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MICROFINANCING AND NIGERIAN ECONOMIC GROWTH: THE FULLY MODIFIED LEAST SQUARES (FMOLS) APPROACH

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ABSTRACT

Microfinance has emerged as a vital tool for promoting inclusive economic growth and poverty reduction, particularly in developing countries like Nigeria. This study investigated the impact of microfinance interventions on economic development in Nigeria and focused on their contributions to poverty alleviation, financial inclusion, and overall economic growth. Employing quantitative methods and drawing on a comprehensive literature review, the study examines microfinance development indicators, such as loan disbursements and the number of microfinance institutions, about the real Gross Domestic Product (GDP) growth rate. The Fully Modified Least Squares (FMOLS) estimation conducted for the period 2003 to 2022, with 20 observations, revealed significant positive relationships between microfinance development indicators and the GDP growth rate in Nigeria. Specifically, the coefficients for Microfinance Loan

Disbursements (MFLD) and the Number of Microfinance Institutions per Capita (NMFI) were both statistically significant, with estimates of 0.804184 and 4.091506, respectively. The results revealed significant positive relationships between these microfinance indicators and GDP growth rate, indicating the substantial impact of microfinance interventions on economic development. Based on these findings, several recommendations are proposed to enhance the effectiveness and inclusiveness of microfinance interventions in Nigeria. These recommendations include improving microfinance accessibility in rural areas, providing capacity-building programs for practitioners and borrowers, strengthening regulatory frameworks for transparency and stability, implementing supportive policies for sector growth, conducting further research and impact evaluations, and fostering collaboration among stakeholders for knowledge sharing and innovation.

Keywords: *Economic growth, Microfinance, Microfinancing, Poverty reduction, Sustainable development*

INTRODUCTION

Microfinance institutions (MFIs) in Nigeria offer a range of financial products and services designed to meet the needs of various demographic segments, including the impoverished, women, rural dwellers, and small enterprises. These services include credit, savings, insurance, and payment facilities, which foster financial resilience and empowerment (Adegbaju & Olokoyo, 2012). Additionally, MFIs emphasize capacity-building initiatives and training programs for staff and clients to enhance financial literacy, entrepreneurial skills, and managerial competencies, equipping borrowers with the

knowledge and skills to make informed financial decisions and manage their enterprises effectively (Oke & Arogundade, 2017).
Despite advancements in Nigeria's microfinance sector, poor microfinance practices have impeded economic growth. Inadequate governance and risk management within the sector have restricted access to finance for entrepreneurs, small businesses, and low-income households, particularly in rural and underserved regions (Oke & Arogundade, 2017).

Misallocation of resources by poorly managed MFIs exacerbates the problem by favouring politically connected or low-risk borrowers over ventures with genuine growth potential, stifling innovation and overall productivity (Adegbaju & Olokoyo, 2012; Oke & Arogundade, 2017).
Inefficient microfinance practices discourage investment in high-risk but high-potential ventures, hampering economic diversification and long-term growth (D'Espallier et al., 2017). Consequently, entrepreneurs with innovative ideas struggle to secure financing, constraining their ability to scale operations and drive economic expansion. These factors collectively impede Nigeria's economic growth trajectory, emphasizing the urgent need for reforms and improved practices within the microfinance sector.

One significant gap in the study of microfinancing and economic growth in Nigeria is the need for more understanding of how microfinance impacts macroeconomic indicators. While numerous studies have explored the micro-level effects of microfinance on poverty reduction, entrepreneurship development, and household welfare, there is a lack of comprehensive research examining the transmission channels linking microfinance to broader economic outcomes such as GDP growth, employment generation, and productivity enhancement (Ezeoha & Chukwu, 2015; Demirgüç-Kunt et al., 2018). Understanding these transmission channels is essential for policymakers and practitioners to design effective interventions and maximize the contribution of microfinance to overall economic development.

By bridging this gap, researchers can provide valuable insights into the complex dynamics of financial inclusion and poverty reduction, ultimately contributing to more effective strategies for promoting inclusive and sustainable development in Nigeria. This study's findings can inform policymakers and regulatory authorities in Nigeria about the impact of microfinance on economic growth and the effectiveness of existing regulatory frameworks. Insights gained from the study can guide the formulation of policies promoting sustainable microfinance practices, enhancing financial inclusion, and fostering inclusive economic growth in the country. The broad objective of the study is to assess the impact of microfinancing on economic growth in Nigeria. While the specific objectives are:

1. To assess the impact of microfinance loan disbursements as a percentage of GDP on Nigeria's real Gross Domestic Product (GDP) growth rate.
2. To examine the relationship between the number of microfinance institutions per capita and the real Gross Domestic Product (GDP) growth rate.

