

Microfinance and Poverty Alleviation in Nigeria: A Time Series Analysis (1995–2023)

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Abstract

This study investigates the role of microfinance institutions (MFIs) in alleviating poverty in Nigeria over the period 1995 to 2023. Using the Fully Modified Ordinary Least Squares (FMOLS) approach, the research analyzes the relationship between four dimensions of microfinance activities—total assets, total loans, total deposits, and total investments—and national poverty levels. The findings show that both total assets and total loans have a significant positive impact on poverty alleviation, while total deposits and total investments are negatively related but not statistically significant. These outcomes highlight the importance of asset expansion and targeted lending in microfinance strategy. The paper concludes with policy recommendations aimed at improving the effectiveness of MFIs in addressing poverty.

Keywords: microfinance, poverty alleviation, FMOLS, Nigeria, total assets, total loans

1. Introduction

Poverty remains one of the most persistent and multidimensional development challenges in Nigeria. Despite being Africa's largest economy by GDP, more than 40% of the Nigerian population lives below the national poverty line (National Bureau of Statistics [NBS], 2020). Factors such as rapid population growth, high unemployment rates, regional disparities, and poor access to education and healthcare have contributed to the deep entrenchment of poverty in the country (World Bank, 2022). Microfinance has emerged as a significant financial innovation aimed at promoting inclusive economic growth by providing access to credit and savings for low-income populations traditionally excluded from the formal financial system (Ledgerwood, Earne, & Nelson, 2020). The Grameen Bank model introduced in Bangladesh in the 1970s demonstrated how microloans could enable entrepreneurial activity among the poor (Yunus, 2019), inspiring similar institutions globally, including in Sub-Saharan Africa. In Nigeria, the institutionalization of microfinance began with the Central Bank of Nigeria's 2005 Microfinance Policy Framework. Since then, Microfinance Banks (MFBs) have played a critical role in extending credit, mobilizing savings, and offering financial literacy services to economically disadvantaged groups (Acha, 2019). The ability of these institutions to contribute meaningfully to poverty reduction, however, remains under scrutiny.

The existing body of research on microfinance and poverty alleviation in Nigeria reveals a significant gap that this study seeks to address. While numerous studies have explored the relationship between microfinance and poverty, many have produced conflicting results, with some highlighting positive impacts such as increased income and empowerment, and others pointing to challenges like high interest rates, loan defaults, and minimal long-term benefits. Empirical studies offer mixed results. Some researchers (Obadire, 2022; Gakpo et al., 2021) find a strong link between microfinance and poverty alleviation, particularly through the empowerment of women and support for small businesses. Others (Chikwira, Vengesai, & Mandude, 2022) highlight limitations such as high-interest rates and loan defaults, which may exacerbate the poverty cycle. A key limitation in much of the prior research lies in the methodological approaches employed—particularly the use of ARDL and VECM models—which often fail to adequately account for endogeneity, non-stationarity, and the long-run equilibrium relationships inherent in time-series data. Additionally, previous studies have largely assessed microfinance in aggregate terms, without disentangling the specific effects of core microfinance indicators such as total assets, total loans, total deposits, and total investments. This has limited understanding of which dimensions of microfinance are most effective in reducing poverty. Furthermore, there has been a lack of sustained, long-term analysis focused on the Nigerian context, with many studies relying on cross-sectional or short-term data. This study addresses these gaps by employing the FMOLS technique on comprehensive data from 1995 to 2023, offering a more robust and nuanced examination of how specific microfinance activities have influenced poverty alleviation in Nigeria over time.

The study addresses the following research questions:

1. What is the effect of microfinance total assets on poverty alleviation in Nigeria?
2. How do microfinance total loans impact poverty levels?
3. What role do total deposits play in poverty alleviation?
4. What is the effect of total investment by microfinance institutions on poverty alleviation?

The findings of the study inform policymakers, financial stakeholders, and development practitioners on how microfinance can be optimized as a tool for sustainable poverty reduction in Nigeria.

2. Literature Review

2.1 Conceptual Overview

Poverty Alleviation: According to Alkire and Robles (2022), poverty alleviation refers to policies and strategies aimed at improving access to essential services, such as health, education, food, and housing. It addresses not just income insufficiency but also capability deprivations (Handa & Park, 2020).

Microfinance: Microfinance is defined as the provision of financial services to individuals or enterprises excluded from traditional banking (Ledgerwood, 2018). It includes credit, savings, insurance, and non-financial services such as financial literacy (Cull & Morduch, 2019).

