Impact of Rural Banking Development on Micro, Small and Medium Enterprises in Nigeria: 1990-2023

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Abstract

he development of rural banking is important for fostering the growth of micro, small, and medium enterprises (MSMEs) in Nigeria's rural areas, as these regions still face significant challenges. This paper examines the impact of rural banking development on MSME growth from 1990 to 2023 by employing an ex-post facto research design and utilizing secondary annual time series data from the Central Bank of Nigeria (CBN) Statistical Bulletin (2024). The paper uses the autoregressive distributed lag (ARDL) model to analyze the long-run impacts. The findings reveal that deposits in rural bank branches have a significant impact on MSME growth, while financial deepening shows an insignificant positive impact. Loans from rural banks also have an insignificant impact on MSME growth, whereas the presence of rural bank branches has an insignificant negative impact. Based on these findings, the study recommends that the Nigeria Deposit Insurance Corporation (NDIC) ensure the safety of deposits in rural banking institutions to boost public confidence and encourage increased savings, which can be channeled into MSME financing. The Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the CBN's Financial Inclusion Secretariat should intensify financial literacy campaigns targeting rural entrepreneurs. Additionally, commercial banks and fintech companies should promote digital banking and mobile money services to enhance financial access for MSMEs in remote areas. Furthermore, the Central Bank of Nigeria (CBN) and the Bank of Industry (BOI) should expand credit guarantee schemes for MSMEs, reducing collateral requirements and encouraging banks to provide more loans to small businesses. The Development Bank of Nigeria (DBN) should increase funding interventions for rural businesses, ensuring that loan disbursement mechanisms are efficient and transparent. Lastly, the CBN and the National Association of Microfinance Banks (NAMB) should support rural banks in adopting digital banking solutions to reach a broader population without requiring physical expansion.

Keywords: Rural Banking, MSMEs, Development, ARDL Model

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Background to the Study

The importance of micro, small, and medium enterprises in the growth of global economic cannot be reticent. According to world bank (2023), micro, small, and medium enterprises constitute approximately 90 per cent of businesses and accounting for more than 50 percent of employment worldwide. Also, in upcoming economy 40 percent of national income (GDP) are contributed by SMEs. Dyvik (2024) said that in 2023, an estimate of around 358 million are global counts for SMEs as they are served as a linkage to poverty alleviation, job creation, innovation, thereby serving as the backbone of both developed and developing economies. According to PWC (2020), 96 percent of the total number businesses are accounted for by MSMEs in Nigeria, also 50% to the national GDP. 73% of MSMEs are sole proprietorships in terms of ownership structure, while 14% are private limited liability companies. The MSME sector is the growth engine of any economy contributing to its development, job creation and export amongst others. The latest SMEDAN/NBS MSME Survey indicates Nigeria's SMEs contribute nearly 50% of the country's GDP and account for over 80% of employment in the country. No doubt, the sector is pivotal to Nigeria's growth including reducing poverty levels. However, the sector continues to be weighed down with challenges such as access to finance, infrastructure deficit like power supply, transportation, managerial and technical skills gap, lack of managerial expertise, technical skills shortage, bureaucracy and corruption, multiple taxation, insecurity, technology adoption which ultimately impact the nation's growth (Akpata, 2020; Oyedele, 2020).

The relationship between rural banking development and the performance of MSMEs is a subject of considerable interest as Deposits in rural bank branches represent the savings mobilized from rural areas. A higher deposit base can enhance the lending capacity of these banks, potentially increasing the availability of credit to MSMEs. Financial deepening refers to the increased provision of financial services with a wider choice of instruments. It is expected to facilitate MSMEs' access to financial resources, thereby promoting their growth (Odi et al. 2024). Loans provided by rural banks are crucial for MSMEs, especially in areas where access to finance is limited. Increased lending by rural banks can support MSMEs' operations and expansion. The presence of rural bank branches enhances financial inclusion by providing MSMEs with greater access to banking services, which can lead to improved financial management and growth opportunities (Ademosu, 2022). Various government policies aimed at bolstering MSMEs, such as the establishment Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) in 2003, Microfinance Banks (MFBs) in Early 2000s, formalized under the Microfinance Policy Framework in 2005, national Enterprise Development Programme (NEDEP) in 2014, Anchor Borrowers' Programme (ABP) in 2015, Agri-Business/Small and Medium Enterprises Investment Scheme (AGSMEIS) (2017) has not reached it desired goal and the extent to which rural banking development has influenced MSMEs' growth in Nigeria over the period from 1990 to 2023 remains underexplored. Additionally, there is a noticeable gap in literature concerning the longitudinal impact of rural banking on MSMEs, particularly studies encompassing data up to date

This research is significant as it seeks to fill the existing gaps by providing a comprehensive analysis of how rural banking development has affected MSMEs in Nigeria over the past three decades. The primary objective is to assess the impact of rural banking development on the growth and sustainability of MSMEs in Nigeria from 1990 to 2023. The study hypothesizes the following;

- H_{01} : There exists no significant impact between deposit of rural bank branches of commercial bank on micro, small and medium enterprises in Nigeria.
- H_{02} : Financial deepening has no significant impact on micro, small and medium enterprise in Nigeria.
- $\mathbf{H}_{_{03:}}$ Loan of rural bank has no significant impact on micro, small and medium enterprises in Nigeria.
- H_{04} : There is no significant impact between rural bank branches (RBB) on micro, small and medium enterprises in Nigeria.