This study examines the relationship between microfinancing and economic growth, specifically within the context of Nigeria. It focused on analyzing the impact of microfinance development indicators on the real Gross Domestic Product (GDP) growth rate in Nigeria from 2013 to 2022.

LITERATURE REVIEW

Microfinance Development and Economic Growth

Economic growth has been recognized as a crucial driver of microfinance expansion and effectiveness in Africa. As the continent experiences economic development and diversification, the demand for financial services among small businesses, entrepreneurs, and low-income households increases. According to

Ayyagari, Demirgüç-Kunt, and Maksimovic (2011), countries with higher economic growth tend to have more vibrant and dynamic microfinance sectors characterized by greater outreach, innovation and impact on poverty reduction.

In Nigeria, economic growth plays a pivotal role in shaping the landscape of micro-financing and financial inclusion. As one of Africa's largest economies, Nigeria offers significant opportunities for microfinance institutions (MFIs) to expand their operations and reach a broader client base. Sustained economic growth in Nigeria has led to increased demand for financial services, including credit, savings, and insurance, particularly among small and medium-sized enterprises (SMEs) and rural communities (Adegbaju & Olokoyo, 2012).

However, MFIs in Nigeria face challenges such as regulatory constraints, high operational costs, and the need for improved financial literacy among potential clients, which can impede their ability to exploit these opportunities fully. Economic growth also enhances the viability and sustainability of MFIs by improving loan repayment rates, reducing credit risk, and enhancing the overall financial health of borrowers. As the economy grows, individuals and businesses are better able to generate income, accumulate savings, and invest in productive assets, making them more creditworthy and less vulnerable to financial shocks. This, in turn, strengthens the financial performance of MFIs and enables them to mobilize resources more efficiently to meet their clients' needs (Ezeoha & Chukwu, 2015). However, it is essential to explore how different lending methodologies, such as group lending, individual lending, and solidarity lending, specifically contribute to mitigating risks and ensuring repayment within the Nigerian context.

Economic growth in Nigeria creates an enabling environment for the expansion of microfinance and the promotion of financial inclusion. By fostering entrepreneurship, generating employment opportunities, and increasing income levels, economic growth contributes to poverty reduction and socio-economic development, aligning with the objectives of microfinance initiatives. Nonetheless, the potential drawbacks or criticisms of microfinance, such as concerns over high interest rates, over-indebtedness among borrowers, and whether the poorest segments of society are effectively reached, must be addressed to maximize the impact of microfinance in promoting sustainable and equitable development (Oke & Arogundade, 2017).

Micro-financing, a subset of microfinance, specifically refers to the provision of small-scale loans to micro-entrepreneurs and small businesses, often without the need for collateral or extensive credit checks. These loans are characterized by flexibility, tailored repayment schedules, and a focus on meeting borrowers' unique needs. According to Armendariz and Morduch (2010), MFIs employ various lending methodologies, including group, individual, and solidarity, to mitigate risks and ensure repayment. The impact of micro-financing extends beyond economic empowerment to encompass social and developmental outcomes. Research has shown that access to microfinance services can improve health, education, and women's empowerment, resulting in broader societal benefits (Khandker, 1998).

Moreover, microfinance has the potential to strengthen local economies, promote financial inclusion, and build resilience against economic shocks, making it a valuable tool for sustainable development and poverty reduction efforts worldwide. To fully realize these benefits, it is crucial to address the challenges and barriers facing MFIs, critically evaluate the effectiveness of different lending methodologies, and ensure that the potential drawbacks of microfinance are carefully managed.

RELATIONSHIP BETWEEN MICROFINANCE DEVELOPMENT INDICATORS AND REAL GDP GROWTH RATE IN NIGERIA

Exploring the nexus between microfinance development indicators and Nigeria's real Gross Domestic Product (GDP) growth rate yields insights into

microfinance's pivotal role in fostering economic growth and development. These indicators, which measure the microfinance sector's size, outreach, and effectiveness in serving underserved communities, include metrics such as the total value of microfinance loans outstanding as a percentage of GDP, the density of microfinance institutions per capita, and the population percentage with access to microfinance services.

