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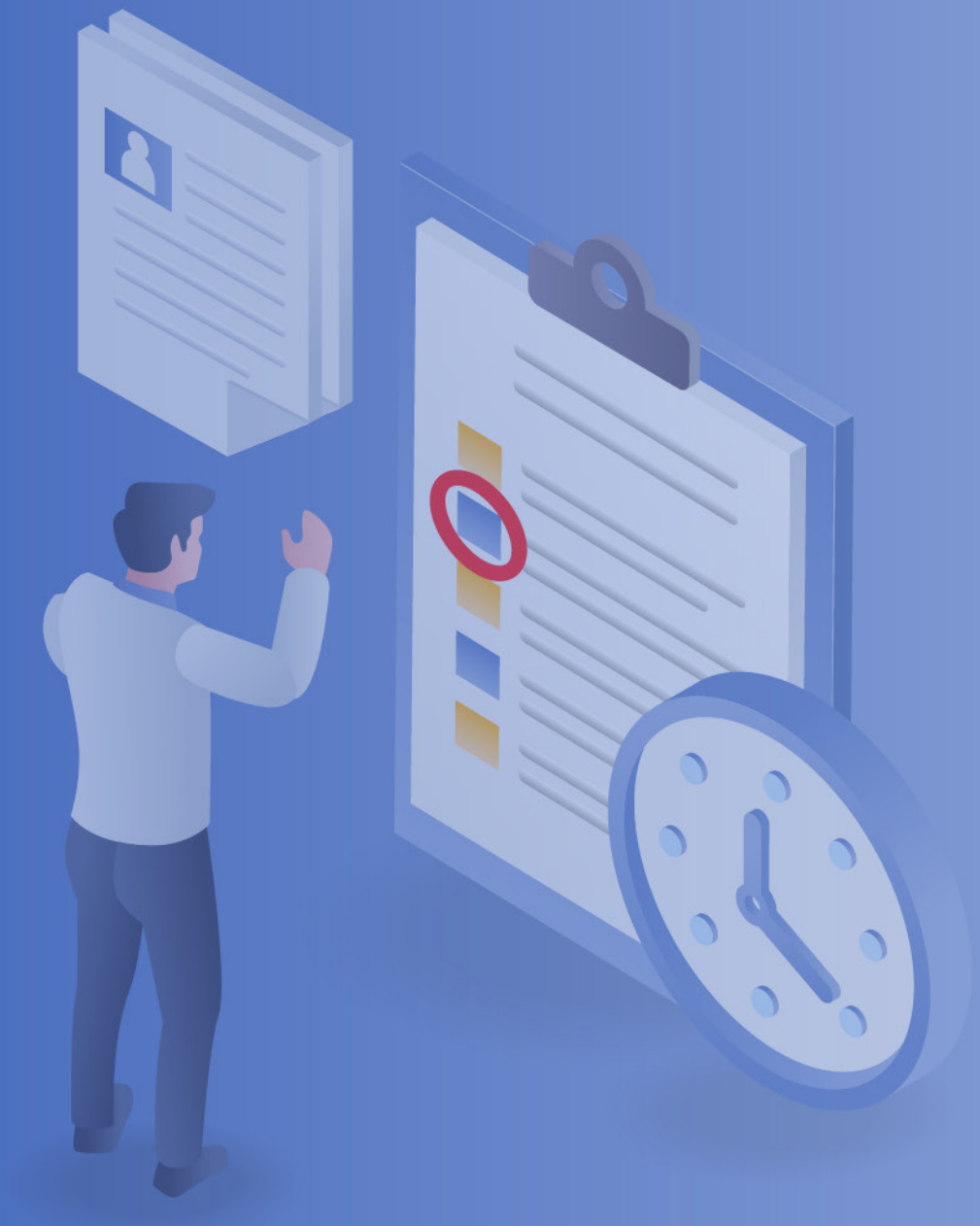

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Impact of Trade Openness and Exchange Rate on Micro-Small & Medium Enterprises (MSMEs) 1999-2022

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ABSTRACT

This research examined the influence of trade accessibility and currency exchange rates on the growth of Micro-Small and Medium Enterprises (MSMEs) in Nigeria. An Autoregressive Distributed Lag (ARDL) model was employed to explore the immediate and long-term relationships among these factors. The ARDL results indicate a positive relationship between MSME growth and its previous values, both at the initial and subsequent lags, in the short term. However, a negative association emerges in the long-term analysis. Additionally, MSME growth shows a positive correlation with past values of the exchange rate (EXCR) in the short term, while an inverse relationship is observed in the long term. Conversely, an unfavorable connection exists between MSME growth and previous Trade Openness (TOP) values at the initial and subsequent lags in the short term. Yet, a positive correlation is depicted in the long-term perspective. This study concludes that trade accessibility significantly impacts the development of micro-small and medium-sized enterprises in Nigeria. For the country to achieve inclusive growth, its economy should be open to importing raw materials, semi-finished products, and technical expertise to improve domestic production processes and support the exportation of finished goods. This openness expands market opportunities for entrepreneurs within Nigeria. Furthermore, maintaining a stable exchange rate is essential to encourage both foreign and domestic business ventures in the country.

INTRODUCTION

This investigation was undertaken with the purpose of exploring the impact of Trade Availability and currency exchange ratio on the progress of Micro-Small and Medium Enterprises (MSMEs) in Nigeria. An ARDL framework was utilized to apprehend the immediate and protracted interconnection amid the factors. The computed ARDL results unveil an affirmative interrelation between MSMEs and preceding values of MSMEs, both at the primary and successive lags, in the brief term. Nonetheless, the extended-term outlook reveals a dissimilar adverse affiliation.

