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EFFECT OF TRANS-BORDER TRADE ON THE PERFORMANCE OF SMEs IN SELECTED LOCAL GOVERNMENT AREAS OF ADAMAWA STATE, NIGERIA

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Abstract

This study examined the effect of trans-border trade on the performance of small and medium-sized enterprises (SMEs) in selected local government areas of Adamawa State, Nigeria. Specifically, it investigated the effect of customs procedures on operational efficiency, customer satisfaction, and market share expansion. The study adopted a descriptive and explanatory survey research design, with the population comprising registered and unregistered SMEs engaged in trans-border trade in Mubi North, Mubi South, Fufore, and Toungo Local Government Areas. Using Cochran's sample size formula, a sample of 422 SMEs was determined. Primary data were collected through structured questionnaires administered to SME owners and managers. Of the 422 questionnaires distributed, 409 were returned, while 10 were rejected, leaving 399 valid questionnaires for analysis. The data were analysed using regression analysis with the aid of SPSS version 27. The findings revealed that customs procedures had a positive and statistically significant effect on operational efficiency ($\beta = 0.537$, $t = 4.882$, $p < 0.001$) and customer satisfaction ($\beta = 0.677$, $t = 5.378$, $p < 0.001$). However, customs procedures had a negative and statistically significant effect on market share expansion ($\beta = -0.620$, $t = -2.870$, as reported). The findings suggest that customs procedures can facilitate SMEs' operational activities and customer service when efficient, whereas cumbersome documentation, lengthy clearance processes, and border delays may constrain access to new markets. The study concludes that improving customs administration is essential for enhancing SME performance in trans-border trade. It recommends simplifying customs documentation, accelerating clearance processes, strengthening digital customs systems, and improving coordination among border agencies to reduce trade-related delays and support the competitiveness and market expansion of SMEs in Adamawa State.

Keywords: *Trans-border trade, customs procedures, operational efficiency, customer satisfaction, market share expansion, SMEs.*

Introduction

Trans-border trade denotes the exchange of goods and services across national boundaries and, within the context of Adamawa State, a northeastern Nigerian state sharing an international border with Cameroon it constitutes a vital driver of local economic activity. Both formal and informal trading relations with Cameroon significantly support the livelihoods of small and medium-sized enterprises (SMEs), particularly due to the porous nature of the border. Evidence from the Adamawa State Investment Sector Scan Report indicates that informal cross-border trade in agricultural produce, textiles, and manufactured goods forms a substantial component of the state's economy (Mahdi & Rufai, 2025). Through this cross-border engagement, SMEs are able to expand their market scope beyond domestic boundaries, access external demand, and participate more effectively in regional value chains (Cassia & Magno, 2022).

However, the benefits for small enterprises are tempered by structural challenges, including regulatory bottlenecks and infrastructural gaps that undermine their full participation. According to Ajuwon et al, (2024) customs procedures constitute a major institutional barrier for SMEs engaging in trans-border

trade. In Adamawa State, the Nigeria Customs Service (NCS) and its counterpart in Cameroon are involved in regulating cross-border flows, but the process can be cumbersome. Lengthy documentation, inspections, and tariff complexity slow down business operations for smaller firms. The customs clearance system in Nigeria has been criticized for inefficient documentation practices, outdated technology, and even corruption, which together delay release times for goods (Olalekan, 2025).

Operational efficiency refers to how SMEs optimize their internal processes from production and logistics to resource management in the context of cross-border trade (Bandaranayake, et al, 2024). In Adamawa state, operational effectiveness is strongly influenced by the intersection of customs processes, infrastructure quality, and transport logistics (Olalekan, 2025). Delays at customs, combined with poor roads and unreliable power supply, undermine the ability of SMEs to operate cost-efficiently. According to Nganga, (2023) there is also room for efficiency gains through formalization, SMEs that harness trade facilitation tools such as the Authorized Economic Operator (AEO) status could benefit from expedited customs clearance, but uptake is low due to cost constraints. Achieving higher operational efficiency would allow SMEs in Adamawa state to lower overheads, reduce turnaround times, and deliver products more reliably in cross-border markets.