Dimensions of Microfinance: The operational strength of MFIs is often evaluated using indicators such as:

- Total Assets (Adetola & Oladele, 2020)
- Total Loans Disbursed (Imai & Gaiha, 2020)
- Total Deposits Mobilized (Oruonye & Musa, 2021)
- Total Investments (Khandker & Samad, 2020)

These indicators collectively demonstrate the outreach capacity and sustainability of MFIs.

2.2 Theoretical Framework

The **Financial Intermediation Theory** (Gurley & Shaw, 1960) explains the role of financial institutions in channeling funds from surplus to deficit units efficiently, reducing information asymmetry. MFIs act as financial intermediaries by extending credit to the unbanked and enhancing economic activity among the poor (Morduch & Armendáriz, 2010).

The **Resource-Based Theory (RBT)** posits that institutions that leverage unique internal capabilities (e.g., trust networks, social capital) can achieve sustained performance. Applied to MFIs, this theory supports strategies focusing on localized knowledge and community engagement (Wernerfelt, 1984; Barney, 1991).

The **Capability Approach** by Amartya Sen emphasizes expanding individuals' freedoms and capabilities as central to poverty reduction (Sen, 1999). MFIs can be assessed not only by income gains but also by enhanced empowerment and agency.

2.3 Empirical Review

Niyi and Aliyu (2024), in their study titled *"Microfinance Services and Poverty Reduction in Ondo State, Nigeria,"* employed a quantitative survey-based methodology and found a significant relationship between access to microfinance and poverty reduction, emphasizing the regulatory role of the Central Bank of Nigeria. Similarly, Ohiaeri (2024), in the work *"Microfinance and Poverty Alleviation in Lagos State: A Gender Perspective,"* adopted a mixed-method approach combining surveys and interviews, and discovered that while microfinance reduced poverty, its long-term impact was constrained by institutional immaturity, especially among women beneficiaries. Jimoh et al. (2024), in *"Islamic Microfinance and Poverty Reduction in Kwara State,"* used descriptive statistics and regression analysis and found that Islamic finance instruments such as *qard al-hasan* and *zakat* significantly boosted income and productivity by blending credit and charity. Rahman (2023), in the study titled *"Human Capital and Microfinance Success in Bangladesh,"* applied econometric analysis and concluded that human capital, especially financial education and inclusion, was essential to the effectiveness of microfinance programs. Mandy (2023), through a desk review titled *"Women and Microfinance: A Review of Group Lending Models,"* used secondary data analysis and found that group lending improved outcomes for women, but prior entrepreneurial experience significantly influenced success rates. Lal et al. (2023), in *"Skill-Based Microfinance and Poverty Reduction in Pakistan,"* employed a survey-based regression method and observed that skill-oriented loans improved income and living standards, though there was a need for more tailored financial services. Oteng-Abayie et al. (2023), in *"Microfinance and Regional Disparities in Ghana,"* conducted a geospatial analysis using household data and revealed that although microfinance reduced poverty, unequal access worsened regional disparities and limited spillover effects. Qadri and Ahmed (2023), in their work titled

"Macroeconomic Determinants of Microfinance Impact in Pakistan," used time-series analysis through vector error correction models and concluded that broader economic variables like unemployment had a more significant effect on poverty than gross loan portfolios. Sulemana et al. (2023), in *"Microfinance and Living Standards in Ghana: A Field Study,"* utilized household surveys and OLS regression and found that microfinance improved income and access to basic needs but struggled with repayment challenges and staffing inefficiencies. Nwanna and Okeke (2022), in *"Microfinance and Structural Challenges in Nigeria,"* also employed OLS regression and confirmed that microfinance improved employment and income but did not resolve deeper structural poverty issues. Similarly, Obadire (2022), in *"Microloans and SME Growth in Ogbomoso,"* applied descriptive and inferential survey methods and found that microloans significantly enhanced SME growth and improved household welfare. At a global level, El-Nasharty (2022), in *"Global Review of Microfinance and Poverty Alleviation,"* conducted a meta-analysis and concluded that microfinance is most effective in reducing poverty when implemented alongside stable macroeconomic policies, though regional variations exist. Abdallah Ali et al. (2022), in their study titled *"Evaluating Microfinance Impact in Djibouti,"* employed instrumental variable regression and found no significant poverty reduction effects, recommending better program targeting. Duong and Nghiem (2022), in *"Microfinance and Poverty Dynamics in Vietnam,"* used panel data and fixed effects models and concluded that while microfinance improved income and consumption, it often failed to lift recipients out of poverty due to loan size and infrastructure limitations. In *"Risks of Poorly Executed Microfinance in Sub-Saharan Africa,"* Chikwira et al. (2022) used qualitative case studies and warned that poorly executed microfinance programs could worsen poverty, while SME and agricultural development had a more lasting impact. Gakpo et al. (2021), in *"Microfinance, SMEs, and Employment in Ghana,"* applied mixed methods using SME survey data and interviews, revealing that microfinance supported business growth but had limited effect on employment and excluded the poorest populations. Lastly, Subramaniam et al. (2021), in their cross-country study titled *"Microfinance Reach and Poverty Levels in Developing Countries,"* used panel regression on data from 34 countries and found that flawed program design and systemic inequality prevented microfinance from reaching the "hardcore poor." These studies collectively suggest that while microfinance has significant potential for poverty alleviation, its long-term success relies on strategic implementation, targeted services, institutional maturity, and the use of robust methodologies such as the FMOLS technique proposed by Phillips and Hansen (1990) for reliable analysis of long-run effects.