Literature Review

Conceptual Review

Rural Banking Development

Rural banking development refers to the strategic expansion and enhancement of banking services in rural areas to promote economic growth and financial inclusion. This involves establishing financial institutions that cater specifically to the needs of rural communities, providing access to credit, savings, and other financial services (Ephraim & Murugesan, 2016). The primary aim is to support small businesses, agriculture, and individual financial needs, thereby fostering overall rural development (Cirappa & Nagaveni, 2020). By addressing the unique challenges faced by rural populations, such as limited access to traditional banking infrastructure, rural banking development plays a crucial role in bridging the urban-rural financial divide.

Deposit of Rural Bank Branches

Deposits of rural bank branches represent the total amount of funds that customers in rural areas place into their accounts within these banks. These deposits are essential for the liquidity and operational capacity of rural banks, enabling them to extend credit and other financial services to the community. A robust deposit base reflects the trust and confidence of rural customers in the banking system and serves as a foundation for sustainable financial operations in these regions.

Financial Deepening

Financial deepening refers to the process of increasing the availability and accessibility of financial services within an economy. It involves the expansion and diversification of financial institutions and instruments, leading to a more inclusive financial system. Financial deepening is characterized by a higher ratio of money supply to GDP, indicating a greater provision of financial services relative to the size of the economy (Ephraim & Murugesan, 2016). This process is associated with economic growth, as it facilitates investment, savings,

and efficient allocation of resources. By broadening access to finance, financial deepening can reduce poverty and support the development of various economic sectors.

Loan of Rural Banks

Loans provided by rural banks are financial products designed to meet the credit needs of individuals and businesses in rural areas. These loans support various activities, including agriculture, small enterprises, and personal development projects. By offering tailored loan products, rural banks play a pivotal role in stimulating economic activities, creating employment opportunities, and enhancing the standard of living in rural communities. Access to credit through rural banks empowers local entrepreneurs and farmers to invest in productivity-enhancing technologies and practices, thereby contributing to rural development (Cirappa & Nagaveni, 2020).

Rural Bank Branches

Rural bank branches are physical banking outlets located in non-urban areas, established to provide financial services to rural populations. These branches serve as critical access points for banking services, including deposits, withdrawals, loans, and financial advice (Cirappa & Nagaveni, 2020). The presence of rural bank branches enhances financial inclusion by bringing essential banking services closer to underserved communities, reducing the need for rural residents to travel long distances to urban centers for banking needs (Ephraim & Murugesan, 2016). This proximity fosters economic empowerment and supports local development initiatives.

Micro, Small, and Medium Enterprises (MSMEs)

According to PWC (2020), Micro, Small, and Medium Enterprises in terms of number of employees, total assets and annual turnover vary from country to country, and from one organisation to another. Micro, small, and medium enterprises (MSMEs) are businesses that operate on a relatively small scale in terms of employees, capital investment, and revenue. These enterprises are vital to economic development, contributing significantly to employment, innovation, and GDP growth (Ephraim & Murugesan, 2016). MSMEs encompass a wide range of industries, including manufacturing, services, and agriculture. Despite their size, MSMEs collectively have a substantial impact on economic diversification and resilience (Cirappa & Nagaveni, 2020). However, they often face challenges such as limited access to finance, markets, and technology, which can impede their growth and sustainability. Supportive policies and financial services, including those provided by rural banks, are essential to address these challenges and unlock the full potential of MSMEs in contributing to economic prosperity.

Empirical Review

In a study carried out by Imoh and Godspower (2024), where they examined the impact of micro, small and medium enterprises on sustainable economic development in Nigeria from 2000 to 2020 and using co-integration and ECM frameworks found that output of micro, small and medium enterprises has a significant and positive impact on the Per Capita Income (PCY), and they recommended, amongst others, the clustering of micro, small and medium

enterprises with similar products in Nigeria. While Victor and Patrick (2023) examined the Influence of Microfinance Institutions on Nigerian Small, Micro, and Medium Enterprises by collecting survey data from 384 SMMEs in two Nigerian states: Abuja and Nasarawa. Data was collected from 350 respondents found that MFIs significantly influenced SMMEs regarding technology transfer and financial services and aided SMME (small, medium, and micro enterprises) growth. MFIs in Nigeria are ineffective in offering the services of aspects of facilitator of SMEs growth. In another study by Adedipe (2023), where he investigated whether access to financial institutions' financing and the growth of small and medium enterprises: a study in Ibadan north east local government area, in Oyo State, Nigeria using research sample comprised 152 SMEs, through the help of Analysis of Variance (ANOVA) found that unimpeded access to external finance plays a significant role in facilitating the operations of SMEs and promoting their growth. Specifically, bank credit facilities were found to have a substantial impact on the growth of SMEs in the Ibadan North East Local Government Area. Consequently, also by analyzing data spanning the years 1981 to 2021, Chude and Chude (2022) aimed to ascertain whether or not financial inclusion and GDP growth in Nigeria were related by using Ordinary Least Squares (OLS) were selected as the preferred method of data analysis found that nquiry toward bank branches, total bank loans, commercial bank deposits, and ATM services as the primary determinants impacting the growth of the nation's GDP.

Sunday (2022) studied the effects of the Bank of Industry MSME financing on poverty reduction in North-Central Nigeria by using descriptive survey technique discovered that the Bank of Industry MSMEs financing has a significant effect on poverty reduction in the region. While, Kabiru and Idowu (2022) examined the impact of bank lending on business growth in Nigeria. The research design adopted was the survey method. The population of this study are business men and women in Ibadan North Local Government Area of Oyo State. The result showed that there was a positive correlation between bank lending and business growth in Nigeria. The study recommended that government at all levels in Nigeria should be encouraged to float microfinance institutions in order to enable SMEs access enough funds for their businesses. Ndu and Williams (2022) empirically carried out impact of rural financial inclusion on economic growth in Nigeria 1990-2016 by using ordinary least squares (OLS) and correlation, it was discovered that rural banks branches exacted a negatively significant impact on economic growth. Whereas rural deposit has a negative and insignificant impact on the economic growth in Nigeria. Other variables like urban bank branches, micro-finance banks, number of commercial banks cleared cheque and rural loan all have positive significant impact on the economy.