Inconsistent and unpredictable government policies concerning border management, tariffs, and trade regulations create uncertainty for SMEs and may discourage formal participation in trans-border trade. Security challenges in border areas further expose businesses to risks that can disrupt operations and reduce investor confidence. Although cross-border trade provides opportunities for micro, small, and medium-sized enterprises to generate income and participate in regional commerce, complex customs procedures, high trade-related costs, delays, and inconsistent regulatory requirements can increase the cost of doing business. Smaller firms are particularly vulnerable because they often have limited financial and administrative capacity to absorb such costs, thereby potentially reducing their operational efficiency and competitiveness (Lesser & Moisé, 2009). Similarly, cumbersome border procedures can hinder SME internationalisation and trade participation, whereas transparent, predictable, and simplified customs procedures can reduce transaction costs and facilitate the movement of goods (González & Sorescu, 2019).

Despite the recognised opportunities and challenges associated with trans-border trade, limited empirical evidence exists on its specific effect on SME performance in the selected border local government areas of Adamawa State. Existing studies have largely focused on other geographical regions or were conducted before the recent economic conditions of 2024–2025, leaving a gap in contemporary, location-specific evidence. In particular, there is insufficient evidence on how border procedures, trade-related costs, delays, and regulatory conditions influence operational efficiency and overall SME performance in Adamawa State. Therefore, an empirical examination of the effect of trans-border trade on SME performance in selected local government areas of Adamawa State, Nigeria, is necessary to provide context-specific evidence and a clearer understanding of whether trans-border trade contributes to or constrains SME performance.

This study was guided by the following research questions:

1. How do customs procedures affect the operational efficiency of SMEs in trans-border trade?
2. How do customs procedures influence customer satisfaction among SMEs in trans-border trade?
3. To what extent do customs procedures affect market share expansion of SMEs in trans-border trade?

The main Objective of this study is to examine the effect of trans-border trade on the performance of SMEs in selected local Government Areas of Adamawa State, Nigeria. The specific objectives are to:

1. examine the effect of customs procedures on the operational efficiency of SMEs engaged in trans-border trade in selected LGAs of Adamawa State;
2. evaluate how customs procedures influence customer satisfaction among SMEs operating in trans-border trade in selected LGAs of Adamawa State;
3. determine the extent to which customs procedures affect market share expansion of SMEs participating in trans-border trade in selected LGAs of Adamawa State

The following hypotheses were formulated to guide to the study:

H_o1: Customs procedures have no significant effect on the operational efficiency of SMEs engaged in trans-border trade in selected LGAs of Adamawa State.

H_o2: Customs procedures have no significant effect on customer satisfaction among SMEs operating in trans-border trade in selected LGAs of Adamawa State.

H_o3: Customs procedures have no significant effect on market share expansion of SMEs participating in trans-border trade in selected LGAs of Adamawa State.

Literature Review

Trans-Border Trade

Trans-border trade refers to the exchange of goods and services across international boundaries, and it has historically played a vital role in the socio-economic development of many countries (Sama'ila & Magaji, 2022). In the West African sub-region, trans-border trade is not only an economic activity but also a cultural and social phenomenon, deeply rooted in the shared histories, ethnic linkages, and geographical proximities of neighboring states. The Economic Community of West African States (ECOWAS) was established partly to encourage such cross-border interactions by promoting free movement of people, goods, and services (Williams, 2022). Nigeria, as the largest economy in the region, has been central to this process. Its extensive land borders with countries such as Niger, Chad, Benin, and Cameroon make it a hub for both formal and informal trade activities.

Custom Procedures

Grainger (2008) defined customs procedures as the administrative and regulatory processes governing the movement of goods across international borders. These processes include documentation, inspections, customs controls, and clearance requirements, which influence the time and cost involved in international trade. The World Customs Organization (WCO, 2006) described customs procedures as the treatment applied by customs authorities to goods subject to customs control to ensure compliance with applicable customs laws and regulations. These procedures involve activities such as goods declaration, examination, assessment, and clearance to ensure that cross-border transactions comply with established customs requirements.

The World Trade Organization (WTO, 2017) described customs procedures as the formalities and documentation requirements associated with the importation, exportation, and transit of goods across international borders. Efficient customs procedures emphasize simplification, transparency, and timely processing to reduce trade costs, minimize delays, and facilitate the movement of goods between countries.

