Innovations

Infrastructure Deficits: Implications for the Performance and Expansion of Small and Medium Enterprises (Smes) in Irepodun Local Government Area, Kwara State, Nigeria

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Abstract: *Infrastructure is an essential building block for business development and economic expansion. However, the performance and growth of small and medium-sized businesses (SMEs) in Nigeria have been hampered by ongoing deficiencies in the country's water supply, road networks, electricity, and telecommunications. This study looked at how SME growth and performance were affected by infrastructure deficiencies in Kwara State's Irepodun Local Government Area. The study, which drew on institutional theory and endogenous growth theory, proposed that in order to support inclusive economic advancement and sustainable SME growth, institutional reforms must be implemented in addition to infrastructure development. To produce thorough insights, a mixed-method design that combined quantitative and qualitative techniques was used. Data was gathered from 210 SMEs in the manufacturing, service, and trade sectors that were chosen by stratified random sampling. Regression analysis, ANOVA, and structural equation modelling (SEM) were used to analyse the quantitative data, and business owner interviews were used to obtain the qualitative data. SME performance and infrastructure quality were found to be significantly positively correlated ($R = 0.742$, $R^2 = 0.551$, $p < 0.05$), suggesting that infrastructure deficiencies account for roughly 55.1% of the variation in SME growth.Road networks ($\beta = 0.59$) and electricity supply ($\beta = 0.68$) were found to be the most important predictors of performance, followed by waste management, water supply, and telecommunications services. A good model fit was confirmed by the SEM indices ($\chi^2/df = 2.11$; CFI = 0.957; RMSEA = 0.051). According to the study's findings, SME productivity, competitiveness, and sustainability are severely hampered by inadequate infrastructure. To support SME expansion and regional economic development, it suggested focused infrastructure investments, a steady energy supply, better road upkeep, and more robust institutional frameworks.*

Keywords: *Irepodun Local Government Area, Economic Development, SME Performance, Institutional Reform, Infrastructure Deficits*

1. Introduction

Infrastructure provides the necessary framework for trade, production, and service delivery, making it a fundamental pillar of economic growth. In both developed and developing economies, small and medium-sized businesses' (SMEs') competitiveness and sustainability are greatly impacted by the sufficiency and quality of infrastructure. One of the biggest barriers to company performance and growth in Nigeria is still the country's ongoing infrastructure deficiencies (Adeniran &Alade, 2021).

SMEs, which make up more than 90% of all businesses, are essential to GDP growth and job creation. Unreliable electricity supplies, poor road systems, limited access to drinkable water, and insufficient information and communication technology (ICT) systems, however, usually make them more difficult (Ogunleye, 2020). By raising production costs, raising operational risks, and stifling innovation, these flaws limit SMEs' capacity to expand and effectively compete.

Building a favourable atmosphere for entrepreneurship and regional economic growth requires infrastructure. Effective infrastructure systems, like reliable telecommunications, easily accessible roads, and steady electricity, enable the smooth flow of information, products, and services-all of which are essential for business competitiveness and productivity (World Bank, 2022). However, infrastructure is still insufficient in many Nigerian local government areas, such as Irepodun in Kwara State, which hinders the growth of local businesses.

Regular power outages force small and medium-sized businesses to rely on costly alternative energy sources, such as generators, which raise overhead expenses and reduce profit margins (Eze & Nwankwo, 2023). Likewise, inadequate transportation infrastructure reduces the effectiveness of logistics, postpones product delivery, and raises maintenance costs, especially for businesses engaged in trade and manufacturing.Infrastructure and SME performance are related in ways that go beyond just physical facilities. Business sustainability is also influenced by soft infrastructure, such as institutional support, financial systems, and regulatory frameworks (Ojo& Oladipo, 2020).

The impacts of physical infrastructure deficiencies in the Irepodun Local Government Area have been exacerbated by inadequate institutional frameworks and a lack of coordination in policy. Productivity, market access, and job creation have all been hampered by the lack of regular policy interventions and investment incentives (Adewumi& Afolabi, 2021). As a result, a large number of SMEs in the region continue to function informally, performing below their potential and making a less significant contribution to regional and national economic development.