Ogidi and Pam (2021) examined financial inclusion and its effect on the growth of SMEs in Plateau State, Nigeria and Primary data was collected via questionnaires using simple random sampling technique. and found that results showed that SMEs in Nigeria have access to financial products that are made available by banks and other financial institutions. Also, financial inclusion significantly affects the growth of SMEs in Nigeria. Furthermore, SMEs customers highly accept financial inclusion and this in turn positively affects the growth of SMEs in Nigeria. Jacobs and Ezeokafor (2021) also examined the effect of microfinance

banking in enhancing entrepreneurship among women in Nigeria with specific interest in Anambra State and by using primary data found that Microfinance credit enhances entrepreneurship among women in Anambra state. Microfinance deposit enhances entrepreneurship among women in Anambra state. Interest rate enhances entrepreneurship among women in Anambra state. It was recommended that Microfinance bank in Anambra State should be strengthened to embrace entrepreneurship devoid of imitation and vocational inclutions.

Yusufu et al. (2020) examined the relationship between micro finance bank and the growth of small medium enterprises in Nigeria. The descriptive survey design was adopted for the study. The population of the study consists of 100 selected SME's operators within Wuse business area Abuja, Simple random sampling technique was use to arrive at a sample size of 100. They found that micro finance banks domestic fund transfer services contribute to the growth of small and medium enterprises, the study recommended that customers and beneficiaries of micro finance loans should avoid default in the repayment of loans. Furthermore, Microfinance banks should avoid charging high interest and much collaterals when granting loans. In another study, Israel (2020) examined the nexus between microfinance banks and the growth of micro, small and medium enterprises in Nigeria. The targeted population of this study was 250 with 223 validly responded in lagos. The study showed that a significant positive relationship exists between microfinance banks, proxied by Small Scale Financial Services (SSFS); Financial Sustainability (FST); Absence of Assets-based Collateral (AAC); and Advisory Services (ADS) and the growth of micro, small and medium enterprises in Nigeria. Research done by Awoyemi and Makanju (2020) where they investigated the growth prospect of financing Micro, Small and Medium Enterprises (MSMEs) in Nigeria and the challenges that constitute a hindrance to the growth of MSMEs in Nigeria. This study employed descriptive analysis, simple percentages and deductive method and found that the growth and survival of MSMEs are still hampered by inaccessibility to funds owing to different reasons and challenges. The chief among the challenges is that financial institutions look at many MSMEs as high-risk debtors without credit worthiness. While Adesola et al. (2020) examined the effect of Microfinance Banks on the development of Small and Medium Scale Enterprises in Nigeria by using the Vector Error Correction Mechanism. Revealed that Microfinance banks loans and advances and investments do not have any significant effect on SMEs' productivity in Nigeria both in the long run and short run period.

Awoyemi and Aderonke (2020) studied the growth prospect of financing MSMEs in Nigeria and the challenges that constitute a hindrance to growth in Nigeria. They adopted a descriptive analysis, simple percentages and deductive method. Findings showed that inaccessibility to funds owing to different reasons and challenges were the major factors that hamper the growth and survival of MSMEs in Nigeria, it was also revealed that financial institutions look at MSMEs as high-risk debtors without creditworthiness. Lukman *et al.* (2020) examined the impact of financial inclusion on financial performance of listed Deposit Money Banks (DMBs) in Nigeria covering 2005-2018. With Panel multiple regression analysis was utilized to analyse the data and Hausman specification test. The study found that rural financing and number of branches of deposit money banks have statistically significant effects on profitability of DMBs in Nigeria. Charles *et al.* (2020) examined the extent to which SMEs financing influenced economic growth in Nigeria through the use of time-series data from 1999 to 2018 using on Ordinary Least Squares. Found that lending rate reduces ASGDP by 7% and gross capital formation reduces ASGDP by 5%. On the other hand, surprisingly, credit to SMEs did not retain the massive effect on growth as seen in previous studies.

Theoretical Framework

This paper was hinged on Financial Intermediation Theory, propounded by John Gurley and Edward Shaw in 1960, explains the role of financial institutions in bridging the gap between surplus and deficit economic agents. The theory posits that financial intermediaries, such as banks and other lending institutions, facilitate economic growth by efficiently channeling funds from savers to borrowers. By reducing transaction costs, mitigating risks, and improving capital allocation, financial intermediation enhances investment opportunities and economic development (Gurley & Shaw, 1960).

This theory is directly relevant to the study on the impact of rural banking development on micro, small, and medium enterprises (MSMEs) in Nigeria, as rural banks act as financial intermediaries that mobilize savings from rural areas and extend credit to MSMEs (Leland *et al.* 1977; Diamond & Dybvig, 1983). The availability of financial services in rural areas influences MSME growth by providing access to capital for business expansion, job creation, and productivity improvement. However, challenges such as inadequate financial deepening, high borrowing costs, and limited rural banking infrastructure may hinder this intermediation process, affecting MSME performance (Allen & Santomero, 1998). By applying this theory, the study evaluates how rural banking development enhances or constrains financial intermediation and its subsequent impact on MSME sustainability in Nigeria.