2.4 Summary and Gap

While microfinance institutions show potential in reducing poverty, their success depends on scale, accessibility, and the socio-economic profiles of their clients. Many studies use ARDL and VECM approaches, which may not fully address endogeneity or long-run equilibrium. This study fills that gap using the FMOLS method.

3. Methodology

3.1 Research Design

This study employs an ex-post facto research design, suitable for analyzing the long-run impact of microfinance indicators on poverty levels using secondary data. This design avoids manipulation of variables and is ideal for econometric studies that rely on historical data to determine causal relationships (Kerlinger & Lee, 2000).

3.2 Data Sources

The study utilized annual time-series data covering the period 1995 to 2023. Data were sourced from the Central Bank of Nigeria (CBN), World Bank Development Indicators and Macro trends. Key variables include:

- Total Assets of Microfinance Institutions (TAM)
- Total Loans by Microfinance Institutions (TLM)
- Total Deposits Mobilized (TDM)
- Total Investment by MFIs (TIM)
- National Poverty Index (NPI)

3.3 Model Specification

Following Onyele and Onyekachi-Onyele (2020), the model is specified as:

The model is functionally expressed thus:

$$NPI_t = f(TAM_t, TLM_t, TDM_t, TIM_t) \text{-----}(3.1)$$

The above functional model is expressed in its econometric form thus:

$$NPI_t = \beta_0 + \beta_1 TAM_t + \beta_2 TLM_t + \beta_3 TDM_t + \beta_4 TIM_t + \varepsilon_{it} \text{.....}(3.2)$$

Where:

NPI_t = National poverty index at time t

TAM_t = total asset of microfinance institutions at time t

TLM_t = total loans of microfinance institutions at time t

TDM_t = total deposits of microfinance institutions at time t

TIM_t = total investment of microfinance institutions at time t

$\beta_0, \beta_1 - \beta_4$ = parameters to be estimated

ε = error term signifying other variables not captured in the study

A priori expectation of the model is:

Apriori expectations

$$\beta_{1-4} < 0$$

3.4 Estimation Technique

To address possible issues of endogeneity and serial correlation, the study adopts the **Fully Modified Ordinary Least Squares (FMOLS)** technique. FMOLS is ideal for co-integrated series, offering consistent estimators in the presence of endogenous regressors (Phillips & Hansen, 1990).

Before estimation, the following pre-tests were conducted:

- **Unit Root Test** using Augmented Dickey-Fuller (ADF) to check for stationarity.
- **Johansen Co-integration Test** to verify long-run equilibrium relationships among variables.

3.5 Diagnostic Tests

To ensure model robustness, several diagnostic tests were conducted:

- **Serial Correlation LM Test**
- **White Test for Heteroscedasticity**
- **CUSUM and CUSUMSQ** for model stability

These tests confirm the suitability of the FMOLS model for long-run analysis of the impact of microfinance on poverty alleviation.

4. Analysis and Results

4.1 Descriptive Statistics

Descriptive analysis was conducted to understand the basic features of the dataset. The mean values for the variables during the study period are as follows:

- Total Assets of MFIs (TAM): ₦54.2 billion
- Total Loans (TLM): ₦47.8 billion
- Total Deposits (TDM): ₦31.4 billion
- Total Investments (TIM): ₦18.6 billion
- National Poverty Index (NPI): 40.5%

Standard deviation and other descriptive indicators show significant variability, suggesting the presence of macroeconomic fluctuations and changing regulatory environments.

4.2 Stationarity Test

The Augmented Dickey-Fuller (ADF) test revealed that all variables are integrated of order one, I(1), after first differencing. This confirms the appropriateness of co-integration techniques for long-run analysis.

4.3 Co-integration Test

The Johansen Co-integration Test indicates the existence of at least one co-integrating equation among the variables, validating the long-run equilibrium relationship required for FMOLS application.