Operational Efficiency

Operational efficiency is widely recognized as a critical determinant of organizational success because it reflects the ability of an organization to achieve maximum output with minimum resource utilization while maintaining quality standards. According to Tobi (2021), operational efficiency refers to the effective coordination and utilization of organizational resources, including human capital, financial resources, technology, and materials, to accomplish organizational objectives with minimal waste and reduced operating costs. The authors explained that operationally efficient organizations establish effective work processes, eliminate redundant activities, and continuously improve operational systems to increase productivity and service quality. They further argued that operational efficiency enables organizations to respond quickly to environmental changes, improve customer satisfaction, and sustain competitive advantage through effective resource management.

Customer Satisfaction

According to Awa et al., (2021), customer satisfaction is the positive emotional and cognitive response customers develop after evaluating the quality of products or services they receive from an organization. The authors explain that satisfaction is achieved when customers perceive that an organization's service

delivery meets or exceeds their expectations throughout the entire service encounter, including the handling of complaints and post-purchase support. Modupe (2021) defines customer satisfaction as the extent to which customers perceive that the quality of services delivered by an organization fulfills or surpasses their expectations before consumption. The author explains that customer satisfaction is primarily determined by customers' perceptions of service quality dimensions, including reliability, responsiveness, assurance, empathy, and tangible evidence of service quality. According to the study, customers evaluate not only the final product or service outcome but also the professionalism, courtesy, competence, accessibility, and responsiveness of employees during service delivery.

Market Share Expansion

reflects the capacity of a small or medium enterprise (SME) to strengthen its position and extend its influence within its target market when compared to competitors. Unlike direct financial indicators that emphasize profit margins or revenue, market share focuses on the . It demonstrates how well an enterprise can attract and retain customers, adapt to changing market dynamics, and compete effectively within its industry (Chang et al, 2024).

Small and Medium Enterprises (SMEs

SMEs are enterprises that operate on a relatively small scale in terms of capital, workforce, and market size. According to the National Policy on MSMEs (2015), SMEs in Nigeria are defined as businesses employing between 10 and 199 workers, with assets (excluding land) between ₦5 million and ₦500 million. SMEs are vital to economic growth, providing employment, poverty reduction, and contributions to GDP. According to Ezinwa, et al (2020) the concept and definitions of Small and Medium Scale Enterprises (SMEs) was introduced into the development landscape as early as the late 1940s, and the primary aim was to improve trade and industrialization in the present developed nations. The definition of Small and Medium Scale Enterprises (SMEs) varies from country to country, region to region and from agencies to agencies in today's world.

According to Aremu and Adeyemi (2021), Small and Medium Enterprises (SMEs) are business organizations established with relatively low capital investment, a limited number of employees, and modest annual turnover. The authors explained that these enterprises are usually owned and managed by individuals, families, or small groups of entrepreneurs who utilize available resources to produce goods and services for local and national markets. They emphasized that SMEs are important instruments for stimulating entrepreneurship because they provide opportunities for individuals to establish businesses with relatively low start-up costs.

Trans-Border Trade and Operational Efficiency

In Nigeria, trans-border trade plays a strategic role in improving operational efficiency by facilitating the movement of raw materials, finished products, and agricultural commodities across borders with countries such as Benin, Niger, Cameroon, and Chad. Operational efficiency is reflected in an organization's ability to minimize costs, reduce delays, maximize resource utilization, and deliver products promptly. When border procedures are efficient and supported by adequate infrastructure, firms experience faster customs clearance, lower transportation costs, and improved supply chain performance. Conversely, cumbersome border procedures, poor road networks, and multiple checkpoints increase operational costs and reduce business efficiency (Asiwaju, 2021; Wahab, 2024).