Methodology

The research design employed in this research is ex-post facto, utilizing secondary annual time series data spanning from 1990 to 2023. The data on Medium, Small and Medium Enterprise (MSME) proxied by SMEs, deposit of rural bank branches (DRB), financial deepening (FD), loan of rural bank (LRB), rural bank branches (RBB) were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, December 2024.

Model Specification

This investigation employed the Autoregressive Distributed Lag (ARDL) technique, grounded in the theoretical framework outlined in the research. The model was adapted from the work of adapt Akpunonu (2021) model on Financial Inclusion Strategy and Access to Credit by Micro Small and Medium Scale Enterprise (MSMEs) in Nigeria, the model's implicit form is:

LA=f(MKTCP, PA, IA, MFA, EB) (1))

The function can be written as:

 $LA = \alpha + \beta_1 MKTCP + \beta_2 PA + \beta_3 IA + \beta_4 MFA + \beta_5 EB + \mu_t$ (2)

Where LA is Loan and Advances to SMEs as % of total loans, MKTCP is Market Capitalization per head, PA is Pension Account per head, IA is Insurance Account per head, MFA is Micro Finance Account per head, EBDUM is Dummy of E-Banking Transactions where 0 is period of absence of E-banking and 1 for periods of E-banking in Nigeria, α_0 is the intercept (constant) of the regression, $\beta_1 - \beta_5$ are the Parameters of the estimated variables and μ_i is the error terms

Equation (2) is modified to align with the objectives of this research and to establish the functional relationship between rural banking development variables and micro, small and medium enterprises in Nigeria. Consequently, the functional form of the model for this study, which includes rural banking development variables and micro, small and medium enterprises proxied by small and medium enterprise indicator, is expressed in the following implicit model:

$$MSME = f (DRB, FD, LRB, RBB)$$
(3)

Where: Medium, small and medium enterprise (MSME), deposit of rural bank branches (DRB), financial deepening (FD), loan of rural bank (LRB), rural bank branches (RBB)

This research further specifies equation (3) in a stochastic (linear regression) form to gives:

$$MSME_{t} = \alpha_{0} + \alpha_{1}DRB_{t} + \alpha_{2}FD_{t} + \alpha_{3}LRB_{t} + \alpha_{4}RBB_{t} + \mu_{t}$$
⁽⁴⁾

Where;

The α_0 is Intercept, $\alpha_1, \alpha_2, \alpha_3, \alpha_4$, and α_5 are Slope and μ_i is the Error Terms. The of Autoregressive Distributed Lagged (ARDL) that was used in this paper which is specified as follows:

$$MSME = \alpha_0 + \sum_{g=1}^{i} \alpha_{ij} \Delta MSME_{t-i} + \sum_{k=1}^{j} \alpha_{2j} \Delta DRB_{t-i} + \sum_{i=1}^{k} \alpha_{3i} \Delta FD_{t-i} + \sum_{j=1}^{j} \alpha_{4j} \Delta LRB_{t-i} + \sum_{k=1}^{m} \alpha_{3j} \Delta RBB_{t-i} + \alpha_{3j} \Delta MSME_{t-i} + \alpha_{3j} \Delta DRB_{t-i} + \alpha_{3j} \Delta LRB_{t-i} + \alpha_{3j} \Delta RBB_{t-i} + \mu_t$$
(5)

The short-run and long-run relationships as presented in Equation (5) was employed to assess both, as well as the impact of rural banking development variables on micro, small and medium enterprises in Nigeria. The Error Correction Model (ECM) utilized in this investigation is formulated as follows:

$$\Delta M S M E = \alpha_{0} + \sum_{g=1}^{i} \alpha_{1i} \Delta M S M E_{t-i} + \sum_{k=1}^{j} \alpha_{2i} \Delta D R B_{t-i} + \sum_{i=1}^{k} \alpha_{3i} \Delta F D_{t-i} + \sum_{j=1}^{k} \alpha_{3i} \Delta F D_{t-i} + \sum_{j=1}^{k} \alpha_{3i} \Delta F D_{t-i} + \sum_{j=1}^{k} \alpha_{3j} \Delta R B B_{t-i} + E C M_{t-i} + \mu_{t}$$
(6)

Equation (6) was employed to assess both the short-run and long-run relationships, as well as the impact of rural banking development variables on micro, small and medium enterprises rate in Nigeria.

Variable Description, Measurements and Apriori Expectation Table 1: Description of the Variables Used for the Model

Variable	Description/Measure	Туре	Source	Apriori Expectation
Micro, Small and Medium Enterprises (MSME)	Contribution of MSMEs to GDP, employment rate of MSMEs	Dependent Variable	CBN Statistical Bulletin (2024)	
Deposit of Rural Bank Branches (DRB)	Total deposit volume in rural bank branches (₦ billion)	Independent Variable	CBN Statistical Bulletin (2024)	Positive
Financial Deepening (FD)	Ratio of broad money supply (M2) to GDP	Independent Variable	CBN Statistical Bulletin (2024)	Positive
Loan of Rural Bank (LRB)	Total credit issued by rural banks to MSMEs (₦ billion)	Independent Variable	CBN Statistical Bulletin (2024)	Positive
Rural Bank Branches (RBB)	Number of rural bank branches in operation	Independent Variable	CBN Statistical Bulletin (2024)	Positive

Source: Author Compilation, 2024

The presupposition for this paper is that the coefficients $(\alpha_{2i} - \alpha_4)$ of the independent variables which are deposit of rural bank branches (DRB), financial deepening (FD), loan of rural bank (LRB), rural bank branches (RBB) are expected to have positive impact on medium, small and medium enterprise (MSME),

Method of Analysis

This paper utilized the Autoregressive Distributed Lag (ARDL) technique, introduced by Pesaran and Pesaran in the late 1990s. The ARDL technique is particularly useful for analyzing the dynamic relationships between variables, as it allows for the examination of both short-run and long-run effects within a single framework.

