





“Do microfinance banks’ activities affect Nigeria’s economic development?”

AUTHORS	Adegbola Olubukola Otekunrin  Onyegiri Paul Kenechukwu Damilola Felix Eluyela   Okoye Nonso John Ayomide Ibrahim
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Onyegiri Paul Kenechukwu, Damilola
Felix Eluyela, Okoye Nonso John,
Ayomide Ibrahim, 2022

Adegbola Olubukola Otekunrin, Ph.D.,
Lecturer, Landmark University SDG 8
(Decent Work and Economic Growth
Group), Department of Accounting,
Landmark University, Nigeria.
(Corresponding author)

Onyegiri Paul Kenechukwu, Ph.D.,
Lecturer, Department of Banking and
Finance, Nnamdi Azikiwe University,
Nigeria.

Damilola Felix Eluyela, M.Sc., Lecturer,
Landmark University SDG 8 (Decent
Work and Economic Growth Group),
Department of Accounting, Landmark
University, Nigeria.

Okoye Nonso John, Ph.D., Lecturer,
Department of Banking and Finance,
Nnamdi Azikiwe University, Nigeria.

Ayomide Ibrahim, Ph.D., Lecturer,
Department of Accounting, Landmark
University, Nigeria.



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Adegbola Olubukola Otekunrin (Nigeria), Onyegiri Paul Kenechukwu (Nigeria),
Damilola Felix Eluyela (Nigeria), Okoye Nonso John (Nigeria),
Ayomide Ibrahim (Nigeria)

DO MICROFINANCE BANKS' ACTIVITIES AFFECT NIGERIA'S ECONOMIC DEVELOPMENT?

Abstract

Microfinance banks were set up to provide financial services to poor people to reduce the rate of poverty and improve the quality of living in the country. As such, this study ascertained the effect of microfinance banks on the economic development of Nigeria. Secondary data were obtained from the CBN Bulletin and records of the National Population Commission from 1996 to 2019. The study used Vector Autoregressive (VAR) estimates to test the effect of the independent variables (microfinance banks' total loans and advances, total investments, and total deposits) on the dependent variable (per capita income). Johansen Co-integration results showed a relationship between microfinance banks and Nigeria's economic development in the long run. The VAR results show that the activities of microfinance banks have a positive but insignificant effect on Nigeria's economic development in the short term. Microfinance banks have not done well in their intermediation function to positively and significantly affect economic development, especially reducing the poverty rate, unemployment rate, and improving living standards, among other macroeconomic development indices in the short run. The study recommends that microfinance banks will help to improve the standard of living in the country by granting more credits to rural dwellers through the creation of corporative societies, age grades, and unions that are predominant in rural areas.

Keywords

agency theory, corporate governance, debt, equity,
return on equity, leverage ratio

JEL Classification

G21, M41

INTRODUCTION

The World Bank's "World Development Report 2000/2001: Attacking Poverty" was devoted to the topic, based on new research and a better understanding of the nature and causes of poverty. According to the study, significant reductions in global poverty are feasible. It demonstrates that while economic growth remains critical to reducing poverty, poverty is also the result of economic, social, and political mechanisms that intersect and strengthen one another, easing or exacerbating the state of deprivation in which poor people live. As a result, the study concluded that overcoming poverty necessitates efforts at the local, national, and global levels to increase poor people's opportunities, empowerment, and stability. The poor's empowerment becomes a major problem. The use of microfinance as a major approach for poverty reduction becomes critical to achieve the government's financial inclusion target and dramatically increase access to financial products and services. Microfinance has proven to be a successful tool for boosting economic development in developing countries over time. Nigeria's per capita income is increasing daily, but its people, especially rural dwellers, live in poverty. The nation is classified as having a high poverty rate. According to a World Bank study from November 2017, over 80 million Nigerians live on less than USD 2.50 (N900) per day. There is a high poverty rate, low per capita income, high unemploy-

ment, and the manufacturing sector is on the verge of extinction due to decayed and insufficient infrastructure. Based on past studies, microfinance banks seems not to have performed well enough in their intermediation role to have a positive and substantial influence on economic development, especially in terms of reducing poverty, unemployment, and improving living standards, among other macroeconomic development indices in Nigeria as compared to other emerging economies in the world that lack natural resources (e.g. crude oil), such as Nigeria (Khan & Rahaman, 2007; Lalitha, 2008; Ehigiamusoe, 2008; Brune, 2009; Alimukhamedova, 2014; Maksudova, 2010; Jegede et al., 2011). Previous research has documented various functions that microfinance banks perform in poverty reduction; although some of these roles are direct, many of them are indirect (Alozie, 2017). The government's commitment to increasing growth, eliminating unemployment, and reducing poverty through the establishment of microfinance banks appears to have slowed down. Despite the establishment of microfinance banks to meet the financial needs of the rural population, the country's poverty rate continues to rise. As a result, the study aims to examine the impact of microfinance banks on Nigeria's economic development by using income per capita to add the existing literature using microfinance banks.