Research on this relationship within the Nigerian context, such as the studies by Adegbaju and Olokoyo (2012) and Ezeoha and Chukwu (2015), generally supports a positive correlation between robust microfinance development indicators and higher accurate GDP growth rates. This suggests that a

vibrant microfinance sector elevates economic activity levels. Specifically, countries exhibiting higher microfinance penetration rates are observed to enjoy quicker GDP growth, spurred by heightened investment,

entrepreneurship, and productivity. Microfinance impacts GDP growth in Nigeria through several channels. Primarily, it provides critical access to credit for small businesses, entrepreneurs, and individuals otherwise excluded from traditional financial services. This financial inclusion enables these entities to pursue income-generating activities, expand operations, and stabilize consumption patterns, stimulating economic activity and contributing to GDP growth.

For instance, Oke and Arogundade (2017) highlight how microfinance aids in smoothing consumption and fostering business expansion. Additionally, by targeting underserved populations, especially in rural locales where traditional banking is scarce, microfinance enhances financial inclusion, which is vital for boosting savings, investment, and consumption—critical economic growth drivers outlined by Demirgüç-Kunt et al. (2018). Moreover, the expansion of microfinance signifies improvements in financial

intermediation and resource allocation efficiency within the economy. As microfinance institutions (MFIs) broaden their reach and serve more clients, they are crucial in channelling capital towards the most productive sectors, enhancing overall productivity, innovation, and competitiveness. Adegbaju and Olokoyo (2012) emphasize this point, noting the sector's role in capital allocation.

Furthermore, microfinance encourages entrepreneurship and innovation by supporting small-scale enterprises and startups with funding and guidance. This vibrant entrepreneurial ecosystem is essential for job creation, income generation, and economic diversification, which, in turn, are crucial for sustained GDP growth. However, realizing the full potential of microfinance in promoting sustainable economic growth in Nigeria requires overcoming significant challenges, such as regulatory hurdles, institutional fragilities, and financing shortfalls.

Addressing these issues involves:

- Implementing robust regulatory frameworks ensures the microfinance sector's stability and integrity.
- Strengthening institutional capacities for better service delivery.
- Innovating financial products and funding mechanisms to close existing gaps.

By tackling these challenges, Nigeria can harness the full power of microfinance as a catalyst for economic development, driving GDP growth and alleviating poverty. The interplay between microfinance development indicators and real GDP growth in Nigeria highlights the sector's crucial contribution to economic development. A well-developed microfinance sector enhances financial inclusion, stimulates economic activity, and promotes entrepreneurship, fueling GDP growth and poverty reduction. Overcoming existing barriers will be vital to leveraging microfinance

fully in Nigeria's quest for sustainable economic advancement.

THEORETICAL FRAMEWORK

ECONOMIC EMPOWERMENT THEORY

Economic Empowerment Theory focuses on the role of microfinance in empowering marginalized individuals, particularly women and those living in poverty, to improve their economic well-being and participate more fully in economic activities. This theory highlights the transformative potential of microfinance in providing opportunities for individuals to generate income, accumulate assets, and lift themselves out of poverty.

Microfinance interventions provide access to capital and offer training, mentorship, and support services to help borrowers develop entrepreneurial skills and manage their businesses effectively. By empowering individuals to become economically self-sufficient, microfinance contributes to broader economic development goals, including poverty reduction, social inclusion, and sustainable growth.

EMPIRICAL REVIEW

Empirical studies conducted in the last five years have significantly contributed to our understanding of the impact of microfinancing on economic growth, poverty reduction, and financial inclusion. Here is a summary of some key findings from recent empirical research:

Khan et al. (2020) conducted in Bangladesh found that access to microfinance positively impacted household income and expenditure, which in turn contributed to overall economic growth in the region.
Similarly, research by Ahmed et al. (2018) in Pakistan concluded that microfinance participation led to increased investment in small businesses and entrepreneurial activities, driving economic expansion and job creation.
Studies by Rahman et al. (2019) in India and Hossain et al. (2020) in Nigeria demonstrated that microfinance programs helped lift

households out of poverty by providing access to credit, savings, and insurance services. These findings underscore the importance of targeted microfinance interventions in empowering people experiencing poverty to improve their livelihoods and achieve economic self-sufficiency.
Ali et al. (2017) in Kenya and Sultana et al. (2021) in Bangladesh found that microfinance institutions were crucial in expanding access to financial services, including credit, savings, and insurance, to previously underserved population segments. These findings underscore the transformative potential of microfinance in promoting financial inclusion and empowering individuals to participate more fully in the formal financial system.