Similarly, a constructive correlation becomes evident between MSMEs and the former rates of the exchange rate (EXCR) at the initial and successive lags in the near term. Nevertheless, the enduring standpoint reveals a contrasting connection.

Conversely, there exists an adverse connection between MSMEs and the previous Trade Openness (TOP) values, both at the initial and subsequent lags in the short term. Nevertheless, the long-term perspective reveals a positive correlation.

This study deduces and suggests that, given the substantial influence of trade accessibility on micro-small and medium-sized enterprises in Nigeria, and for the realization of inclusive growth in the nation, the economy should be receptive to raw materials, semi-finished products, and technical expertise to enhance domestic production processes and promote the exportation of finished goods, thereby expanding market opportunities for entrepreneurs in the country. Additionally, maintaining a stable exchange rate is crucial to fostering foreign and domestic business models in the nation.

Micro-Small and Medium Enterprises (MSMEs) function as a potent instrument for any emerging nation's national economy to accomplish its macro-economic goals of generating jobs and alleviating poverty at a low investment expenditure. They also nurture entrepreneurial capabilities, including native technology. Additional inherent advantages of prospering MSMEs comprise an expansion of foreign exchange reserves and heightened access to infrastructural amenities prompted by the presence of such MSMEs in their localities. This stimulates economic actions, like providing diverse commodities and facilitating distributive trades for products produced or required by the MSMEs. It also triggers the movement of people from rural to urban areas and amplifies the living standards of MSME workers, their dependents, and those directly or indirectly associated with them. In today's Nigeria, MSMEs are gaining significant recognition as they fulfill pivotal roles in the industrialization process and sustainable development of the economy.

As stated by Effiom and Edet (2020), MSMEs profoundly influence a nation's economy by strengthening employment, enhancing the quality of life for citizens, and amplifying total production through the utilization of local resources in the production of goods and services. In response to these observations, countries are becoming progressively more attuned to the requirements of SMEs by establishing a favorable business environment and initiating policies and initiatives to assist SMEs in overcoming the difficulties they encounter.

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The impact of trade openness on economic growth harks back to the arguments of Smith (1776) and Ricardo (1817), who initially conceptualized and modernized the notion of free trade. Smith's theory of absolute cost advantage and Ricardo's comparative cost advantage theory underscore the importance of open trade for national economies, as it is more advantageous for trading nations than self-sufficiency. These theoretical arguments underscore the crucial role of trade openness in driving economic growth, as emphasized by Uche and Effiom (2021).

Currently, Nigeria faces challenging macroeconomic circumstances characterized by high poverty rates, stagflation, and volatile oil prices in the global market, which have exerted significant pressure on the country's government finances and led to unpredictable exchange rates. To overcome these challenges, empowering MSMEs through trade openness is essential, allowing foreign investors to invest in Micro-Small and Medium Enterprises (MSMEs). In line with the arguments of Smith (1776) and Ricardo (1817), which advocate for cross-border trade, this approach fosters the exchange of technical knowledge, creates markets for surplus production, reduces unemployment and underemployment, boosts production, curbs economic inflation, and enhances overall national output.

African countries possess abundant natural and human resources, but they encounter difficulties in economic growth. It is paradoxical that Nigeria, as the giant of Africa with a substantial population and abundant natural resources, struggles to harness its full potential. This can be attributed in part to the low level of investment in Micro-Small and Medium Enterprises (MSMEs), stemming from high exchange rates and various trade barriers. MSMEs' development is a critical component of growth strategies in most economies, particularly in developing nations like Nigeria.

Due to their adaptability and innovation, MSMEs can respond to changes in market conditions and contribute to economic diversification through exports and international trade, as noted by Adams (2019). Udechukwu (2019) also asserts that MSMEs' development plays a crucial role in the growth strategies of many economies, especially developing ones, primarily because they are agile in responding to market changes.

Micro-Small and Medium Enterprises (MSMEs) exhibit a heterogeneous nature, with their economic impact extending across various sectors, including agriculture, oil and gas, automotive, and manufacturing. The activities of MSMEs range from artisans producing agricultural tools for local markets to coffee shops in small towns, internet cafes in urban centers, and small-scale engineering or software firms serving global markets. It is evident that the influence of MSMEs spans from rural to international levels. This diversity underscores the significance of analyzing the impact of Trade Accessibility and exchange rates on the growth of Micro-Small and Medium Enterprises (MSMEs) in Nigeria.

The evolution of MSMEs aligns with the current global trend of economic liberalization and the necessity to bridge the developmental gap between developing nations and industrialized ones through trade accessibility and advantageous exchange rates. Governments in developing nations, particularly Nigeria, have launched numerous initiatives such as the Small and Medium Enterprises Development Agency (SMEDAN), Abuja Enterprises Agency (AEA), Graduate Entrepreneurship Fund (GEF), Work in Progress (WiP) initiative, and Subsidy Reinvestment Empowerment Programme (SURE-P). These endeavors aim to unlock the potential of young entrepreneurs in Nigeria, enhance, cultivate, and back MSMEs in the nation.

However, inspite of several initiatives, it is evident that their influence on the performance of MSMEs has fallen short of expectations (Manbula, 2016). This can be attributed to various factors that governments and policymakers in developing countries have overlooked in the design and execution of MSME development programs. Many MSMEs either remain modest, become inactive, or cease operations within a few years due to obstacles and limitations that impede their expansion, primarily concerning finances (Rodriguez & Berry, 2018). In Nigeria, there is no available proof to suggest that the situation has improved with economic liberalization or trade openness, which has introduced fierce competition from well-established Multinational Corporations (MNCs). Advocates of trade accessibility contend that it enhances the circumstances of MSMEs by granting them superior access to financial resources and nurturing competition, thereby creating economic activities capable of diminishing poverty.