Presentation and Interpretation of Results

Descriptive Analysis

 Table 2: Descriptive Analysis

	1 0				
	MSME	DRB	FD	LRB	RBB
Mean	7940.821	90.08429	16.97029	103.5835	3140.882
Median	3714.995	16.37000	15.10000	18.27000	3716.500
Maximum	34803.31	521.2100	24.90000	988.5900	5809.000
Minimum	75.46000	0.020000	8.460000	1.600000	675.0000
Std. Dev.	9010.338	152.6789	5.649222	219.1043	2300.766
Skewness	1.097034	1.676912	0.006928	2.963168	-0.041915
Kurtosis	3.616415	4.274390	1.325100	11.00804	1.085640
Jarque-Bera	7.358024	18.23562	3.974435	140.6043	5.201718
Probability	0.025248	0.000110	0.137076	0.000000	0.074210
Sum	269987.9	3062.866	576.9900	3521.840	106790.0
Sum Sq. Dev.	2.68000	769258.1	1053.152	1584220.	1.75000
Observations	34	34	34	34	34

Source: Researcher's Computation Using EViews-12 (2024)

Table 2 presents the descriptive statistics for the variables used in the study as 7,940.82 represent the mean of Micro, Small, and Medium Enterprises (MSME). However, 3,714.99 represent the median value. This is followed by 34,803.31 as maximum value and 75.46 as minimum, While the Deposit of Rural Bank Branches (DRB) variable exhibits a mean of 90.08, but the median value of 16.37 suggests a highly skewed distribution where a few rural bank branches hold disproportionately large deposits. While maximum value of 521.21 and a minimum of just 0.02, indicating vast disparities in deposit levels.

Financial Deepening (FD) has mean value of 16.97, with 15.10 median value. The minimum value of 8.46 and a maximum of 24.90 suggest moderate variations across the years. also, the Loan of Rural Banks (LRB) variable demonstrates significant disparities, with a mean of 103.58 and a median of just 18.27, suggesting a highly uneven loan distribution. The maximum value of 988.59 and minimum of 1.6 indicate that while some banks provide substantial loans, others offer significantly lower amounts. Also, the Rural Bank Branches (RBB) variable has a mean of 3,140.88, with a median of 3,716.50, suggesting a relatively balanced distribution of bank branches. The minimum value of 675 and maximum of 5,809 indicate notable differences in the availability of rural bank branches across locations. while the positive skewness of 1.097 for Micro, Small, and Medium Enterprises and kurtosis of 3.616 indicate the presence of extreme values (Leptokurtic). While the high standard deviation of 152.67 for Deposit of Rural Bank Branches reflects this variation, while a skewness of 1.676 and kurtosis of 4.274 for confirm the presence of extreme values (Leptokurtic). This suggests that while some rural banks have substantial deposits, most operate on a much smaller scale, potentially limiting financial accessibility for MSMEs in lessdeveloped areas. Additionally, the kurtosis of 1.325 for Financial Deepening suggests a platykurtic distribution, meaning there are fewer extreme values. This stability in financial deepening indicates a relatively steady level of financial sector development, which could support economic growth if further expanded. The high standard deviation of 219.10 for Loan of Rural Banks further confirms this variability, while the strong positive skewness of 2.963 and a kurtosis of 11.008 indicate that a few banks are responsible for very large loan disbursements. This extreme distribution suggests that rural banks do not uniformly provide credit, potentially restricting access to financing for smaller businesses. Addressing this disparity could enhance financial inclusion and improve MSME performance. The standard deviation of 2,300.77 for Rural Bank Branches reflects this dispersion, while the skewness of -0.0419 and kurtosis of 1.085 indicate platykurtic an approximately normal distribution with fewer extreme values. This suggests that while rural bank branches are somewhat evenly distributed, some regions still have significantly fewer branches, potentially affecting financial access in those areas.

Correlation					
Probability	MSME	DRB	FD	LRB	RBB
MSME	1.000000				
DRB	0.833009	1.000000			
	0.0000				
FD	0.862591	0.582398	1.000000		
	0.0000	0.0003			
LRB	0.352706	0.111265	0.484471	1.000000	
	0.0408	0.5310	0.0037		
RBB	0.810537	0.463244	0.929783	0.450580	1.000000
	0.0000	0.0058	0.0000	0.0075	

Correlation Matrix Results

 Table 3: Correlation Matrix Results

Source: Author's Computation, using E-Views 12, (2024)

Table 3 shows the correlation matrix of the variables used in this paper and the correlation analysis provides insights into the relationships between rural banking variables and MSME growth in Nigeria. The results with value of 0.833 shows a strong positive correlation between deposits of Rural Bank Branches (DRB) and MSME growth, with a significance level of 0.000. This suggests that an increase in deposits at rural bank branches is strongly associated with an increase in MSME growth. Higher deposits likely enhance the lending capacity of banks, facilitating better financial support for MSMEs. Similarly, Financial Deepening (FD) has a very strong positive correlation (0.862) with MSME growth, with a probability value of 0.000. This indicates that improvements in financial deepening, which reflect better financial sector development and increased financial services, significantly contribute to MSME growth. This finding suggests that expanding access to financial services can drive MSME performance. Loans from Rural Banks (LRB) show a moderate positive correlation (0.353) with MSME growth, but the significance level (p = 0.0408) suggests a weaker statistical relationship compared to DRB and FD. This implies that while loans to MSMEs are beneficial, their impact is less pronounced than financial deepening and deposit mobilization. This could be due to factors like high interest rates or limited accessibility of loans for smaller enterprises. Rural Bank Branches (RBB) exhibit a strong positive correlation (0.811) with MSME growth, with a probability of 0.000. This suggests that increasing the number of rural bank branches enhances financial inclusion, providing more opportunities for MSMEs to access banking services, credit, and financial advisory support.