Trans-Border Trade and Customer Satisfaction

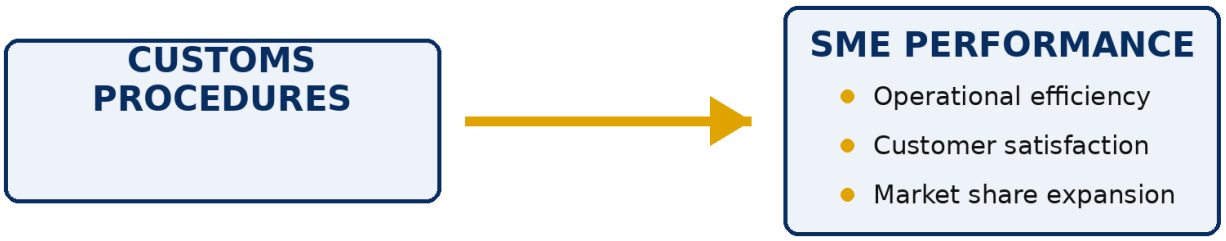
Customer satisfaction is a key performance indicator for SMEs, as it influences repeat patronage and long-term business survival. Through trans-border trade, SMEs gain access to a wider variety of goods and inputs, enabling them to offer better quality products, competitive prices, and timely delivery to customers. Improved market accessibility across borders allows SMEs to respond more effectively to customer needs and preferences. However, inefficiencies in customs procedures or poor infrastructure can negatively affect delivery times and product availability, thereby reducing customer satisfaction. Thus, the effectiveness of trans-border trade mechanisms significantly determines how well SMEs meet customer expectations (Oladeji et al, 2024).

Trans-Border Trade and Market Share Expansion

Market share expansion refers to the ability of SMEs to increase their presence and competitiveness in both domestic and foreign markets (Ogutu, 2022). Trans-border trade provides SMEs with opportunities to enter new regional markets and diversify their customer base. Accessible markets, supported by favorable trade policies and efficient border controls, allow SMEs to scale their operations beyond local boundaries (Maung & Nuangjamnong, 2025). Improved infrastructure and simplified customs procedures lower entry barriers and enable SMEs to compete more effectively with larger firms (Hansen-Addy et al, 2024).

Conceptual Framework

Figure 1: Conceptual Framework Showing the Relationship between Trans-Border Trade and Non-Financial Performance of SMEs



Source: Researcher's Design, 2026

Theoretical Framework

Trade Facilitation Theory

This theory by Wilson, Mann and Otsuki (2003), argued that simplification, harmonization, standardization, and modernization of international trade procedures reduce transaction costs, shorten border clearance times, and improve the efficiency of cross-border trade. The theory emphasizes that efficient customs procedures, transparent regulations, improved border infrastructure, and the adoption of digital trade systems facilitate the smooth movement of goods and services across borders. By minimizing administrative delays, excessive documentation, and unnecessary inspections, trade facilitation enhances productivity, promotes market integration, and strengthens the competitiveness of businesses, particularly small and medium-sized enterprises (SMEs) that often operate with limited financial and operational resources (Grainger, 2021; World Trade Organization [WTO], 2023).

Within the context of Adamawa State, particularly the border communities engaged in trade with neighbouring Cameroon, the theory suggests that reducing border bottlenecks through streamlined customs procedures, improved transport infrastructure, transparent regulatory frameworks, and efficient border management can significantly enhance SME performance. Simplified trade procedures reduce the time and financial costs associated with importing raw materials and exporting finished products, thereby enabling SMEs to improve profitability, expand market access, increase sales, and strengthen their competitive position. Furthermore, improved trade facilitation encourages investment, promotes regional economic integration, and creates opportunities for businesses to participate more effectively in domestic and international markets (United Nations Conference on Trade and Development [UNCTAD], 2022; WTO, 2023).

Empirical Review

Akomolehin and Akomolehin (2026) studied digital transformation in Nigeria customs service: evaluating the impact of e-customs and single window platforms on trade facilitation. The study investigated the influence of digital customs modernization through the implementation of the e-Customs Trade Modernization Project and the National Single Window on trade facilitation in Nigeria. The researchers adopted a qualitative-dominant case study design covering Lagos Port, Onne Port, and Seme Border.

