sourcing channels. In both Nigeria and Ghana, these short-term interventions can help cushion SMEs from the most immediate effects of fuel price volatility and preserve value chain continuity.

Medium-Term (1–3 Years):

Corporations should establish supplier energy transition programs that include shared solar installations, hybrid energy systems, and logistics-electrification platforms to help SMEs reduce their dependence on fuel-based energy sources. Large enterprises can also expand corporate-led digital onboarding systems for SME procurement, inventory management, quality control, and digital payments, thereby improving productivity and strengthening value chain coordination. In addition, firms should provide technical assistance and supplier development support that helps SMEs adopt more efficient production and distribution practices. These measures can improve enterprise resilience while also strengthening traceability, efficiency, and competitiveness across value chains in both countries.

Long-Term (3–10 Years):

Large enterprises should co-invest with the government and development finance institutions in renewable-powered industrial clusters that integrate SMEs into lower-cost and more energy-secure production ecosystems. Institutionalizing corporate SME upgrading programs focused on productivity standards, technology transfer, climate-resilient production, and export readiness will be essential for embedding SMEs more effectively into regional and global markets. Large firms should also support long-term partnerships that facilitate the diffusion of innovation, supplier financing, and knowledge sharing for smaller enterprises. By repositioning large enterprises as active partners rather than passive cost transmitters, both Nigeria and Ghana can strengthen SME resilience, accelerate technology adoption, and improve long-term competitiveness across value chains.

Shared Responsibility for Post-Subsidy SME Resilience

SME adaptation to fuel subsidy reform and energy price volatility cannot remain the sole responsibility of the government. Sustainable recovery requires a coordinated response among public institutions, private-sector actors, financial systems, development partners, and SMEs themselves. Governments must provide policy buffers, infrastructure, and regulatory support that reduce the pressure of rising energy costs on vulnerable enterprises. SMEs must continue to pursue innovation, operational restructuring, and cost-saving strategies to enhance flexibility amid changing market conditions. At the same time, banks and fintech institutions should redesign adaptive financial products, while NGOs, donors, and energy and technology firms should strengthen enterprise capacity, inclusion, and access to affordable transition solutions.

Only through this coordinated ecosystem approach can Nigeria and Ghana turn energy price pressures into a catalyst for more inclusive, resilient, and competitive SME development. While this study provides important insights into SME adaptation under changing fuel pricing regimes, it is also necessary to acknowledge the methodological and empirical limitations that shape the scope of its findings and inform directions for future research.

LIMITATIONS AND FUTURE RESEARCH

This study is subject to several important limitations that should be considered when interpreting the findings. First, reliance on secondary data limits the depth of firm-level behavioral analysis, as direct engagement with SME owners and managers was not conducted. Although multiple sources were synthesized, including policy reports, sectoral studies, and empirical literature, differences in data quality, geographic coverage, and methodological approaches across these sources may affect consistency and comparability. This limitation is particularly relevant in a comparative study, where variations in national data systems and reporting standards between Nigeria and Ghana may influence the balance and depth of available evidence.

Second, informal enterprises, which constitute a significant share of SME activity in both Nigeria and Ghana, are often underrepresented in official datasets and formal research studies. As a result, the analysis may underestimate the extent of vulnerability and the full range of coping strategies used by micro and informal businesses, especially those operating outside regulated financial and institutional frameworks. This gap is important because informal enterprises are often the most exposed to energy price volatility and the least able to access formal support mechanisms.

Third, the study adopts a descriptive and thematic approach rather than a causal or econometric modeling framework. While this allows for a broad synthesis of patterns and adaptation strategies across contexts, it limits the ability to establish direct cause-and-effect relationships between fuel pricing reforms and specific SME outcomes. Consequently, the findings should be interpreted as explanatory and interpretive rather than predictive or statistically generalized.

Additionally, the dynamic nature of fuel pricing reforms and energy market conditions introduces further limitations. In Nigeria, the post-subsidy environment continues to evolve, with ongoing adjustments in pricing, policy responses, and enterprise behavior. In Ghana, although the deregulated pricing system has been in place for several years, firms remain exposed to fluctuations in exchange rates and global oil prices. These changing conditions mean that some emerging adaptation strategies, particularly in areas such as digital finance, renewable energy adoption, and supply chain restructuring, may not yet be fully captured in the available literature.

Although the study provides broad comparative insight using secondary evidence, the absence of direct interviews or enterprise-level case studies limits the depth of contextual understanding regarding managerial decision-making and day-to-day adaptation processes. Future studies incorporating primary qualitative data could provide richer insight into how SME owners interpret policy shocks, negotiate operational trade-offs, and sustain business continuity under changing energy conditions.

Finally, the evidence base is more extensive and recent for Nigeria than for Ghana, creating an imbalance in the comparative analysis. While efforts were made to incorporate credible and relevant Ghanaian studies, the relative scarcity of SME-specific research on fuel price impacts in Ghana limits the depth of cross-country comparisons. This suggests that the findings, while informative, should be interpreted with caution, particularly when drawing broader generalizations across different economic and institutional contexts.

DIRECTIONS FOR FUTURE RESEARCH

Future research should prioritize primary data collection through interviews, focus groups, and field-based surveys to capture real-time adaptation strategies among formal and informal SMEs in both Nigeria and Ghana. Such work would provide richer insight into how enterprise owners interpret and respond to fuel price volatility, rising transport costs, and changing market conditions within their specific local contexts. There is also a need for longitudinal studies that examine whether current coping mechanisms lead to long-term enterprise resilience, structural transformation, or only short-term survival. This would be especially valuable for understanding whether strategies such as digitalization, renewable energy adoption, and supply chain restructuring produce lasting performance gains over time.

Further research should investigate differences in adaptation across gender, age, enterprise size, and sector. More attention is needed for women-owned enterprises, youth-led businesses, and informal firms, which often operate with limited access to finance, infrastructure, and institutional support. Sector-specific studies would also strengthen the evidence base by examining how fuel price reforms affect agriculture, transportation, manufacturing, retail distribution, and food systems in different ways. In addition, future studies could explore how urban and rural SMEs experience energy price pressures differently, especially in relation to infrastructure deficits and access to digital tools.

Comparative cross-country research across sub-Saharan Africa would further enrich understanding of how fuel pricing reforms and energy market changes affect SMEs under different institutional and policy conditions. Expanding the comparative lens beyond Nigeria and Ghana could help identify whether the patterns observed in this study are country-specific or part of a broader regional trend. Finally, future research should empirically assess the effectiveness of government relief programs, renewable energy financing initiatives, digital support interventions, and inclusive financial products in strengthening SME resilience under conditions of sustained energy cost pressure.

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