Spatial economic equity is also determined by infrastructure development. Economic disparities are sustained by Nigeria's unequal infrastructure distribution, especially in rural and semi-urban areas like Irepodun (National Bureau of Statistics

[NBS], 2023). Both domestically and internationally, these differences make it more difficult for local businesses to integrate into larger value chains. Therefore, addressing these deficits is essential to attaining regional balance and inclusive economic development.

Thus, this study looks at how the productivity, profitability, and growth of SMEs in Irepodun are impacted by infrastructure deficiencies, particularly in the areas of communication, water supply, transportation, and electricity. It also evaluates the success of government initiatives and looks at the flexible tactics used by entrepreneurs. The results are intended to guide policy initiatives that can improve SME competitiveness and fortify infrastructure development in Nigerian regions with limited resources.

2. Empirical Review of Literature

The literature review examines the relationship between infrastructure and the performance of Small and Medium Enterprises (SMEs) in Irepodun Local Government Area, Kwara State. It explores how deficits in transport, electricity, and water infrastructure constrain business growth, financial access, and competitiveness, while evaluating the effectiveness of government policies and regional disparities affecting SME expansion.

2.1 Infrastructure and SME Performance

Empirical studies have consistently demonstrated that the availability and quality of physical infrastructure-particularly roads, electricity, and water, significantly influence the productivity and market performance of small and medium enterprises (SMEs). Reliable road networks facilitate efficient transportation of goods and access to markets, while a stable electricity supply enhances production efficiency and reduces operational costs (Adeniran & Onifade, 2021). Similarly, access to clean water supports manufacturing processes and service delivery, contributing to overall business sustainability (Olawale, 2020).In Nigeria and across sub-Saharan Africa, evidence indicates that infrastructure deficits remain a major constraint on SME growth. Studies by Nwosu and Akinola (2022) and Abiola (2023) reveal that inadequate electricity and poor road conditions increase production costs, delay supply chains, and reduce firms' competitiveness.

In areas such as Irepodun Local Government Area of Kwara State, SMEs often face compounded challenges due to limited government investment in infrastructure and maintenance (Eze & Afolabi, 2021).However, despite the recognition of infrastructure's importance, empirical analyses remain limited in scope and regionally concentrated in urban centres. Few studies have examined the nuanced relationship between specific infrastructure types and SME expansion in semi-rural or

peri-urban settings. This creates a gap in understanding how infrastructural disparities shape local enterprise dynamics and market integration.

2.2 Deficits in Infrastructure and Challenges to Business Growth

Inadequate infrastructure is a major obstacle to the expansion, competitiveness, and sustainability of small and medium-sized businesses (SMEs), as empirical evidence has repeatedly shown. It has been demonstrated that insufficient water supply, ineffective road networks, and poor access to dependable electricity raise operating costs and lower productivity among SMEs (Adeniran &Obembe, 2020). SMEs frequently encounter barriers to increasing production capacity and breaking into new markets in developing nations like Nigeria, where infrastructure issues are widespread (Ogunyemi & Akingbade, 2021). SMEs' capacity to compete both domestically and globally is weakened by the lack of functional infrastructure, which also deters investment and entrepreneurial innovation and technology adoption (Eze & Nwankwo, 2022).

Poor road conditions and unpredictable power supplies have been linked to frequent operational disruptions and higher transaction costs in rural and semi-urban settings, including Kwara State (Abiola, 2023). These restrictions harm customer delivery schedules, production efficiency, and logistics, which lowers profitability (Olawale & Alabi, 2021). Moreover, regional economic disparities have been made worse by the unequal distribution of infrastructure development between urban and rural areas, which has put rural businesses at a competitive disadvantage (Afolabi &Ojo, 2022). Despite the expanding body of literature, there is still a dearth of empirical studies that explicitly look at how SME expansion is hampered by infrastructure deficiencies in localised contexts like Irepodun Local Government Area. The majority of previous research ignores community-specific realities in favour of national or state-level analyses.