The paper provided answers to the following questions:

i What impact does trade openness have on MSMEs in Nigeria?

ii To what degree does exchange rate impact MSMEs in Nigeria?

The following hypothesis for the study is stated in a null form:

H01: Trade openness has no significant on micro-small and medium scale enterprises in Nigeria.

H02: Exchange rate has no significant on micro-small and medium scale enterprises in Nigeria.

Numerous trade policies have been devised to amplify the competitiveness of domestic industries, with the intention of invigorating locally manufactured goods and encouraging a diversified export foundation that activates the activities of Micro-small and medium enterprises (MSMEs) within the nation. Trade policies also aim to establish an environment conducive to domestic production, leading to increased capital inflows into the economy, as well as the transmission and adoption of suitable technologies through amicable cross-border policies that influence effective trade accessibility in the country. Nonetheless, it is imperative for the exchange rate to be conducive to business for Micro-small and medium enterprises (MSMEs) to enhance their productivity (Ayadi & Hyman, 2016).

Between 1970 and 1976, business policies assumed a less restrictive approach aimed at discouraging dumping, promoting import substitution, steering the economy toward a favorable balance of payments, conserving foreign exchange, and generating increased government revenue. However, a multitude of studies have delved into the impact of trade accessibility and exchange rates on Micro-small and medium enterprises (MSMEs). Nevertheless, this paper employs an adaptive expectation model to capture the short and long-term effects of trade accessibility and exchange rates on Micro-small and medium enterprises (MSMEs), with Micro-small and medium enterprises (MSMEs) as the target variable and trade accessibility and exchange rates as determinant variables.

Conceptual Review

Micro-Small and Medium Enterprises (MSMEs)

Micro-small and medium enterprises (MSMEs) are pivotal in the global economic framework, often characterized by their flexibility, innovation, and significant contributions to employment and GDP. The classification of businesses into micro, small, and medium enterprises primarily depends on various factors, including the number of employees, annual revenue, or investment in assets, and these criteria can vary significantly from one country to another.

The World Bank, in its efforts to understand and support MSMEs, highlights their role in promoting growth, creating jobs, and fostering innovation and entrepreneurship (Ayyagari, Demirguc-Kunt, & Maksimovic, 2012). MSMEs are known for their agility and ability to adapt to market changes more rapidly than larger corporations, making them essential in dynamic economic environments. This flexibility often stems from less formal organizational structures and closer customer relationships.

In developed economies, MSMEs contribute significantly to employment. According to a report by the European Commission (2015), small and medium-sized enterprises represented over 99% of all businesses in the European Union, underlining their importance in the economy. In emerging markets, MSMEs are even more critical. They often form the backbone of the economy, providing the majority of employment opportunities and acting as a breeding ground for entrepreneurship and innovation (Acs, Szerb, & Autio, 2016).

The challenges facing MSMEs, however, are substantial and include issues like access to finance, regulatory burdens, and capacity building. Beck, Demirguc-Kunt, and Maksimovic (2008) noted that access to finance is often cited as one of the primary obstacles for MSME growth. This is particularly pronounced in developing countries where financial markets are less developed. The regulatory environment can also be a significant hurdle, as MSMEs typically do not have the resources to navigate complex legal and regulatory landscapes as efficiently as larger firms (Kushnir, Mirmulstein, & Ramalho, 2010).

Innovation is another key area where MSMEs play a crucial role. They often bring to the market innovative products and services, largely due to their flexible nature and closer interaction with customers. Audretsch, Link, & Walshok (2015) emphasized the innovative potential of MSMEs in driving economic growth and addressing societal challenges.

Therefore, MSMEs are an integral part of the global economy, driving innovation, employment, and economic growth. Their role is particularly pronounced in developing economies, where they provide the majority of employment and are key to poverty reduction and economic development. The challenges they face, including access to finance, regulatory hurdles, and the need for capacity building, are areas where policy intervention can make a significant difference. Supporting MSMEs through favourable policies and programs is essential for sustainable economic development.

Trade Openness

Trade openness represents a concept aimed at gauging a nation's involvement in international trade. Typically, it is quantified by contrasting the value of a country's exports and imports with its gross domestic product (GDP). A higher ratio signifies a greater degree of trade openness, signifying the country's deeper integration into the global marketplace. This integration has emerged as a pivotal facet of global economic policy, particularly since the latter part of the 20th century, carrying profound implications for economic growth, development, and international interactions.

The underpinning theory of trade openness finds its roots in the principles of comparative advantage, originally expounded by Ricardo (1817). These principles posit that nations should specialize in the production of goods where they exhibit relative efficiency and trade for those in which they do not. This specialization, driven by international trade, can foster more efficient global production and potentially elevate global well-being (Krugman, Obstfeld, & Melitz, 2012). In the contemporary context, trade openness encompasses not only the exchange of goods but also services, capital, and, to some extent, labor.

The body of empirical evidence regarding the impact of trade openness on economic growth is substantial. Frankel and Romer (1999) illustrated that countries with more open trade policies tend to experience higher growth rates. Nevertheless, the advantages of trade openness are not evenly distributed. Although consumers often enjoy access to a broader array of goods at lower prices, particular sectors within open economies may face challenges from foreign competition, resulting in job losses and economic reconfiguration (Rodrik, 1998).

Trade openness is also correlated with innovation and the diffusion of technology. Grossman and Helpman (1991) asserted that openness expedites technological progress by exposing countries to novel ideas and methodologies from abroad. This exposure can galvanize

domestic innovation efforts, as firms strive to maintain competitiveness in the global arena.