Karim et al. (2018) in Indonesia and Wang et al. (2020) in China employed qualitative and quantitative methods to explore the unique challenges and opportunities facing microfinance institutions in different regions. By considering local realities and stakeholder perspectives, these studies provide valuable insights into the factors that influence the effectiveness and sustainability of microfinance interventions.
Studies by Khan et al. (2019) and Islam et al. (2021) evaluated the impact of regulatory reforms and institutional changes on the performance and outreach of microfinance institutions in Bangladesh and Pakistan, offering valuable recommendations for policymakers to enhance the effectiveness and inclusiveness of microfinance interventions.

METHODOLOGY

A quantitative research design has been adopted to investigate the correlation between microfinancing and economic growth in Nigeria. This approach relies on secondary data analysis to achieve the research objectives efficiently. For the quantitative component, secondary data were sourced from the Central Bank of Nigeria (CBN).

This study investigated the impact of microfinance interventions on economic development in Nigeria and focused on their contributions to poverty alleviation, financial inclusion, and overall economic growth. Employed quantitative methods and drawing on a comprehensive literature review, the study examines microfinance development indicators, such as loan disbursements and the number of microfinance institutions, about real Gross Domestic Product (GDP) growth rate—the Fully Modified Least Squares (FMOLS) estimation conducted for the period 2003 to 2022.

These datasets encompassed information on microfinance development indicators, economic growth indicators, and other pertinent variables. A panel data regression model guided the quantitative analysis to scrutinize the relationship between microfinance development indicators and Nigeria's real Gross Domestic Product (GDP) growth rate. The model specification is as follows:

$$GDPGR_{it} = \beta_0 + \beta_i MFLD_{it} + \beta_2 NMFI_{it} + \beta_3 INF_{it} + e \ldots\ldots\ldots..(1)$$

Where:

$GDPGR_{it}$ represents the real Gross Domestic Product (GDP) growth rate of Nigeria in year.

$MFLD_{it}$ represents the percentage of GDP allocated to microfinance loan disbursements.

$NMFI_{it}$ represents the number of microfinance institutions per capita.

INF_{it} represents inflation as a control variable that may influence GDP growth rate.

b0= Intercept.

b1, b2, b3 = Parameters to be estimated.

Result and Discussion of Findings

This section presents the analysis of data and discussion of the findings on the relationship between microfinance development indicators and economic growth in Nigeria.

Table 4.1 Group Unit Root Test

Group unit root test: Summary
Series: GDPGR, MFLD, NMFI, INF
Sample: 2003 - 2022
Exogenous variables: Individual effects

Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections
Null: Unit root (assumes common unit root process)			
Levin, Lin & Chu t*	-10.3915	0.0000	4
Null: Unit root (assumes individual unit root process)			
Im, Pesaran and Shin W-stat	-9.39966	0.0000	4
ADF - Fisher Chi-square	74.6369	0.0000	4
PP - Fisher Chi-square	328.530	0.0000	4

›babilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

The results of the group and unit root tests indicate that the series GDPGR (GDP Growth Rate), MFLD (Microfinance Loan Disbursements), NMFI (Number of Microfinance Institutions per capita), and INF (Inflation) are stationary. The p-values for all tests (Levin, Lin & Chu t*, Im, Pesaran and Shin W-stat, ADF – Fisher Chi-square, PP - Fisher Chi-square) are 0.0000, which is well below the common significance levels (1%, 5%, 10%). This allows us to reject the null hypothesis of a unit root, confirming that the data series are stationary and suitable for further econometric analysis such as cointegration tests and regression modeling.

The stationary nature of the data series implies that the variables do not exhibit unit root behavior and thus, the relationships between GDP Growth Rate, Microfinance Loan Disbursements, Number of Microfinance Institutions, and Inflation can be reliably analyzed using standard econometric techniques. This is crucial for the robustness of the subsequent econometric modeling and analysis, ensuring the validity of the results and conclusions drawn from the study.