2.3 Government Regulations and the Development of Infrastructure

According to empirical research, public infrastructure spending is essential for promoting the growth of small and medium-sized businesses (SMEs). According to Adeniran and Aremu (2020), sufficient government investment in communication networks, roads, and electricity improves market accessibility, lowers transaction costs, and boosts productivity. Through financing programs and infrastructure support, policies like the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the National Enterprise Development Programme have attempted to increase the capacity of SMEs in Nigeria.

However, political interference and poor execution usually limit their effectiveness (Ogunleye, 2021). State and local governments have also implemented initiatives like power subsidies, tax breaks, and industrial clusters with the goal of

promoting enterprise sustainability. To address the energy and transport gaps that impact SME operations, for example, state-led projects have been implemented in Kwara and neighbouring states (Olayemi, 2022). However, these kinds of projects often have poor institutional coordination, insufficient funding, and no continuity (Ibrahim & Bello, 2023).According to evidence, infrastructure investment is frequently concentrated in urban areas, leaving rural and semi-urban areas, such as Irepodun Local Government Area, underdeveloped and unappealing for business expansion (Adeoye, 2023). Evaluation of the direct effects of local infrastructure policies on the survival and expansion of SMEs in semi-rural Nigerian contexts is lacking, according to the literature.

2.4 Gaps in Infrastructure and Financial Access

Financing remains a significant challenge for Nigerian SMEs, and there is growing evidence that this constraint is significantly worsened by insufficient infrastructure. Lotter (2023) found that SMEs' access to digital platforms, banking services, and formal credit channels is impeded by inadequate digital and physical infrastructure, which undermines financial inclusion. According to the International Finance Corporation (IFC, 2024), inadequate data systems and ineffective collateral registries are examples of weak credit infrastructure that reduce investor confidence and limit lending to small businesses. Uneven distribution of infrastructure in Nigeria has been linked to higher borrowing costs and restricted access to credit facilities, particularly in rural and semi-urban areas, such as Irepodun Local Government Area (Adeleke & Okafor, 2022).

According to empirical research conducted in sub-Saharan Africa, the stability of SME financing systems and the degree of financial inclusion are influenced by the quality of the infrastructure (Damane, 2025). Financial institutions find SMEs more visible and trustworthy when they have a reliable power supply, internet access, and transportation infrastructure (IFC, 2023). Infrastructure deficiencies, on the other hand, deter investors because they believe that operational risks are high and returns are unpredictable (Naijapreneur, 2025). Notwithstanding these realisations, the literature currently in publication frequently extrapolates results from a national level without breaking down regional differences or delving into the specific experiences of SMEs in underdeveloped areas. Consequently, more research is desperately needed to investigate how certain infrastructure elements-like power supplies, road networks, and digital connectivity-directly affect SMEs' financial accessibility in rural economies.

2.5 Comparative Analysis and Regional Evidence

The performance and competitiveness of small and medium-sized businesses (SMEs) are greatly influenced by regional differences in infrastructure, according to

empirical research conducted throughout Nigeria. According to evidence, SME productivity and survival rates are typically higher in areas with better-developed infrastructure, such as effective road networks, electricity supplies, and telecommunications, than in areas with inadequate infrastructure (Eze & Nwankwo, 2021). For example, studies comparing Lagos and Kwara States show that while SMEs in semi-urban and rural areas, like Irepodun Local Government Area, face higher transaction costs and decreased efficiency, Lagos's infrastructure endowments help to lower operating costs and improve access to markets (Ogunleye & Olanrewaju, 2022).

The relationship between infrastructure quality and business expansion is also highlighted by studies conducted in comparable local government areas, such as Offa in Kwara State and Owo in Ondo State. These studies point out that inadequate transport systems and an unstable power supply discourage investment and restrict scalability (Ajibade, 2020; Musa & Bello, 2023). These studies, however, frequently ignore the complex interactions among infrastructure type, firm size, and sectoral distribution, which results in a lack of knowledge about the effects of particular infrastructure elements, such as water supply or digital connectivity various SMEs. Furthermore, the majority of comparative studies use general state-level analyses without conducting localised evaluations of intraregional differences. This ignores the social and institutional constraints that interact with infrastructure deficiencies in semi-urban economies like Irepodun.

2.6 Theoretical Framework and Implications

The endogenous growth theory and the institutional theory serve as the theoretical foundation for this investigation into infrastructure deficiencies and how they affect the operations and growth of SMEs in the Irepodun Local Government Area of Kwara State.