In spite of these merits, trade openness has its detractors. Stiglitz (2002) emphasized potential drawbacks, including heightened income inequality and the susceptibility of open economies to global economic vicissitudes. Moreover, developing countries may grapple with the challenge of competing on equal footing with developed nations due to disparities in infrastructure, technology, and institutional quality (Rodrik, 2015).

Exchange Rate

The notion of the exchange rate, a cornerstone of international economics and finance, pertains to the valuation of one nation's currency relative to another's. It assumes a pivotal role in delineating a country's economic well-being, exerting influence over a gamut of factors spanning trade balances to inflation rates. Exchange rates are essentially categorized into two principal types: fixed (or pegged) and floating. Within the framework of a fixed exchange rate system, the worth of a nation's currency is tethered to that of another prominent currency, such as the U.S. dollar or gold. Conversely, in a floating exchange rate system, the currency's value fluctuates in accordance with the dynamics of the foreign exchange market.

The determination of exchange rates in floating systems is intricate, underpinned by variables like interest rates, economic stability, and the ebb and flow of trade and capital. As expounded by Krugman and Obstfeld (2012), elevated interest rates proffer lenders in an economy a superior return compared to other nations. Consequently, higher interest rates attract foreign capital and contribute to an escalation in the exchange rate. The interplay between interest rates and exchange rates constitutes a pivotal facet of the monetary approach to the balance of payments, as well as the portfolio balance approach.

Fluctuations in exchange rates wield substantial economic repercussions. A strengthened currency renders imports more affordable and exports pricier, potentially culminating in a trade deficit. Conversely, a weakened currency renders imports costlier while rendering exports more competitively priced, potentially invigorating a country's export sector. This association was notably scrutinized within the context of the "J-curve" phenomenon, wherein a currency devaluation initially exacerbates a country's trade balance before ameliorating it (Magee, 1973).

The role played by central banks in the dynamics of exchange rates is pivotal. They possess the capacity to influence exchange rates through adjustments in interest rates and direct interventions in the market. For instance, in a bid to rein in inflation, a central bank might elevate interest rates, which can precipitate an appreciation in the nation's currency (Mishkin, 2009).

Nevertheless, exchange rates aren't solely beholden to economic fundamentals. They are also swayed by market sentiment and speculative activities, as delineated in the efficient market hypothesis and the theory of rational expectations (Fama, 1970; Muth, 1961). These theories posit that the prevailing exchange rate already encompasses all accessible information, rendering predictions regarding future movements challenging when predicated exclusively on publicly available data.

In a globally interconnected milieu, exchange rate policies elicit substantial debate. Some economists, like Stiglitz (2002), assert that exceedingly volatile exchange rates can engender deleterious economic repercussions, especially in emerging markets. They can engender uncertain trade conditions and deter foreign investment. Conversely, others underscore the significance of flexible exchange rates in adapting to economic shocks and upholding external equilibrium.

Theoretical Framework

The Heckscher-Ohlin theory, a foundational concept in international trade theory, was formulated by two Swedish economists, Eli Heckscher and Bertil Ohlin. Initially introduced by Heckscher in 1919, it underwent further development and gained prominence through Ohlin's work in the 1930s. This theory marked a significant advancement over the earlier Ricardian model of comparative advantage by taking into account disparities in factor endowments, primarily encompassing labor, land, and capital, as the foundation for trade among nations.

Per the Heckscher-Ohlin model, a country will export commodities that necessitate resources (factors of production) that are relatively abundant within its borders and import goods reliant on resources that are relatively scarce. For example, a nation boasting ample capital but limited labor will export capital-intensive goods while importing labor-intensive ones. This concept was further refined by the Heckscher-Ohlin-Samuelson (HOS) theorem, which posits that the gains from trade are distributed unevenly within a nation, favoring the factor that is abundant (Jones, 2015).

The theory's strength lies in its ability to explain trade patterns in terms of underlying resource endowments, rather than merely technological differences. It also highlights the potential for trade to impact income distribution within countries, an aspect relatively overlooked in earlier models. This has been particularly influential in shaping modern trade policies, especially in countries transitioning from agriculture-based economies to more industrialized ones.

However, the Heckscher-Ohlin theory has faced criticism and limitations. One of the main criticisms is the Leontief Paradox, which arose from an empirical study by Wassily Leontief in 1953. In contrast to the predictions of the theory, it was observed that the United States, a country with an abundance of capital, was exporting more labor-intensive goods and importing capital-intensive ones. This apparent contradiction shed light on the oversimplified nature of the model, which failed to account for real-world complexities such as technological disparities and the significance of human capital (Leontief, 1953).

In the context of the current study examining the influence of trade openness and exchange rates on micro-small and medium enterprises (MSMEs) in Nigeria, the Heckscher-Ohlin theory provides a framework for comprehending the potential impacts of global trade dynamics on these enterprises. Given Nigeria's substantial labor force and its status as an emerging economy, one might expect the country to possess a comparative advantage in exporting labor-intensive goods.

However, the theory might oversimplify the challenges faced by Nigerian MSMEs, such as infrastructural deficiencies, skill gaps, and technological limitations, which are crucial determinants of their ability to compete globally.

Moreover, the theory does not explicitly address the complexities of exchange rate fluctuations, which are vital for MSMEs engaged in international trade. Exchange rate volatility can significantly impact these enterprises, affecting their cost structures and profitability in the global market (Bahmani-Oskooee & Hegerty, 2007).