The study relied on secondary documents, policy reports, and comparative case evidence; therefore, no statistical sample size was applicable. Data were analysed using qualitative content analysis and comparative policy analysis. Findings revealed that customs digitalization significantly reduced cargo clearance time, improved transparency, enhanced revenue accuracy, and minimized face-to-face interactions that often encourage corruption. However, infrastructural deficiencies and varying institutional capacities limited the effectiveness of the reforms, particularly at land borders such as Seme. The study concluded that digital customs procedures contribute substantially to trade efficiency but require complementary institutional reforms. It recommended complete implementation of the National Single Window, improved ICT infrastructure, inter-agency integration, and continuous staff training. A major gap identified was the absence of firm-level evidence on how customs modernization affects SME operational efficiency. Future studies should examine SMEs directly using quantitative methods to establish the relationship between customs procedures and operational performance

Iqbal (2026) studied customs revenue optimization in Nigeria: reviewing the effectiveness of tariff reforms, valuation policies, and compliance mechanisms. This study examined how tariff reforms, customs valuation procedures, HS classification reforms, and digital customs systems influence customs administration in Nigeria. The research adopted a qualitative policy review and multiple-case study design using evidence from NICIS II implementation, Lagos ports, and selected customs operations. Since it was based on documentary evidence, no target population or sample size was specified. Data were analysed through qualitative content analysis using the Walt and Gilson Policy Triangle Framework. The findings showed that digital customs procedures improved transparency, audit trails, and valuation accuracy but that under-valuation, misclassification, and system downtime continued to undermine customs performance. The study concluded that effective customs procedures require integrated digital systems and stronger institutional enforcement. It recommended mandatory electronic invoicing, automated valuation systems, harmonized customs databases, and stronger compliance monitoring. A major limitation was its emphasis on revenue generation rather than business performance. Future research should assess how customs procedures influence the operational efficiency, costs, and competitiveness of SMEs involved in trans-border trade.

Goldsmith (2026) carried out study on assessing the role of Nigeria customs in the implementation of the African continental free trade area (AfCFTA): A Policy and Readiness Review. The study assessed Nigeria Customs Service's readiness to implement AfCFTA provisions effectively. The researchers adopted a mixed-method policy review and comparative case study design, utilizing secondary information from customs regulations, AfCFTA agreements, and corridor operations at Seme Border, Jibia Border, and Apapa Port. Because it relied on documentary evidence, no survey population or sample size was reported. Data were analysed using comparative policy analysis. Findings indicated that Nigeria Customs had achieved significant progress in ICT deployment and procedural reforms but continued to face challenges relating to infrastructure, human capacity, rules-of-origin verification, and inter-agency coordination. The study concluded that customs modernization is essential for maximizing AfCFTA benefits. It recommended electronic certificates of origin, integrated customs platforms, improved staff capacity, and harmonized trade procedures. The study did not evaluate the operational outcomes of SMEs using the border corridors. Future studies should examine the effect of customs procedures on SME operational efficiency under AfCFTA implementation.

Theodosiou et al., (2026) conducted study on enhancing agility and international performance through learning processes and digitalization capabilities in Nigerian SMEs. The researchers investigated how organizational learning, digital capabilities, and agility influence the international performance of Nigerian SMEs. The study adopted a cross-sectional survey research design. The population comprised internationally active SMEs in Lagos State, while a sample of 209 SMEs participated in the study. Respondents were selected through purposive sampling, targeting export-oriented firms. Data were analysed using Structural Equation Modelling (SEM). Findings revealed that digitalization capabilities significantly improved market responsiveness, operational agility, and international business performance. The authors concluded that technology adoption enhances SME competitiveness in international markets. They recommended greater investment in digital infrastructure, organizational learning, and export support services. The study did not examine customs procedures or border

clearance processes as determinants of operational efficiency. Future studies should integrate customs clearance efficiency and border procedures into models explaining SME international performance.

Mahdi and Rufai (2025) investigated the impact of cross-border trade on economic development in Nigeria's Lake Chad Basin, employing a mixed-methods design that combined quantitative analysis of trade volumes with qualitative data from interviews and focus group discussions. Their findings indicate that cross-border trade supports income generation, employment, and informal sector growth, but its potential is undermined by insecurity, poor infrastructure, environmental pressures, and weak institutional oversight. While the study provides valuable insights, its methodology presents limitations. The representativeness of qualitative samples is unclear, the sources and timeframe of quantitative data are unspecified, and external factors affecting economic development are insufficiently controlled. These shortcomings cast doubt on the robustness of its conclusions regarding the causal relationship between cross-border trade and economic development in the region.