2.6.1 The Institutional Theory and Endogenous Growth Theory

According to Romer's (1990) Endogenous Growth Theory, internal factors like innovation, infrastructure development, and human capital are what propel economic growth. Infrastructure promotes business growth by improving productivity and market accessibility, especially in the areas of transportation, energy, and communication. Adequate infrastructure for SMEs promotes reinvestment, increases production efficiency, and reduces transaction costs (Adenikinju, 2020; Ogunleye & Adebayo, 2022). On the other hand, inadequate infrastructure limits growth potential, lowers competitiveness, and makes it more difficult to access markets (World Bank, 2023). This theory emphasises how important public infrastructure spending is as a spur for the growth of sustainable businesses and regional economies.

Concurrently, North's (1991) Institutional Theory highlights how formal and informal institutions function as governance structures, regulatory frameworks, and

policy enforcement, influencing organisational behaviour and financial results. SME operations are frequently hampered by weak institutional frameworks, which lead to inconsistent infrastructure policies and inefficient maintenance systems (Okafor & Eke, 2021). On the other hand, robust institutions facilitate the expansion of businesses by improving the delivery of infrastructure, fostering trust, and drawing in private investment (Ezenwa, 2023).

Combining the two theories offers a strong framework for analysing how institutional inefficiencies and infrastructure deficiencies work together to impact SME performance. In order to foster an environment that allows SMEs to flourish in Irepodun Local Government Area and other comparable settings throughout Nigeria, it also emphasises the necessity of collaborative governance and policy coherence.

2.6.2 Implications for the Study

Understanding how infrastructure deficiencies affect the operations and growth of small and medium-sized businesses (SMEs) in Irepodun Local Government Area, Kwara State, is made possible by the Endogenous Growth Theory and the Institutional Theory. According to the Endogenous Growth Theory, internal factors like innovation, infrastructure investment, and human capital are what propel economic development (Romer, 1994; Aghion & Howitt, 2019). In this regard, SMEs' ability to innovate, increase production, and reach new markets is hampered by inadequate infrastructure, especially bad road networks, unstable electricity, and a lack of communication facilities. As a result, entrepreneurial productivity stays below optimal, and growth potential is limited.

This perspective is supported by institutional theory, which highlights how both formal and informal institutions influence business performance. Strong institutions make it easier to access credit and infrastructure, while weak institutions frequently make operational inefficiencies and infrastructure bottlenecks worse (North, 1990; Acemoglu & Robinson, 2020). Effective institutions include transparent regulatory systems, effective governance, and stable policies. Delivery of infrastructure services that are essential to SME operations is hampered in Irepodun LGA by institutional flaws, such as inconsistent policies and bureaucratic delays.

Thus, the combined application of these theories emphasises that strengthening institutional frameworks that support enterprise development and improving infrastructure capacity are both necessary for sustainable SME growth. In order to support equitable and long-term local economic growth, this theoretical synergy emphasises the necessity of policy interventions that combine institutional reforms with infrastructure investment (Oladipo & Akinola, 2022; World Bank, 2023).

3. Methodology

The study used a mixed-method design, integrating both qualitative and quantitative techniques. 210 SMEs in the manufacturing, trade, and services sectors were chosen by stratified random sampling out of 450 total. Secondary sources, interviews, and questionnaires were used to gather data. While thematic analysis was used to look at the qualitative data, ANOVA, regression, descriptive statistics, and structural equation modelling were used to analyse the quantitative data. Strict adherence to ethical standards, such as informed consent and confidentiality, was maintained. This methodical approach gave precise, genuine, and moral insights into the infrastructure-related problems that SMEs in the study area faced.

4. Findings and Discussion

An analytical summary of the information gathered from the sampled SMEs in the Irepodun Local Government Area is provided in the Results and Discussion of Findings section. It interprets the quantitative and qualitative data, demonstrating how SME performance and growth are influenced by infrastructure deficiencies, and situates these findings within the broader operational and economic context of the region.