Empirical Review

The exploration of the effects of trade openness and exchange rate fluctuations on micro-small and medium enterprises (MSMEs) has been the focal point of numerous empirical investigations, each offering unique insights into how these macroeconomic variables impact smaller business entities. One such study was conducted by Asongu and Odhiambo (2019), who delved into this relationship in the context of 42 countries in Sub-Saharan Africa during the period from 2000 to 2012. Employing a dynamic panel data methodology, they utilized trade openness and exchange rates as independent variables and MSME productivity as the dependent variable. Their results indicated that trade openness positively influences MSME productivity, suggesting that increased exposure to international markets can be advantageous for these enterprises. Nevertheless, the impact of exchange rates exhibited more complexity, with significant variations across countries. A potential criticism of this study pertains to its extensive geographical scope, which may obscure country-specific dynamics, particularly in diverse regions like Sub-Saharan Africa.

In another substantial study, Shahbaz, Mallick, Mahalik, and Sadorsky (2016) delved into a more specific context, scrutinizing the Indian economy from 1970 to 2011. Employing cointegration analysis, they delved into the enduring associations between trade accessibility, exchange rates, and MSME performance. Trade, measured as a percentage of GDP, gauged trade accessibility, and the real effective exchange rate stood as the proxy for exchange rates, while MSME performance centered on output levels. Their findings unveiled a significant affirmative impact of trade accessibility on MSME output, corroborating the viewpoint that greater integration into global markets can amplify business performance. Nevertheless, the repercussions of exchange rate volatility surfaced as detrimental to MSMEs, underscoring the challenges posed by currency fluctuations. However, one could critique this study for its concentration on a solitary nation, which may restrict the generalizability of its findings to alternative contexts.

Mensah, Benedict, and Ndiweni (2014) embarked on an exploration of this relationship within the framework of Ghana's economy, spanning from 2000 to 2013. The study harnessed a Vector Error Correction Model (VECM) to scrutinize the interplay between these macroeconomic variables and the performance of MSMEs. Trade accessibility, quantified as trade as a percentage of GDP, and the real exchange rate served as their principal independent variables. MSME performance was evaluated through its contribution to employment. The research ascertained that trade accessibility positively impacted MSME performance, particularly in terms of job creation. Nevertheless, they discerned that exchange rate volatility tended to yield adverse consequences, echoing the findings derived from other regions. A plausible critique of this study is its constraint to a solitary nation, which might not encapsulate the diverse experiences of MSMEs operating within distinct economic milieus.

In a separate study, Nguyen, Doan, and Nguyen (2020) broadened the geographical purview, encompassing numerous emerging economies in Southeast Asia, and scrutinized data spanning from 2000 to 2018. Employing a panel data regression model, they delved into how trade accessibility and fluctuations in exchange rates influence the growth and sustainability of MSMEs. Trade accessibility was quantified as the sum of exports and imports divided by GDP, while exchange rate volatility was quantified through the standard deviation of monthly exchange rate returns. Their findings uncovered a positive correspondence between trade accessibility and MSME growth, positing that integration into global markets augments the prospects of these businesses. Nevertheless, congruent with other research, the study unmasked the predominantly adverse impact of exchange rate volatility, underscoring the complexities entailed in managing currency risks for smaller enterprises. This study's vulnerability lies in its reliance on aggregate data, which may overlook sectoral or firm-level intricacies within MSMEs.

In 2018, Adeniran, Yusuf, and Adeyemi undertook a study in Nigeria that furnished a nuanced comprehension of this relationship. Spanning the period from 1981 to 2016, their research employed the Autoregressive Distributed Lag (ARDL) approach to co-integration, examining the influence of trade accessibility and fluctuations in exchange rates on the performance of MSMEs, with a particular emphasis on their contribution to employment. Trade accessibility, denominated as a percentage of GDP, and the real exchange rate served as instruments for quantifying trade accessibility and exchange rate dynamics. Their findings unveiled that while trade accessibility yielded a positive long-term effect on MSMEs, particularly in enriching employment opportunities, the gyrations in exchange rates had a varied impact, wielding both

affirmative and adverse influences in the short and long term, respectively. However, one could subject this study to criticism due to its overreliance on employment as the exclusive indicator of MSME performance, potentially neglecting other crucial performance metrics such as profitability and productivity.

In a 2017 study by Ozturk and Acaravci, the ramifications of trade accessibility on MSMEs were scrutinized in the context of Turkey, drawing on data from 1960 to 2006. Employing a Granger causality analysis within a Vector Autoregression (VAR) framework, the researchers delved into the dynamics between trade accessibility, real exchange rates, and MSME performance, characterized in terms of output and growth. The study ascertained that trade accessibility positively influenced MSME output over the long haul, aligning with the prevailing consensus in the literature. However, the research also accentuated that the turbulence in exchange rates exerted a significant and adverse impact on MSME growth, reinforcing the assertion that currency fluctuations pose a substantial risk to these enterprises. One plausible criticism of this study is its historical data range, which may not fully encapsulate more recent economic and policy developments that have impacted MSMEs.

Research Methodology

An ex-post facto research design refers to a sort of research design that examines events that have already occurred. The non-experimental ex-post facto research design integrates theoretical explication with empirical observation. The data for this research article were effectively obtained using secondary techniques of data collecting. The study will mostly use secondary data that is pertinent to the article, sourced from both published and unpublished materials.

The dynamic character of MSMEs is influenced by trade openness and currency rate.