Lomba et al., (2025) studied risk management and efficiency of custom operations in Nigeria. The study investigated the relationship between risk management practices and operational efficiency within the Nigeria Customs Service. A survey research design was adopted. The population consisted of 605 officers drawn from Area I Command Port Harcourt and Area II Command Onne. Using Taro Yamane's formula, the researchers selected a representative sample through simple random sampling. Data were analysed using descriptive statistics, Pearson correlation, and multiple regression analysis. The findings indicated that effective risk management practices significantly enhanced customs operational efficiency through faster cargo processing, improved compliance, and better resource utilization. The study concluded that strengthening risk management systems improves customs service delivery. It recommended continuous staff training, improved ICT infrastructure, and wider adoption of automated risk assessment systems. A major gap was that the study focused exclusively on customs personnel and ignored the experiences of SMEs and cross-border traders. Future research should investigate how customs risk management practices affect SME operational efficiency and trading costs.

Methodology

The research adopts a descriptive and explanatory survey design. This study was conducted in Adamawa state, Nigeria. The population of this study consists of all registered and unregistered Small and Medium-scale Enterprises (SMEs) engaged in trans-border trade within the border communities of Mubi-North, Mubi-South, Fufore, and Toungo Local Government Areas of Adamawa State, Nigeria. Since the total number of SMEs involved in trans-border trade cannot be accurately established, the study adopted Cochran's (1977) sample size formula designed for an unknown (infinite) population. The formula is expressed as:

$n_0 = Z^2p(1 - p) / e^2$

Where:

n_0 = initial sample size for an unknown population

Z = score corresponding to a 95% confidence level (1.96)

p =estimated proportion of the population possessing the study characteristics (0.5 is used to maximize sample size)

e = margin of error (0.05)

$$n_0 = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2}$$

$$n_0 = \frac{3.8416 \times 2.25}{0.0025}$$

$$n_0 = \frac{0.9604}{0.0025}$$

$$n_0 = 384.16$$

$n_0 \approx 384$

Therefore, . To cater for non-response, incomplete questionnaires, and field errors, an additional 10% (38 additional samples) were added, making the total sample size of 422 SMES. Thus, the final sample size for the study is 422 SMEs. This study adopted a stratified purposive random sampling technique.

Table 1: Sample Size based on Strata

S/N	Local Government Area	Senatorial Zone	Border with Cameroon	Estimated SME Trade Concentration (%)	Sample Allocation
1	Mubi North	Northern Zone	Yes	30%	127
2	Mubi South	Northern Zone	Yes	25%	106
3	Toungo	Southern Zone	Yes	20%	84
4	Fufore	Central Zone	Yes	25%	105
Total				100%	422

Source: Researcher's Computation, 2026

The study is based solely on primary sources of data. Primary data are obtained through the administration of structured questionnaires to owners and managers of small and medium-sized enterprises. Primary instrument for data collection in this study is a structured questionnaire. Content validity is ensured by subjecting the questionnaire to critical review by experts in the department of Business Administration and Entrepreneurship assess the extent to which the items adequately represent and cover the variables under investigation.

Data Presentation and Analysis

A total of 422 copies of the questionnaire were distributed to the respondents, representing 100% of the questionnaires administered. Out of this number, 409 questionnaires, representing 96.9%, were returned, while 13 questionnaires, representing 3.1%, were not returned. Furthermore, out of the 409 questionnaires returned, 10 questionnaires, representing 2.4% of the total questionnaires distributed, were rejected due to incomplete responses, improper completion, or other inconsistencies that could affect the reliability of the analysis. Consequently, 399 questionnaires, representing 94.5% of the total questionnaires distributed, were retained and considered valid for data analysis. The response rate of 94.5% is considered sufficiently high and indicates a strong level of participation among the respondents. Therefore, the 399 valid questionnaires provided an adequate basis for the statistical analysis and interpretation of the findings of the study.

Hypotheses Testing

H_o1: Customs procedures have no significant effect on the operational efficiency of SMEs engaged in trans-border trade in selected LGAs of Adamawa State.