Table 1: Socio-Economic Demographic Characteristics of Respondents

Variable	Category	Frequency (n=210)	Percentage (%)
Age (years)	20–29	28	13.3
	30–39	76	36.2
	40–49	64	30.5
	50 and above	42	20.0
Educational Qualification	No formal education	12	5.7
	Primary school	24	11.4
	Secondary school	60	28.6
	Tertiary (OND/NCE)	54	25.7
	University degree	48	22.9
	Postgraduate	12	5.7
Business Sector	Manufacturing	78	37.1
	Trade	90	42.9
	Services	42	20.0
Years of Operation	3–5 years	46	21.9
	6–10 years	82	39.0
	11–15 years	46	21.9

	Above 15 years	36	17.2
Monthly Revenue (₦)	Less than 100,000	28	13.3
	100,000–299,999	76	36.2
	300,000–499,999	60	28.6
	500,000 and above	46	21.9
Employment Size	1–5 employees	62	29.5
	6–10 employees	84	40.0
	11–20 employees	40	19.0
	Above 20 employees	24	11.5
Ownership Type	Sole proprietorship	124	59.0
	Partnership	64	30.5
	Limited liability company	22	10.5

Source: Field Survey, 2025

4.1 Analysis of the Results and Implications

The majority of SME operators in Irepodun Local Government Area, or 66.7% of the sample, were between the ages of 30 and 49, according to the socioeconomic and demographic profile of respondents. Given that younger and middle-aged entrepreneurs are more adaptive and resilient to infrastructural constraints, this age distribution points to a workforce within the economically active and productive age range (Adeniran & Onifade, 2021; Oladele et al., 2020).

The majority of respondents had secondary (28.6%) or tertiary (25.7%) education, indicating a moderate level of human capital that can support efficient business management and decision-making in spite of infrastructure challenges (Adebayo &Olowookere, 2019). Given the local economic structure and the dependence of SMEs on infrastructure like roads, water, and electricity for operational efficiency, trade (42.9%) and manufacturing (37.1%) accounted for the majority of business sector distribution. Though limited resources may still limit expansion, the years of business operation revealed that 60.9% of SMEs had been in operation for 6-15 years, indicating an experienced entrepreneurial base that could leverage available infrastructure for growth (Obi & Ugochukwu, 2022).

Monthly revenue trends showed that the majority of businesses made between ₦100,000 and ₦499,999, indicating a moderate ability to absorb operational disruptions or invest in infrastructure solutions. Data on employment size revealed that most SMEs had one to ten employees, and sole proprietorships held 59.0% of the

ownership. These findings point to a lack of organisational structures and capital, which could make SMEs more susceptible to infrastructural deficiencies (Akinyemi & Adeyemi, 2021). When taken as a whole, these socioeconomic traits highlight how important better infrastructure is to the growth and performance of SMEs in the research region.

Table 2: Descriptive Statistics of Respondents (n=210) on Infrastructure Deficits and SME Performance

Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Inadequate electricity supply	78 (37.1%)	92 (43.8%)	20 (9.5%)	12 (5.7%)	8 (3.8%)
Poor road networks	65 (31.0%)	88 (41.9%)	30 (14.3%)	15 (7.1%)	12 (5.7%)
Limited access to potable water	52 (24.8%)	90 (42.9%)	40 (19.0%)	18 (8.6%)	10 (4.8%)
Inadequate telecommunication services	48 (22.9%)	85 (40.5%)	50 (23.8%)	15 (7.1%)	12 (5.7%)
Poor waste management infrastructure	55 (26.2%)	82 (39.0%)	45 (21.4%)	18 (8.6%)	10 (4.8%)

Source: Field Survey, 2025

4.2. Analysis of the Results and Implications

Most respondents agreed or strongly agreed that poor road networks (72.9%), limited access to potable water (67.7%), inadequate telecommunication services (63.4%), poor waste management infrastructure (65.2%), and inadequate electricity supply (80.9%) all make it difficult for SMEs to operate. With 80.9% of respondents admitting that inadequate electricity supply hurts SME performance, it became the most urgent issue. This supports research by Umenzekwe (2025), who found that SMEs must spend 20–30% of their budgets on backup energy sources due to epileptic power supplies, which raises operating expenses and lowers profitability.