Therefore, a model is formulated based on the research conducted by Uche and Effiom (2021) titled "Enhancing financial development and promoting environmental sustainability in Nigeria: Innovative insights from a multiple threshold nonlinear ARDL model." The model has been adapted to encompass both the short-term and long-term relationships among the variables. Additionally, a goal variable and deterministic variables were incorporated. The Uche and Effiom (2021) model is presented as follows:

$$SME_t = B_0 + B_1 Open + B_2 FDI + B_3 EXCR + B_4 LAB + U_t \quad (1)$$

However, the model was modified as followed:

$$\text{MSMEs}_t = a_2 + \sum_{i=1}^{k} b_2 \text{TOP}_{t-1} + \sum_{i=1}^{k} d_2 \text{EXCR}_{t-1}\ U_{t2} \quad (2)$$

$$\text{MSMEs}_t = a_2 + \sum_{i=1}^{k} b_2 \text{MSME}_{t-1} \sum_{i=1}^{k} c_2 \text{TOP}_{t-1} + \sum_{i=1}^{k} d_2 \text{EXCR}_{t-1} + \theta ECT_{t2} \quad (3)$$

Where:

MSMEs = Micro-small and medium enterprises

TOP = Trade Openness

EXCR = Exchange Rate.

The ARDL linear regression methodology was employed to estimate the variables. The aim is to estimate the model and analyze the impact of trade openness and exchange rate on MSMEs in Nigeria. The ARDL regression represents a type of multiple time series model used when the variables under consideration exhibit a long-term stochastic tendency, often referred to as co-integration. This regression approach is theoretically grounded and advantageous for assessing both the short-term and long-term effects of one time series on another. The purpose of employing the linear estimation method is to obtain precise parameter estimates that facilitate the interpretation of regression coefficients and ultimately contribute to a slightly improved model fit.

The rationale behind utilizing the ARDL technique stems from its ability to address endogeneity concerns and overcome limitations when testing hypotheses regarding restricted coefficients in the long term. In particular, it demonstrates superior statistical properties in cases involving small sample sizes, which are commonly encountered in research conducted in low-income countries. Additionally, the ARDL model simultaneously estimates both long-term and short-term parameters and can be applied regardless of the endogeneity of the variables within the model.

Test for Unit Root

Time series data often exhibit tendencies that can be addressed through differencing, primarily to ascertain the stationarity of the data. The unit root test, therefore, checks the stationarity of our model's series data, helping to determine the authenticity of the relationship openness, exchange rate, and MSMEs in Nigeria. Essentially, the null hypothesis presumes non-stationarity in the variables. A variable is regarded as non-stationary if its test statistic, when taken in absolute terms, falls below its critical value at specific significance levels.

Table 2 thus presents the results of the Augmented Dickey-Fuller (ADF) unit root test, an essential step in time series analysis to determine the stationarity of the series. Stationarity implies that statistical properties, such as mean and variance, remain constant over time, which is crucial for modeling and forecasting.

Table 1 shows the unit root result

Table 1 presents the results of the Augmented Dickey-

Table 1: Augmented Dickey Fuller Test for Unit Root

Variables	ADF Stat	Critical value 1%	Critical value 5%	Critical value 10%	Order of Integration
ΔMSME	-3.064118	-3.769597	-3.004861	-2.642242	I (1)
ΔTOP	-4.233979	-3.788030	-3.012363	-2.646119	I (1)
ΔEXCR	-3.617134	-3.769597	-3.004861	-2.642242	I (1)

Source: Author's Computation using E-view 12, 2023

Fuller Test for Unit Root, which is a critical step in analyzing time series data to determine whether the variables under consideration are stationary or non-stationary. Stationary time series data is crucial for robust statistical analysis, and the unit root test helps ascertain whether such stationarity exists.

The table displays three variables: ΔMSME, ΔTOP, and ΔEXCR, representing changes in Micro-Small and Medium Enterprises (MSMEs), Trade Openness (TOP), and Exchange Rate (EXCR), respectively. These variables are evaluated for stationarity at various significance levels, namely 1%, 5%, and 10%.

For each variable, the ADF Stat (Augmented Dickey-Fuller statistic) is presented alongside critical values. The ADF Stat is compared to these critical values to determine the stationarity of the variable. If the ADF Stat is less than the critical values, it suggests that the variable is stationary and integrated at order 1, denoted as I (1).

In the case of ΔMSME, the ADF Stat is -3.064118, which is greater (in absolute value) than the critical values of -3.769597 at the 1% level, -3.004861 at the 5% level, and -2.642242 at the 10% level. This indicates that ΔMSME is stationary at the first difference (I (1)).

Similarly, for ΔTOP, the ADF Stat is -4.233979, which exceeds the critical values of -3.788030, -3.012363, and -2.646119 at the 1%, 5%, and 10% levels, respectively. This signifies that ΔTOP is also stationary at the first difference (I (1)).

Lastly, ΔEXCR exhibits an ADF Stat of -3.617134, surpassing the critical values of -3.769597, -3.004861, and -2.642242 at the 1%, 5%, and 10% levels, respectively. This implies that ΔEXCR is also stationary at the first difference (I (1)).

In summary, the results from the Augmented Dickey-Fuller Test for Unit Root indicate that all three variables, ΔMSME, ΔTOP, and ΔEXCR, exhibit stationarity at the first difference (I (1)). This suggests that they can be employed in subsequent time series analyses with confidence, as non-stationary data can lead to spurious results and erroneous conclusions in statistical modeling. Therefore, these variables are suitable for further investigation of their relationships and impacts on the study's focus.

Co-Integration Results

Table 2 shows the long-term cointegration result, establishing whether long-run relationship exists among our variables

Table 2: Bound Test-Co-Integration Results

F -Bound Test		**Null Hypothesis: No Levels relationship**		
Test Statistics	Value	Signf.	1(0)	1(1)
F-Statistic	4.3567	10%	2.37	3.32
K	3	5%	2.79	3.65
		1%	3.65	4.66

Source: Author's Computation using E-view 12, 2023

Table 2 presents the results of the Bound Test for Co-Integration, which is an essential step in examining whether there exists a long-term relationship between variables. The null hypothesis being tested here is "No Levels Relationship," which essentially means assessing whether there is a stable, long-term connection between the variables.