Table 1: Model Summary of the effect of Customs procedures on operational efficiency of SMEs

Variables	Coefficients	Std. Error	t-Values	p-values	Hypothesis Testing
(Constant)	31.926	0.154	207.491	0.000	H_o1: Rejected
CP	0.537	0.110	4.882	0.000	
R	0.482				
R^2	0.333				
Adjust. R^2	0.331				
F-Stats	13.671				
a. Predictors: (Constant), CP					
b. Dependent Variable: OE					

Source: Computed using SPSS 27 from Field Survey data, 2026.

Table 1 presents the regression results on the effect of Customs Procedures (CP) on the Operational Efficiency (OE) of SMEs. The model summary indicates a correlation coefficient (R) of 0.482, suggesting a moderate positive relationship between customs procedures and operational efficiency. The coefficient

of determination (R^2) of 0.333 shows that customs procedures explain 33.3% of the variation in operational efficiency, while the remaining 66.7% is attributable to other factors not included in the model. The adjusted R^2 of 0.331 confirms that the model explains approximately 33.1% of the variation after adjustment, while the F-statistic of 13.671 indicates the overall explanatory relevance of the regression model. The regression coefficient for customs procedures is 0.537, with a standard error of 0.110, a t-value of 4.882, and a p-value of 0.000 ($p < 0.05$), indicating a positive and statistically significant effect on operational efficiency. This implies that a one-unit increase in the customs procedures score is associated with a 0.537-unit increase in operational efficiency. Consequently, the null hypothesis (H_{01}), which states that customs procedures have no significant effect on the operational efficiency of SMEs, is rejected. The finding suggests that customs procedures significantly influence SMEs' operational efficiency, particularly in the processing and movement of goods, reduction of business delays, resource utilisation, and overall operational activities.

H_o2: Customs procedures have no significant effect on customer satisfaction among SMEs operating in trans-border trade in selected LGAs of Adamawa State.

Table 2: Model Summary of the effect of customs procedures on customer satisfaction

Variables	Coefficients	Std. Error	t-Values	p-values	Hypothesis Testing
(Constant)	32.393	0.312	103.921	0.000	H_o2: Rejected
CP	0.677	0.124	5.378	0.000	
R	0.357				
R^2	0.225				
Adjust. R^2	0.222				
F-Stats	10.066				
a. Predictors: (Constant), CP					
b. Dependent Variable: CS					

Source: Computed using SPSS 27 from Field Survey data, 2026.

Table 2 presents the regression results on the effect of customs procedures (CP) on customer satisfaction (CS) among SMEs. The model summary indicates a correlation coefficient (R) of 0.357, suggesting a positive relationship between customs procedures and customer satisfaction. The coefficient of determination (R^2) of 0.225 shows that customs procedures explain 22.5% of the variation in customer satisfaction, while the remaining 77.5% is attributable to other factors not included in the model. The adjusted R^2 of 0.222 further indicates that the model explains approximately 22.2% of the variation after adjustment, while the F-statistic of 10.066 demonstrates the overall explanatory relevance of the regression model. The regression coefficient for customs procedures is 0.677, with a standard error of 0.124, a t-value of 5.378, and a p-value of 0.000 ($p < 0.05$), indicating a positive and statistically significant effect on customer satisfaction. This implies that a one-unit increase in the customs procedures score is associated with a 0.677-unit increase in customer satisfaction, holding other factors constant. Consequently, the null hypothesis (H_{02}), which states that customs procedures have no significant effect on customer satisfaction among SMEs, is rejected. The finding suggests that customs procedures significantly influence customer satisfaction through their effects on product availability, timely delivery, service efficiency, and the ability of SMEs to meet customer expectations.

H_o3: Customs procedures have no significant effect on market share expansion of SMEs participating in trans-border trade in selected LGAs of Adamawa State.

Table 3: Model Summary of the effect of customs procedures on market share expansion

Variables	Coefficients	Std. Error	t-Values	p-values	Hypothesis Testing
(Constant)	31.931	0.397	80.529	0.000	H_o3: Rejected
CP	-0.620	0.216	-2.870	0.000	
R	0.564				

Variables	Coefficients	Std. Error	t-Values	p-values	Hypothesis Testing
R^2	0.444				
Adjust. R^2	0.442				
F-Stats	1.622				
a. Predictors: (Constant), CP					
b. Dependent Variable: MSE					

Source: Computed using SPSS 27 from Field Survey data, 2026.