Stationary Tests (Unit Root Tests)

This section shows the unit root of the variables using the Augmented Dickey-Fuller (ADF) Test to check the stationary at a 5 per cent level of significance.

Variable	Augmented Dickey-Fuller (ADF) Test			
	ADF	<i>a</i> 5%	Status	
MSME	-4.692664	-2.960411	1(1)	
DRB	-3.034776	-2.967767	1(0)	
FD	-5.226463	-2.957110	1(0)	
LRB	-4.568610	-3.557759	1(0)	
RBB	-2.824306	-1.951687	1(1)	

Table 4: Unit Root Test Result

Source: Author's Computation Using EViews-12 (2024)

Table 4 displays the results of the Augmented Dickey-Fuller (ADF) unit root test conducted on the variables used in this study. MSME growth has an ADF value of -4.692664, which is more negative than the 5% critical value (-2.960411). This means that the MSME variable is stationary at first difference I(1). In contrast, Deposits in Rural Bank Branches (DRB) has an ADF value of -3.034776, which is lower than the 5% critical value (-2.967767), meaning DRB is stationary at level I(0). Similarly, Financial Deepening (FD) has an ADF statistic of -5.226463, which is lower than -2.957110, indicating stationarity at level I(0). Also, Loans from Rural Banks (LRB) is also stationary at level I(0) with an ADF value of -4.568610, which is lower than -3.557759. While, Rural Bank Branches (RBB) has an ADF value of -2.824306, which is lower than -1.951687, making it stationary at first difference I(1). The results indicate a mixed order of integration, with MSME and RBB being stationary at first difference (I(1)), while DRB, FD, and LRB are stationary at level (I(0)). This suggests that MSME growth and the number of rural bank branches exhibit some degree of trend over time and require differencing to become stationary, while the other rural banking variables are already stable in their levels. For econometric modeling, the ARDL (Autoregressive Distributed Lag) bounds test approach is suitable, given the mixed integration order. The findings suggest that rural banking development significantly influences MSME growth, but long-term relationships must be tested through cointegration analysis to ensure valid inference in the study.

Co-integration of ARDL-Bounds Test

This section shows the ARDL co-integration bounds test of the variables used in this paper.

Null Hypothesis: No long-run relationships exist				
Test Statistic	Value	K		
F-statistic	14.71090	4		
Critical Value Bounds				
Significance	I0 Bound	I1 Bound		
10%	2.2	3.09		
5%	2.56	3.49		
2.5%	2.88	3.87		
1%	3.29	4.37		

Table 5: ARDL-Bound Testin	g
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Source: Researcher's Computation Using EViews-9 (2024)

Table 5 presents the ARDL bounds test for co-integration conducted across all four models in line with the research objectives. The ARDL Bounds Test was conducted shows an F-statistic value of 14.71090, which is significantly higher than the upper bound (I1 Bound) at all significance levels (1%, 2.5%, 5%, and 10%). The critical value for the upper bound at the 5% level is 3.49, while at the 1% level, it is 4.37. Since the F-statistic (14.71090) is greater than the upper bound values, the null hypothesis of no long-run relationship is rejected. This confirms that there is a long-run cointegration relationship between rural banking development indicators (such as deposits, loans, and bank branches) and MSME growth in Nigeria. These findings imply that rural banking development plays a significant and sustained role in enhancing MSME performance, suggesting that policies aimed at expanding rural financial access, increasing credit availability, and strengthening rural banking infrastructure could have lasting positive effects on MSMEs. Given the presence of a long-run relationship, an ARDL Error Correction Model (ECM) should be employed to assess both the short-run and long-run effects of rural banking development on MSME growth.

ARDL Regression Result

The Autoregressive Distributed Lag (ARDL)-ECM and long-run estimates presented here provide significant insights into how rural banking development on micro, small and medium enterprises in Nigeria over short and long term.

Error Correction Estimates				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DMSME(-1))	0.444328	0.079563	5.584597	0.0005
D(DRB)	-15.91440	1.646687	-9.664498	0.0000
D(DRB(-1))	-16.78416	3.901008	-4.302518	0.0026
D(DRB(-2))	-31.82885	3.080161	-10.33350	0.0000
D(DRB(-3))	-22.28935	2.970356	-7.503932	0.0001
D(FD)	-19.73435	34.64787	-0.569569	0.5846
D(FD(-1))	0.649499	34.74315	0.018694	0.9855
D(FD(-2))	-78.38130	32.39926	-2.419231	0.0419
D(LRB)	1.708060	0.278421	6.134809	0.0003
D(LRB(-1))	-4.781629	0.507060	-9.430105	0.0000
D(LRB(-2))	-2.083475	0.490461	-4.247990	0.0028
D(LRB(-3))	-1.189885	0.334139	-3.561051	0.0074
D(RBB)	-0.369114	0.145066	-2.544465	0.0345
D(RBB(-1))	1.236406	0.200874	6.155136	0.0003
D(RBB(-2))	0.347199	0.238666	1.454750	0.1838
D(RBB(-3))	0.846273	0.222092	3.810457	0.0052
CointEq(-1)*	-1.477544	0.123373	-11.97628	0.0000
R-squared	0.985258			
Adjusted R-squared	0.967115			
F-statistic	42.73724			
Prob(F-statistic)	0.000005			
Durbin-Watson stat	2.346321			
Long-Run Estimates				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DRB	14.09076	1.337996	10.53124	0.0000
FD	22.17165	54.19325	0.409122	0.6932
LRB	4.897756	1.599412	3.062222	0.0155
RBB	-0.064553	0.122483	-0.527039	0.6125
С	-283.8726	568.2669	-0.499541	0.6308