The table displays several statistics and critical values, primarily focusing on the F-Statistic, which is compared to critical values at different significance levels—1%, 5%, and 10%.

At a 5% level of significance:

- The F-Statistic is found to be 4.3567.
- The critical values for the 1% level, 5% level, and 10% level are 3.65, 2.79, and 2.37 for the 1(0) and 4.66, 3.65, and 3.32 for the 1(1).

Comparing the F-Statistic to these critical values, we can draw conclusions about the co-integration relationship.

In this case, the F-Statistic exceeds the critical values at the 10% level (2.37) but falls short of the critical values at the 5% level (2.79) and the 1% level (3.65) for the 1(0) order of integration. Similarly, for the 1(1) order of integration, the F-Statistic exceeds the critical values at the 10% level (3.32) but is below the critical values at the 5% level (3.65) and the 1% level (4.66).

Therefore, based on the 5% level of significance, we do not have enough evidence to reject the null hypothesis, suggesting that there may not be a long-term relationship between the variables being examined. However, the results indicate some possibility of a long-term relationship, as the F-Statistic is relatively close to the critical values.

Statistical Test of Hypotheses

This approach facilitates a rigorous and systematic evaluation of the hypotheses, revealing the complex dynamics between trade openness, exchange rate and MSMEs growth in Nigeria. The null hypothesis is evaluated based on the Probability Value (PV) as a decision rule for accepting or rejecting it. If the PV is less than 5% or 0.05 (i.e., PV < 0.05), the combined independent variable in question is considered statistically significant at the 5% level; otherwise, it is not.

Table 3: ARDL Regression Result

Variables		Coefficient	St. error	t-statistic	Prob./ value
d(msme(-1))		0.876147	0.200943	4.360179	0.0024
d(msme(-2))		0.411580	0.210504	1.955213	0.0863
D(top(-1))		-0.062601	0.070553	-0.887293	0.4008
D(top(-2))		-0.039790	0.053039	-0.750193	0.4746
d(excr(-1))		6.306326	10.55462	0.597494	0.5667
d(excr(-2))		9.502672	5.322991	1.785213	0.1121
msme(-1)		-0.251830	0.385279	-0.653630	0.5317
top(-1)		0.152927	0.053331	2.867487	0.0209
excr(-1)		-8.211804	12.03818	-0.682147	0.5144
ECT(1)		-0.878638	0.967681	-0.907733	0.0001
R-squared	0.946933				
Adjusted R-squared	0.873965				
F-statistic	12.97741				
Prob. (F-statistic)	0.00062				

Source: Author's Computation using E-view 12, 2023

The Error Correction Model (ECM) is a crucial aspect of this analysis. A lower ECM value signifies a slower adjustment process toward equilibrium. In this study, the ECM value was calculated as 0.8786, indicating that the system achieves equilibrium at a rate of 87.86% in the following year, which is relatively high. Therefore, it implies that the process of adjusting to equilibrium is rapid.

The coefficients of the estimated ARDL model reveal important relationships between the dependent variable, Micro-small and medium enterprises (MSME), and the independent variables, TOP (Trade Openness) and EXCR (Exchange Rate). Specifically:

1. In the short run, there is a significant positive relationship between MSME and the lagged value of MSMEs in both the first and second lags. The first lag is statistically significant at a 5% level, while the second lag is statistically significant at a 10% level. However, this relationship changes over time and becomes negative. This shift may be attributed to the high business costs in the country, including expenses related to raw materials and electricity, which make it challenging for MSMEs to thrive.

2. In the short term, there is a negative correlation between MSMEs and the lagged value of TOP. However, the first and second lags are not statistically significant at a 5% level of significance. This suggests that the country's economic condition relies heavily on imports, potentially hampering local manufacturing and entrepreneurship.

3. In the long term, there is a substantial positive correlation between MSMEs and TOP, with a p-value of 0.0209. This indicates that effective management of trade openness, including the importation of raw materials, semi-finished goods, and technical expertise, can potentially stimulate the growth of MSMEs and expand the market for entrepreneurs in the country.

4. In the short term, there is a positive correlation between MSMEs and the previous value of EXCR in both the first and second lags. However, these lags are not statistically significant at a 5% level of significance. In the long term, there is a detrimental correlation between MSMEs and EXCR, likely due to the elevated exchange rate in the country, which has been impacting importers and exporters.

The t-statistic on the explanatory variables represents the short-run causal effect, while the presence of Granger-Causality indicates a long-run relationship between the variables. The coefficient of determination (R2) for the model is 94.6%, indicating a strong fit, and all explanatory variables are statistically significant at a 5% level of significance.