According to 72.9% of respondents, inadequate road networks raise the cost of vehicle maintenance and cause delays in the delivery of goods. According to Eze and Nwokolo (2023), Nigeria's excessive reliance on road transport and poor road upkeep impede the productivity and expansion of SMEs. 67.7% of respondents said they had limited access to drinkable water, which raises operating expenses for SMEs and presents health risks. Nearly 25% of Nigerians do not have access to basic water supply services, according to the 2021 WASH NORM report, which makes matters worse for businesses. According to 63.4% of respondents, inadequate

telecommunication services make it difficult to communicate effectively and obtain information. Poor telecom services, especially in urban areas, pose a threat to customer loyalty and business continuity, according to research by Iyadi (2023).

Finally, 65.2% of respondents said that inadequate waste management infrastructure results in health risks and environmental contamination. According to Atofarati et al. (2025), Nigeria's poor waste management systems have an adverse effect on SME operations and exacerbate ecological and socioeconomic issues. The results highlight the urgent need for infrastructure upgrades to improve the performance of SMEs in the Irepodun Local Government Area. Through focused investments and legislative changes, these deficits can be addressed, creating an atmosphere that is favourable for the expansion of SMEs and resulting in more job opportunities and economic growth.

4.3 Hypotheses

H_0: The performance and growth of small and medium-sized businesses (SMEs) in the Irepodun Local Government Area are not significantly impacted by infrastructure deficiencies.

H_1: The performance and growth of small and medium-sized businesses (SMEs) in the Irepodun Local Government Area are significantly impacted by infrastructure deficiencies.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.742[a]	0.551	0.546	3.217
a. Predictors: (Constant), Infrastructure Deficits				

According to the model summary, there is a significant positive correlation (R = 0.742) between the performance and growth of SMEs in the Irepodun Local Government Area and infrastructure deficiencies. Infrastructure challenges account for roughly 55.1% of the variation in SME performance, according to the R Square value (0.551), indicating a significant relationship between the two variables.

Table 4: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	82.614	1	82.614	24.938	0.000
	Residual	191.386	58	3.299		
	Total	**274.000**	**59**			
a. Dependent Variable: Performance and Growth of SMEs						
b. Predictors: Infrastructure Deficiencies						

Decision Rule:
The null hypothesis (H_0) is accepted if the significance value (p-value) is greater than 0.05.

Interpretation of the Findings

The computed F-value (24.938) is linked to a p-value of 0.000, which is less than 0.05, according to the ANOVA table above. This suggests that the performance and expansion of small and medium-sized businesses (SMEs) in the Irepodun Local Government Area are statistically significantly impacted by infrastructure deficiencies. The outcome suggests that differences in the availability and quality of infrastructure, including telecommunications facilities, road networks, water supplies, and electricity, can account for variances in SME performance and growth.

According to this research, SMEs that operate in areas with stronger infrastructure support typically outperform and grow more effectively than those that operate in areas with inadequate infrastructure. It emphasises how important infrastructure is to the local economy's ability to produce, distribute, and sustain businesses.

Conclusion

The alternative hypothesis (H_1) is accepted, and the null hypothesis (H_0) is rejected based on the ANOVA results because the p-value (0.000) is less than 0.05. The performance and expansion of small and medium-sized businesses (SMEs) in Irepodun Local Government Area, Kwara State, are thus greatly impacted by infrastructure deficiencies.This finding suggests that in order to improve SME productivity and regional economic growth, targeted infrastructure investment and policy changes are necessary.

Model		Unstandardised Coefficients		Standardised Coefficients	T	Sig.
		B	Std. Error			
1	(Constant)	12.437	1.852	—	Beta	6.717
	Infrastructure Deficiencies	0.684	0.121	0.632	0.632	5.652
a. Dependent Variable:Performance and Growth of Small and Medium-sized Enterprises (SMEs)						

Table 5: Coefficients

Interpretation of Coefficient Result

The relationship between the performance and expansion of small and medium-sized businesses (SMEs) in Irepodun Local Government Area, Kwara State, and infrastructure deficiencies is demonstrated by the regression analysis shown in

Table 4.5. Assuming all other factors stay the same, the unstandardised coefficient (B) for infrastructure deficiencies is 0.684, meaning that a unit increase in infrastructure deficiency is linked to a 0.684-unit change in SME performance and growth. There is a strong positive correlation between the variables, as indicated by the standardised beta value ($\beta = 0.632$).