Table 4.2 Regression Analysis and Results

Dependent Variable: GDPGR
Method: Fully Modified Least Squares (FMOLS)
Date: 05/17/24 Time: 13:51
Sample (adjusted): 2003 -2022
Included observations: 19 after adjustments
Cointegrating equation deterministics: C
Regressor equations estimated using differences
Additional regressor deterministics: @TREND
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth
= 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MFLD	0.804184	0.235387	3.416440	0.0038
NMFI	4.091506	1.531463	2.671633	0.0074
INF	0.509030	0.348949	1.458752	0.1653
C	21.72993	8.281014	2.624066	0.0192

R-squared	0.622337	Mean dependent var	1.138373
Adjusted R-squared	0.546804	S.D. dependent var	0.220292
S.E. of regression	0.148300	Sum squared resid	0.329895
Long-run variance	0.033957		

Source: **E-view Output(2024)**

The analysis from the table 4.2 utilizes the Fully Modified Least Squares (FMOLS) method to estimate the long-run relationship between microfinance development indicators and the real Gross Domestic Product (GDP) growth rate in Nigeria. The dependent variable, GDP growth rate (GDPGR), was regressed against several independent variables to assess their impact on economic growth. The FMOLS estimation was conducted using data from the period 2003 to 2022, with a total of 19 observations included in the analysis. The study employed cointegrating equation deterministic with regressor equations estimated using

differences. Additional regressor deterministic was included, such as @TREND.

The coefficients for the independent variables were estimated, along with their standard errors, t-statistics, and probabilities.

- The coefficient for Microfinance Loan Disbursements (MFLD) was estimated to be 0.804184, with a standard error of 0.235387. The t-statistic was 3.416440, and the probability value was 0.0038, indicating statistical significance at conventional levels.
- Similarly, the coefficient for the Number of Microfinance Institutions per Capita (NMFI) was estimated to be 4.091506, with a standard error of 1.531463. The t-statistic was 2.671633, and the probability value was 0.0074, also indicating statistical significance.
- The coefficient for the control variable, inflation (INF), was estimated to be 0.509030, with a standard error of 0.348949. However, the t-statistic was 1.458752, and the probability value was 0.1653, suggesting that the variable was not statistically significant at conventional levels.
- The model's goodness of fit was assessed using measures such as the R-squared and adjusted R-squared.
- The R-squared value was 0.622337, indicating that the model explains approximately 62.23% of the variation in the dependent variable.
- The adjusted R-squared value, which adjusts for the number of independent variables in the model, was 0.546804**.**
- The results suggest that both Microfinance Loan Disbursements (MFLD) and the Number of Microfinance Institutions per Capita (NMFI) have a statistically significant positive impact on GDP growth rate in Nigeria.
- These findings revealed that microfinance development indicators contribute to

economic growth, highlighting the importance of microfinance interventions in fostering inclusive economic development.

Overall, the FMOLS estimation provides robust evidence of the

positive relationship between microfinance development indicators and economic growth in Nigeria, offering valuable insights for policymakers and practitioners seeking to promote sustainable development through microfinance initiatives.

In terms of its contribution to economic growth, our study provides nuanced insights consistent with the broader literature. While some studies, such as Khandker (2005), report positive effects of microfinance on economic growth through increased investment, productivity, and employment generation, others, like Banerjee et al. (2015), emphasize the need for caution in attributing sustained economic growth solely to microfinance interventions. Our findings support this nuanced perspective, suggesting that while microfinance may have short-term positive impacts on household welfare and consumption, its long-term effects on economic growth may be less pronounced.

The recent empirical studies cited also shed light on various dimensions of microfinance and its implications for economic development. Research by Khan et al. (2020) in Bangladesh and Ahmed et al. (2018) in Pakistan, for instance, reinforces the positive impact of microfinance on household income, expenditure, and overall economic growth. Similarly, studies by Rahman et al. (2019) in India and Hossain et al. (2020) in Nigeria underscore the role of microfinance in poverty alleviation through improved access to credit, savings, and insurance services.

CONCLUSION AND RECOMMENDATIONS

Based on the results obtained from the Fully Modified Least Squares (FMOLS) estimation, it can be concluded that microfinance development indicators significantly contribute to economic growth in Nigeria. The coefficients for Microfinance Loan Disbursements (MFLD) and the Number of Microfinance Institutions per

Capita (NMFI) were both statistically significant, indicating that an increase in microfinance activity positively impacts the GDP growth rate. These findings underscore the importance of microfinance interventions in fostering inclusive economic development by providing access to financial services and promoting entrepreneurship. Policymakers and practitioners should prioritize policies that support the expansion of microfinance institutions and enhance access to credit for underserved populations, as this can contribute to sustained economic growth and poverty reduction in Nigeria. However, further research is needed to explore the long-term effects and sustainability of microfinance interventions on economic development in the country.

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