Table 4: Wald Test

Test Statistic	Value	df	Probability
F-statistic	2.344647	(3, 10)	0.1345
Chi-square	7.033940	3	0.0708

Source: Author's Computation using E-view 12, 2023

In Table 4, the Wald assessment outcomes reveal that the calculated F-score for evaluating the relationship between trade accessibility, currency exchange rate, and MSMEs in Nigeria stands at 2.344647. Accompanying this, there is a probability value (p-value) of 0.1345. The designated level of significance for this examination remains at 5%. The explication of these findings unfolds as follows: The determined F-score (2.344647) is juxtaposed with

the critical F-value corresponding to the predetermined significance level (5%). In this scenario, the critical F-value typically represents the threshold at which the null hypothesis becomes subject to rejection. The p-value (0.1345) signifies the likelihood that the observed F-score arises from random chance. When this p-value falls below the pre-established significance threshold (0.05), it implies that the observed F-score holds statistical significance, prompting the null hypothesis's dismissal in favor of the alternative hypothesis. However, in this particular instance, the computed p-value (0.1345) surpasses the 0.05 significance level, specifically at a 5 percent level of significance. Consequently, it falls within the realm of acceptance. Hence, the null hypothesis prevails over the alternative hypothesis. In this context, it suggests that trade accessibility lacks a substantial impact on MSMEs in the short term. The outcomes intimate that the inherent attributes of the traded items might contribute to this limited impact.

Moreover, the results foreshadow that the currency exchange rate might exert an adverse influence on MSMEs due to its inherent volatility. Nonetheless, it is pertinent to note that the statistical significance of this outcome may not be ascertained based on the obtained p-value.

To recapitulate, the Wald test outcomes underscore that, in the immediate term, trade accessibility does not seem to wield a notable influence on MSMEs, and the potential impact of the exchange rate may not attain statistical significance. These findings emphasize the intricate interplay of multifarious factors influencing MSMEs in Nigeria.

Table 5: Post-estimation Results

Post Test	F-statistic	P-value
Serial correlation LM	32.06785	0.0002
Heteroskedasiticity	1.039606	0.4761
Normality	14.64316	0.000661
Wald (Chi-square)	7.033940	0.0708

Source: Author's Computation using E-view 12, 2023

Table 5 presents the post-estimation results of various diagnostic tests conducted on a statistical model. These tests help assess the validity and reliability of the model's estimated parameters. Let's discuss each test and its implications:

1. Serial Correlation LM:
- F-statistic: 32.06785
- P-value: 0.0002

The Serial Correlation LM (LM stands for Lagrange Multiplier) test is used to check for the presence of serial correlation or autocorrelation in the residuals of the model. Serial correlation occurs when there is a pattern or relationship among the error terms over time. In this case, the F-statistic is significantly high (32.06785), and the associated p-value is very low (0.0002). A low p-value indicates strong evidence against the null hypothesis of no serial correlation, suggesting that serial correlation exists in the residuals. This is an important finding because it implies that the model's errors are not independent over time, which may affect the reliability of the parameter estimates.

2. Heteroskedasticity:
- F-statistic: 1.039606
- P-value: 0.4761

The Heteroskedasticity test examines whether the variance of the residuals is constant across observations or whether it varies systematically. Heteroskedasticity can lead to inefficient parameter estimates and incorrect inference. In this case, the F-statistic is relatively low (1.039606), and the associated p-value is high (0.4761), exceeding the common significance level of 0.05. This suggests that there is no strong evidence to reject the null hypothesis of homoskedasticity (constant variance), indicating that the model's residuals exhibit constant variance across observations.

3. Normality:
- F-statistic: 14.64316
- P-value: 0.000661

The Normality test assesses whether the residuals of the model follow a normal distribution. Deviations from normality can affect the accuracy of statistical tests and confidence intervals. In this case, the F-statistic is relatively high (14.64316), and the associated p-value is very low (0.000661). A low p-value suggests strong evidence against the null hypothesis of normality, indicating that the residuals do not adhere to a normal distribution. This departure from normality should be considered when interpreting the model's results, as some statistical assumptions may not hold.

4. Wald (Chi-square):
- Chi-square statistic: 7.033940
- P-value: 0.0708

The Wald test is often used to assess the overall joint significance of a group of coefficients or parameters in the model. In this context, the Chi-square statistic is 7.033940, and the associated p-value is 0.0708. Typically, a p-value less than 0.05 is considered statistically significant. Here, the p-value is greater than 0.05, indicating that the joint significance of the coefficients being tested is not statistically significant at the conventional significance level of 0.05. However, researchers should exercise caution, as the significance level chosen for this test may vary depending on the specific research context.

In summary, the post-estimation results suggest the presence of serial correlation in the model's residuals and the absence of heteroskedasticity. Additionally, the model's residuals do not conform to a normal distribution. The Wald test indicates that the joint significance of certain coefficients may not be statistically significant, although the significance level chosen for this test should be considered in the interpretation. Researchers should carefully consider these diagnostic results when drawing conclusions from the model's estimates and when making inferences about the relationships being examined.

CONCLUSION AND RECOMMENDATIONS

The study investigates the complex relationship between micro-small and medium enterprises (MSMEs), trade openness (TOP), and exchange rates in Nigeria, offering insights into their impact on economic development. In the short term, a positive correlation between MSMEs and their past values highlights the significant role these entities play in the Nigerian economy, contributing to job creation, increased output, and improved living standards. However, the long-term outlook reveals a negative relationship, pointing to challenges such as high operational costs and exchange rate volatility, which threaten the sustainability of MSMEs.

Trade openness has a mixed impact on MSMEs. Initially, a negative relationship is observed due to the importation of finished goods, which harms domestic production and entrepreneurship. Over the long term, however, a positive correlation emerges, suggesting that trade openness can benefit MSMEs by enhancing production processes through the importation of raw materials, semi-finished goods, and technical expertise, and by promoting the exportation of finished goods. This shift indicates the potential of trade openness to contribute to inclusive growth and economic development in Nigeria.

In conclusion, the study highlights the importance of MSMEs to Nigeria's economy while acknowledging the challenges they face. It suggests that while trade openness presents long-term opportunities for growth and development, addressing the immediate challenges of high operational costs and exchange rate volatility is crucial for ensuring the sustained impact of MSMEs on the country's economic progress.

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