Table 3 presents the regression results on the effect of customs procedures (CP) on market share expansion (MSE) among SMEs. The model summary indicates a correlation coefficient (R) of 0.564, suggesting a moderate relationship between customs procedures and market share expansion. The coefficient of determination (R^2) of 0.444 shows that customs procedures explain 44.4% of the variation in market share expansion, while the remaining 55.6% is attributable to other factors not included in the model. The adjusted R^2 of 0.442 further indicates that the model explains approximately 44.2% of the variation after adjustment. The regression coefficient for customs procedures is −0.620, with a standard error of 0.216 and a t-value of −2.870, indicating an inverse relationship between customs procedures and market share expansion. This implies that a one-unit increase in customs-related constraints is associated with a 0.620-unit decrease in market share expansion, holding other factors constant. However, the reported p-value of 0.000 should be verified against the t-value and sample size, as these statistics may not be consistent; conventionally, a reported p-value of 0.000 is interpreted as $p < 0.001$. If the effect is statistically significant at the 5% level, the null hypothesis (H_{03}), which states that customs procedures have no significant effect on market share expansion among SMEs, is rejected. The finding suggests that cumbersome documentation, lengthy clearing processes, border delays, and inefficient customs services may hinder SMEs' access to new markets, customer acquisition, sales growth, and competitiveness, thereby constraining their market share expansion.

Summary of Findings

The following findings were derived from the above analysis:

1. Customs procedures had a positive and statistically significant effect on the operational efficiency of SMEs, with a coefficient of $\beta = 0.537$, $t = 4.882$, and $p = 0.000$. This indicates that customs procedures significantly influence the processing and movement of goods and the operational activities of SMEs.
2. Customs procedures had a positive and statistically significant effect on customer satisfaction, with $\beta = 0.677$, $t = 5.378$, and $p = 0.000$. This implies that customs procedures significantly influence product availability, timely delivery, service delivery, and SMEs' ability to meet customer expectations.
3. Customs procedures had a negative and statistically significant effect on market share expansion, with $\beta = -0.620$, $t = -2.870$, and $p = 0.000$. This finding indicates that cumbersome customs procedures, complicated documentation, lengthy clearing processes, and border delays constrain SMEs' ability to access and expand into new markets.

Conclusion

In conclusion, the study established that customs procedures have significant effects on the performance of SMEs, particularly in terms of operational efficiency, customer satisfaction, and market share expansion. The findings revealed that customs procedures have a positive and statistically significant effect on operational efficiency ($\beta = 0.537$, $t = 4.882$, $p < 0.001$), suggesting that effective customs processes can facilitate the movement of goods and improve SMEs' operational activities. Similarly, customs procedures have a positive and statistically significant effect on customer satisfaction ($\beta = 0.677$, $t = 5.378$, $p < 0.001$), indicating that efficient customs processes contribute to product availability, timely delivery, improved service delivery, and the fulfilment of customer expectations.

However, customs procedures have a negative and statistically significant effect on market share expansion ($\beta = -0.620$, $t = -2.870$, $p < 0.001$), implying that cumbersome documentation, lengthy clearance processes, and border delays constrain SMEs' ability to penetrate new markets and expand their customer base. Overall, the study concludes that although customs procedures can enhance SMEs' operational efficiency and customer satisfaction, procedural bottlenecks may undermine their market expansion, highlighting the need for simplified documentation, faster clearance processes, and more efficient border administration to improve the overall performance and competitiveness of SMEs.

Recommendations

The following findings were derived from the above findings and conclusion:

1. Customs authorities should simplify and digitalise customs clearing procedures by reducing unnecessary documentation, introducing automated processing systems, and establishing clear processing timelines to enhance the operational efficiency of SMEs engaged in trans-border trade.
2. Customs agencies should improve the speed and consistency of border clearance processes to enable SMEs to ensure timely product availability and delivery. Reducing customs-related delays will help SMEs provide better services and improve customer satisfaction.
3. The Nigeria Customs Service and relevant government agencies should review cumbersome customs regulations and procedures that restrict SME access to new markets.

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