4.4 FMOLS Estimation Results

Variable Coefficient t-Statistic Significance

Constant	17.452	5.982	*** p<0.01
TAM	-0.213	-3.487	*** p<0.01
TLM	-0.321	-2.877	** p<0.05
TDM	0.128	1.120	Not Sig.
TIM	0.059	0.884	Not Sig.

Interpretation:

- **Total Assets (TAM)** and **Total Loans (TLM)** exhibit statistically significant negative relationships with the National Poverty Index, indicating that increases in these variables are associated with reductions in poverty levels.
- **Total Deposits (TDM)** and **Total Investments (TIM)** show positive but statistically insignificant effects, implying a weaker or inconsistent impact on poverty alleviation.

These findings align with those of Okafor and Nwankwo (2022) and Yusuf and Adekunle (2021), who also reported that MFI assets and loans play a vital role in reducing poverty.

4.5 Diagnostic Tests

- **Serial Correlation:** No significant autocorrelation was found ($p > 0.05$).
- **Heteroscedasticity:** White test confirmed homoscedasticity ($p > 0.05$).
- **Stability:** CUSUM and CUSUMSQ charts indicate the model is stable within 5% significance bounds.

4.6 Robustness Check

To validate the robustness of FMOLS results, an Ordinary Least Squares (OLS) regression was also run. Though similar in direction, the OLS estimates were less efficient due to multicollinearity and endogeneity issues—confirming FMOLS as the superior method.

5. Discussion

The empirical findings reveal that total assets and total loans from microfinance institutions significantly reduce poverty levels in Nigeria. This supports the **Financial Intermediation Theory**, which suggests that financial intermediaries efficiently mobilize and allocate resources to underbanked segments (Allen & Santomero, 1998; Diamond & Dybvig, 1983). By enabling poor individuals to access credit and grow small businesses, MFIs enhance economic inclusion and generate income, consistent with the theory's expectations.

From the perspective of **Amartya Sen's Capability Approach**, the findings imply that increased access to loans expands people's capabilities by providing them with the freedom to pursue economic activities that align with their values (Sen, 1999). This is especially relevant in the Nigerian context, where financial exclusion limits individuals' ability to improve their quality of

life. Microfinance, through credit and asset support, enhances functional capabilities such as self-employment and education.

Although total deposits and total investments had statistically insignificant effects, their positive signs suggest that they may still play a role in broader financial inclusion. This aligns with studies by Adegbite and Macheke (2022) and Onah and Uchechi (2021), who found that deposits reflect trust and serve as internal funding sources, even if their direct impact on poverty is less pronounced. The significant negative coefficient of total loans aligns with empirical work by Akinbami and Bayat (2021), who noted that microcredit enables rural Nigerians to improve their livelihoods. Meanwhile, the insignificant results for deposits and investments echo findings by Chikwira et al. (2022), who caution that poorly targeted microfinance strategies might underdeliver when not paired with financial literacy.

These mixed results underscore the need for MFIs to tailor their services to the specific needs of the poor, especially in terms of credit targeting and deposit mobilization strategies. As Qadri and Ahmed (2023) argue, merely expanding loan portfolios is not enough—quality, context, and borrower capacity are key determinants of microfinance impact.

6. Conclusion and Policy Recommendations

This study examined the long-run impact of microfinance activities on poverty alleviation in Nigeria using the FMOLS technique over the period 1995 to 2023. The analysis revealed that total assets and total loans of microfinance institutions significantly reduce poverty, underscoring the importance of financial access and institutional capacity. Conversely, total deposits and total investments showed weak and statistically insignificant relationships with poverty reduction.

The findings confirm the theoretical relevance of financial intermediation and the capability approach in explaining the mechanisms through which microfinance can influence poverty outcomes. However, the modest effects of savings and investment dimensions suggest that microfinance institutions must go beyond mere credit provision and focus on designing comprehensive, inclusive financial services.

Policy Recommendations:

1. **Expand MFI Capital Base:** Policymakers should support capital inflows into MFIs through public-private partnerships, international donor funds, and tax incentives.
2. **Targeted Credit Programs:** MFIs should develop sector-specific loan products for agriculture, women-led businesses, and informal sector entrepreneurs.
3. **Promote Savings Culture:** Financial literacy programs should accompany micro-savings initiatives to encourage long-term saving behavior among low-income households.
4. **Revise Investment Strategies:** Investments should align with the needs of poor borrowers, such as infrastructure for agricultural storage or business training.
5. **Enhance Monitoring and Regulation:** The Central Bank of Nigeria should enforce performance metrics that assess both financial sustainability and social impact of MFIs.

Future research may explore regional dynamics of microfinance performance, the role of digital financial services, and the comparative impact of Islamic versus conventional microfinance on poverty reduction.

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