Table 6: Method- ARDL-ECM and Long Run Estimates

 Dependent Variable: RGDP

Source: Researcher's Computation Using EViews-12 (2024)

Table 6 presents the ARDL long-run results, which reveal several important relationships between the variables under consideration. The Error Correction Model (ECM) coefficient, - 1.477544, is highly significant (p-value = 0.0000) and negative, confirming the presence of a long-run equilibrium relationship between rural banking development and MSME growth in Nigeria. The magnitude of the ECM coefficient suggests that approximately 147.75% of any deviation from the long-run equilibrium is corrected in the next period, indicating a strong speed of adjustment towards equilibrium. This reinforces the results of the ARDL bounds test, which already established a long-run relationship. While in the long-run estimates, the coefficient for Deposit in Rural Banks (DRB) is 14.09, which is positive and highly significant (p-value = 0.0000), indicating that an increase in rural bank deposits significantly enhances MSME growth. Loan to Rural Businesses (LRB) also shows a positive and significant impact (coefficient = 4.897756, p-value = 0.0155), suggesting that increased access to loans in rural

areas contributes to MSME development. However, Financial Development (FD) and Rural Bank Branches (RBB) have statistically insignificant effects (p-values = 0.6932 and 0.6125, respectively), indicating that these variables do not have a direct long-run influence on MSME growth within the study period.

The overall model fit is strong, as indicated by the R-squared value of 0.985258, meaning that approximately 98.53% of the variations in MSME growth are explained by rural banking development indicators. The adjusted R-squared (0.967115) further confirms that the model is well-specified. Additionally, the F-statistic (42.73724, p-value = 0.000005) suggests that the independent variables jointly have a statistically significant impact on MSME growth. The Durbin-Watson statistic (2.346321) indicates the absence of severe autocorrelation issues, strengthening the reliability of the model. These findings confirm that rural banking development, particularly increased deposits and access to loans, plays a crucial role in MSME growth in Nigeria. Policymakers should focus on expanding financial access in rural areas, improving loan facilities, and encouraging banking penetration to enhance MSME performance and drive economic development.

Furthermore, the null hypotheses which state H_{01} : There exists no significant impact between deposits of rural bank branches (DRB) of commercial banks and micro, small, and medium enterprises (MSMEs) in Nigeria is rejected based on that the p-value for DRB is 0.0000, which is less than 0.05, indicating that deposits in rural banks significantly impact MSME growth. While H_{02} : Financial deepening (FD) has no significant impact on micro, small, and medium enterprises in Nigeria is accepted base on the p-value for FD is 0.6932, which is greater than 0.05, indicate that financial deepening does not have a statistically significant impact on micro, small, and medium enterprises in Nigeria is rejected based on the p-value for LRB is 0.0155, which is less than 0.05, suggesting that loans to rural banks have a significant positive impact on MSMEs. Also, H_{04} : There is no significant impact between rural bank branches (RBB) and micro, small, and medium enterprises in Nigeria is accepted based on that p-value for RBB is 0.6125, which is greater than 0.05, indicating that the number of rural bank branches does not have a statistically significant impact on MSMEs as than 0.05, suggesting that loans to rural banks have a significant positive impact on MSMEs. Also, H_{04} : There is no significant impact between rural bank branches (RBB) and micro, small, and medium enterprises in Nigeria is accepted based on that p-value for RBB is 0.6125, which is greater than 0.05, indicating that the number of rural bank branches does not have a statistically significant impact on MSME growth.

The study finds strong evidence to reject H_{01} (Deposit of Rural Banks) and H_{03} (Loan to Rural Banks), confirming their significant impact on MSME growth. However, H_{02} (Financial Deepening) and H_{04} (Rural Bank Branches) are not rejected, implying that these factors do not significantly influence MSMEs in Nigeria within the study period. Policymakers should focus on enhancing rural banking deposits and loan accessibility, as these are critical drivers of MSME growth.

Post-Estimation Checks (ARDL Diagnostic Test)

The ARDL diagnostic checks presented in Table 8 are essential for confirming the robustness and reliability of the regression model used to examine the impact of rural banking development on micro, small and medium enterprises in Nigeria from 1990 to 2023. These

post-estimation tests evaluate key assumptions of the ARDL regression analysis, ensuring that the conclusions drawn from the model are statistically valid and dependable.