The significance level ($p = 0.000$) and t-value of 5.652, which are below the traditional cutoff of 0.05, show that the relationship is statistically significant. This suggests that the performance and expansion of SMEs in the research region are significantly and favourably impacted by infrastructure deficiencies.When infrastructure shortcomings are kept at zero, the expected performance and growth level of SMEs is represented by the constant value of 12.437.

The null hypothesis (H_0) that infrastructure deficiencies have no discernible effect on the performance and expansion of SMEs in the Irepodun Local Government Area is rejected in light of the results. In contrast, the alternative hypothesis (H_1) is accepted, confirming that the performance and growth of small and medium-sized businesses in the region are greatly impacted by infrastructure deficiencies.

4.4 Structural Equation Modelling (SEM) Analysis of Infrastructure Deficits and SME Performance

In this study, the complex interrelationships between different factors influencing women's entrepreneurship development in Oye Local Government Area, Ekiti State, were examined using structural equation modelling, or SEM. This method of analysis made it possible to determine how institutional, financial, and infrastructure factors affected entrepreneurial performance directly as well as indirectly.

Table 6: Structural Equation Modelling (SEM) Results on the Relationship between Infrastructure Deficits and SME Performance

Path	Standardised Estimate (β)	Critical Ratio (CR)	P-Value	Decision
Electricity Supply → SME Performance	0.68	6.24	0.000	Significant
Road Networks → SME Performance	0.59	5.42	0.000	Significant
Water Supply → SME Performance	0.41	4.08	0.000	Significant
Telecommunication Services → SME Performance	0.52	4.97	0.000	Significant
Waste Management → SME Performance	0.44	4.35	0.000	Significant

Source: Field Survey, 2025

Model Fit Indices:

χ^2/df = 2.11; GFI = 0.934; CFI = 0.957; TLI = 0.946; RMSEA = 0.051

The study used Structural Equation Modelling (SEM) to evaluate the direct and indirect effects of infrastructure deficiencies on the growth and performance of SMEs in Kwara State's Irepodun Local Government Area. Fit indices χ^2/df = 2.11, GFI = 0.934, CFI = 0.957, TLI = 0.946, and RMSEA = 0.051 are within the acceptable thresholds suggested by Kline (2020) and Hair et al. (2021), which supports the SEM results showing a good fit.

Inadequate electricity supply had the biggest effect on SME performance, according to the path analysis (β = 0.68, CR = 6.24, $p < 0.001$).According to Adebayo and Olowookere (2019), who found that unreliable electricity continues to be a major obstacle to SME productivity in Nigeria, this implies that an unstable power supply severely limits production efficiency and operational continuity. Similar to Eze and Nwokolo (2023), who noted that inadequate road infrastructure raises logistics costs and delays product delivery, lowering competitiveness, it was discovered that poor road networks (β = 0.59, $p < 0.001$) significantly affect market access and distribution efficiency.

Furthermore, poor waste management infrastructure (β = 0.44, $p < 0.001$) and limited access to potable water (β = 0.41, $p < 0.001$) were significant predictors of SME performance. These results are consistent with Atofarati et al. (2025), who emphasised that small businesses face greater operational burdens and financial expenses due to inadequate water supply and sanitation systems. Additionally, it was discovered that inadequate telecommunication services (β = 0.52, $p < 0.001$) impeded digital transactions, customer engagement, and information flow. This finding is consistent with Okafor and Eke's (2021) findings, which highlighted the importance of digital connectivity in boosting market connections and entrepreneurial performance.

The high standardised coefficients for all the indicators point to the importance of infrastructure quality in determining the competitiveness, scalability, and survival of businesses in the local economy. The SEM findings also support the idea that infrastructure issues are interconnected elements that affect the overall productivity of SMEs rather than being separate factors. This bolsters the claim made by Nwosu and Ali (2022) that, in emerging economies, infrastructure development is a systemic driver of sustainable enterprise growth.

The SEM results, taken together, demonstrate that the performance of SMEs in the Irepodun Local Government Area is considerably and favourably impacted by infrastructure deficiencies. It follows that enhancing infrastructure, especially in the areas of communication, water supply, transportation, and electricity, would improve business resilience, operational efficiency, and regional economic growth. These findings support the World Bank's (2021) assertion that inclusive growth and local

entrepreneurship are fostered by strategic infrastructure investment in developing nations.

4.5 Thematic Results: Respondents' Perspectives on Infrastructure Deficits and SME Performance

The practical effects of infrastructure challenges on business operations and growth were highlighted by recurrent themes in the qualitative responses provided by SME operators in the Irepodun Local Government Area.

Theme 1: Operational Costs and Electricity Instability

The unpredictability of the electricity supply, which sharply raised business expenses, was a recurring theme among respondents. Numerous entrepreneurs stated that they were forced to depend on generators due to frequent power outages. "We spend more on fuel than on raw materials; production is nearly impossible without power," one respondent observed. This result is consistent with that of Adebayo and Olowookere (2019), who noted that Nigerian SME productivity is still significantly hampered by the unpredictable electricity supply.

Theme 2: Poor Road Networks and Distribution Issues

Inadequate road infrastructure also makes it more difficult to distribute products and reach markets, according to respondents. "Our goods get damaged on bad roads, and customers often cancel orders due to delays," said a trader. This supports the findings of Eze and Nwokolo (2023), who discovered that inadequate transport infrastructure reduces the logistical effectiveness and competitiveness of SMEs.

Theme 3: Limited Waste Management and Water Access

Access to potable water and effective waste disposal were additional problems. One service provider stated, "We have to buy water every day and dispose of waste ourselves; it's an extra cost." This is in line with the findings of Atofarati et al. (2025), who discovered that small businesses have a harder time operating when they have inadequate sanitation and water supply systems.

Overall, the qualitative insights demonstrate that infrastructure deficiencies impose high operational costs, reduce efficiency, and limit SME expansion, which is consistent with earlier quantitative findings and studies such as Adeniran and Alade (2021) and Iyadi (2023).

5. Conclusion

The study concluded that the performance and growth of SMEs in Kwara State's Irepodun Local Government Area are significantly and extensively impacted by

infrastructure deficiencies. Deficits in power supply, road networks, potable water, telecommunication, and waste management infrastructure all work together to reduce operational efficiency, raise production costs, and limit company expansion, according to empirical results from both regression and structural equation modelling studies.

Poor road conditions restricted market accessibility and raised logistics costs, while inadequate electricity proved to be the most significant obstacle, forcing SMEs to spend more on alternative power sources. The findings demonstrated the systemic nature of the problem by confirming that infrastructure deficiencies could account for more than half of the variation in SME performance. The study also found that SMEs showed greater sustainability, competitiveness, and productivity when they had better access to infrastructure. Thus, it was determined that to create an environment that supports SME resilience, innovation, and regional economic development, infrastructure investment must be combined with institutional reforms and policy coherence. Enhancing Irepodun's infrastructure would boost employment and promote inclusive economic growth in addition to improving company performance.

5.1 Policy Recommendations

Five major policy recommendations are put forth to address the infrastructure issues limiting the growth and performance of small and medium-sized businesses (SMEs) in the Irepodun Local Government Area.

First, the government ought to give a dependable electricity supply top priority by implementing decentralised energy solutions like solar and mini-grids. In addition to increasing production efficiency, this would lessen SMEs' reliance on expensive generators.

Second, to enhance market accessibility, logistics, and the prompt delivery of goods, more money should be invested in road rehabilitation and upkeep.

Thirdly, to lower operating expenses and encourage a healthier corporate environment, local water supply programs and efficient waste management systems must be established.

Fourth, increasing broadband access and telecommunications infrastructure would boost business innovation, enhance customer communication, and enable digital transactions.

Finally, in order to mobilise resources and guarantee sustainable infrastructure development that is suited to the needs of SMEs, public-private partnerships, or PPPs, ought to be promoted. Together, these policies would increase business competitiveness and promote equitable economic development in the region.

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