5			
Tests		Outcomes	
		Coefficient	Probability
Breusch-Godfrey-Serial-Correlation Test	F-stat.	1.258885	0.349500
Heteroscedasticity-Breusch-Pagan-Godfrey Test	F-stat.	0.363379	0.970000
Normality Test	Jarque-Bera	2.223809	0.328932

Table 7: Results of ARDL Diagnostic Checks

Source: Author's Computation Using EViews-12 (2024)

Table 7 presents the results of the diagnostic tests carried out to validate the ARDL model. Which assess the robustness and validity of the estimated model by checking for serial correlation, heteroscedasticity, and normality of residuals. The Breusch-Godfrey Serial Correlation Test, from the F-statistic of 1.258885, and the probability value of 0.349500, which is greater than significance level of 0.05 suggests that there is no evidence of serial correlation in the residuals, indicating that the model's estimates are reliable and not affected by autocorrelation. While the Heteroscedasticity Test (Breusch-Pagan-Godfrey) of F-statistic is 0.363379, with a probability of 0.970000, which is also greater than 0.05 implies that heteroscedasticity is not present, meaning the variance of the residuals is constant, ensuring that the model's standard errors are valid and efficient. Also, Normality Test (Jarque-Bera) statistic of 2.223809, with a probability of 0.328932, which is greater than 0.05 indicates that the residuals follow a normal distribution, satisfying a key assumption for valid inference. The post-estimation diagnostic tests confirm that the model is statistically sound. There is no serial correlation, no heteroscedasticity, and the residuals are normally distributed. These results validate the reliability of the estimated coefficients and ensure that hypothesis testing and inference drawn from the model are robust.

Discussion of Findings

The paper focuses on the impact of rural banking development on micro, small and medium enterprises in Nigeria and based on the research objectives. The analysis reveals that deposits of rural bank branches (DRB) has a positive and significant impact on micro, small and medium enterprises which indicates that increased deposits in rural bank branches significantly enhance MSME activities. This finding contrast with the study by Onyekachukwu1 and Samuel (2022). which demonstrated that Rural Deposit (RD) was observed to have a negative coefficient and insignificant impact on economic growth in Nigeria. While financial deepening (FD) shows a positive but insignificant relationship between financial deepening and micro, small and medium enterprises sector, its effect is not statistically significant in the long run. This outcome is consistent with the findings of Ehiedu *et al.* (2022), who observed that financial deepening does not automatically translate into increased MSME growth without effective financial inclusion strategies. Loans from Rural Banks analysis indicates positive and significant impact on micro, small and medium

enterprises, this implies that loans provided by rural banks substantially contribute to micro, small and medium enterprises growth. This finding is supported by Adeniji (2021), who highlighted that access to capital, facilitated by development banks, is crucial for the expansion and sustainability of MSMEs in Nigeria.

Rural Bank Branches finds a negative but insignificant relationship between Rural Bank Branches and micro, small and medium enterprises, this suggests that merely increasing the number of rural bank branches does not significantly impact MSME growth. This finding is in line with Ehiedu *et al.* (2022), who argued that the presence of more bank branches does not automatically lead to enhanced financial accessibility for micro, small and medium enterprises. The findings underscore the importance of financial resources mobilized through rural bank deposits and loans in promoting MSME growth in Nigeria. However, financial deepening and the mere presence of rural bank branches do not exhibit a statistically significant effect on MSMEs. Policymakers should focus on enhancing the effectiveness of rural banking services, ensuring that increased deposits and loan facilities are accessible to MSMEs, thereby fostering their development and contribution to the Nigerian economy.

Conclusion and Recommendations

The study examined the long-run impact of rural banking indicators on micro, small, and medium enterprises in Nigeria. The findings revealed that deposits in rural bank branches (DRB) and loans from rural banks significantly contribute to micro, small, and medium enterprises growth. However, financial deepening and the number of rural bank branches did not show a statistically significant impact. These results suggest that while financial access and loan availability are crucial for MSME development, merely expanding banking infrastructure without targeted financial policies may not be effective.

To enhance micro, small, and medium enterprises growth, financial policies should focus on strengthening credit accessibility and improving financial inclusion mechanisms. Government agencies, financial institutions, and development organizations must collaborate to implement policies that ensure rural banking services translate into tangible benefits for micro, small, and medium enterprises. By implementing the recommendations below, financial institutions and policymakers can foster an enabling environment where rural banking effectively supports the growth and sustainability of micro, small, and medium enterprises, ultimately driving economic development in Nigeria.

- 1. Given the strong impact of rural bank deposits (DRB) on micro, small, and medium enterprises growth, commercial banks should be encouraged by the CBN to introduce micro, small, and medium enterprises -specific savings and investment products. The Nigeria Deposit Insurance Corporation (NDIC) should ensure the safety of deposits in rural banking institutions to boost public confidence and encourage increased savings, which can be channeled into MSME financing.
- 2. Although financial deepening (FD) showed a positive but insignificant effect, its effectiveness can be improved by expanding financial literacy programs. The Small

and Medium Enterprises Development Agency of Nigeria (SMEDAN) and CBN's Financial Inclusion Secretariat should intensify financial literacy campaigns targeting rural entrepreneurs. Digital banking and mobile money services should be promoted by commercial banks and fintech companies to enhance financial access for MSMEs in remote areas.

- 3. Since loans from rural banks (LRB) has a positive significant impact MSME growth, the Central Bank of Nigeria (CBN) and Bank of Industry (BOI) should expand credit guarantee schemes for MSMEs. This will reduce collateral requirements and encourage banks to provide more loans to small businesses. The Development Bank of Nigeria (DBN) should increase funding interventions for rural businesses, ensuring that loan disbursement mechanisms are efficient and transparent.
- 4. Since the number of rural bank branches (RBB) did not significantly impact MSME growth, the Federal Ministry of Finance should reassess policies on rural banking expansion. Instead of simply increasing the number of branches, a focus should be placed on service quality and accessibility. The CBN and National Association of Microfinance Banks (NAMB) should support rural banks in adopting digital banking solutions to reach a broader population without requiring physical expansion.

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