1. LITERATURE REVIEW

In microfinance, poor people are given credit facilities, as well as other essential financial services. Micro and small business owners need an ample variety of financial instruments to meet their working capital needs, construct assets, protect themselves from risks and stabilize consumption (Ehigiamusoe, 2005). Microfinance is beyond the payment, administration, and processing of small credit facilities in operation. Microfinance is described as "flexible processes and mechanisms by which financial services are provided to owners of microfinance enterprises on a sustainable basis" (Ehigiamusoe, 2005). Microfinance handles the unique difficulties that micro-businesses and their owners face. It acknowledges the poor's inability to have tangible collateral and, as a result, encourages collateral replacement. Small companies' credit needs and cash flow patterns are accommodated by structuring disbursement and repayment (Aderibigbe, 2001). According to Kimotha (2005), microfinance is the offering of short-term loans (microcredit) to the poor to help them start new profitable businesses or extend existing ones. Microfinance primarily aims to provide credit to the poor who are otherwise unable to access financial services in the traditional financial system due to their poverty, characterized by a lack of control over properties (Kpakol, 2005). Three (3) characteristics distinguished microfinance from other structured financial goods, according to the literature. The loans advanced or savings raised are tiny, there is no asset-based collateral, and the operations are simple (Ogbunaka, 2003). A micro-

finance institution (MFI) refers to any organization that offers loans and other essential financial services to low-income businesses or businessmen that traditional/formal financial institutions have traditionally ignored.

1.1. Economic development and the importance of microfinance banks in Nigeria

Microfinance banks play a crucial role in the financial intermediation process and the lives of Nigeria's low-income earners, who account for more than 70% of the populace. Firstly, microfinance banks grant loans to poor people in rural areas, the majority of whom are artisans and farmers, to help them expand their established businesses and, in certain instances, start new ones (NBS, 2005; Fabamwo, 2008). Secondly, agriculture and micro-enterprises play a significant role in job creation and are of special interest to all microfinance banks operating in rural areas, and therefore help generate employment and promote entrepreneurship. Thirdly, microfinance banks help in improving the condition of women by providing skill training and adult literacy. This is accomplished by introducing simple cost-benefit analysis into business operations to create wealth development capacities among enterprising poor people and promote sustainable livelihood. Banks and entrepreneurs in most situations enter into profit-sharing arrangements, and bank practitioners pass on new approaches and innovations to the aspiring entrepreneur. While the proceeds are split at the end of the pro-

duction cycle, the entrepreneur can continue on his own if he desires after acquiring the requisite skills and production techniques. Fourthly, poverty reduction efforts include jobs and income generation. Microfinance banks have accelerated the implementation of government poverty reduction programs such as United Nations' Millennium Development Goals (MDGs), as well as the federal government's National Economic Empowerment and Development Strategy (NEEDS) and National Poverty Eradication Program (NAPEP) by funding promising entrepreneurs and the emergence of new ones (Ketu, 2008). However, in Nigeria, microfinance banks face a variety of challenges that include high operating costs. This is due to processing multiple loan applications, handling various accounts and tracking loan repayment collections, problems with repayment, scarce credit staff with experience, and illiteracy problems.

1.2. Concept of economic development

Economic development can be characterized as a long-term effort by a community to enhance the local economy and quality of life by increasing the area's ability to adapt to economic change. This description implies a distinction between economic development and growth. Economic growth is described as an increase in the number of jobs and income in a given population. It refers to the growth of the community's overall economic operation. While job and income growth are important, economic development often entails long-term increases in the productivity of individuals, firms, and services to improve residents' overall well-being and preserve or even improve their quality of life. Economic growth is the process of boosting a community's economic operation. Economic development is a long-term commitment, while economic growth is typically a short-term concept. Economic development encompasses growth in all sectors of the economy, including the real sector, financial sector, external sector, public sector, and social development. Economic growth is possible without development (Olubukola et al., 2021). This is the case in Nigeria, where the actual gross domestic product, which is a proxy for economic growth, rises year after year, but the economy as a whole is not doing so well. Poverty, unemployment, inflation, and exchange rate depreciation are all

high in the economy, resulting in high prices for goods and services. Some infrastructures have deteriorated, and no new ones have been built; the epileptic power supply is the norm; factories are performing below citizen consumption, resulting in a high importation rate, to name a few.

1.3. Theoretical framework

The following system underpins the microfinance structure and superstructure. The study looks at the Finance Leading Theory and the Vicious Cycle of Poverty.

1.3.1. Finance leading theory

How well the financial sector is built or deepened determines economic development. As the banking sector matures, the supply of financial services expands (Schumpeter, 1911). The supply-leading hypothesis explains the mechanism by which financial deepening promotes economic growth. The hypothesis is also known as the "finance-led development hypothesis." The supply-leading hypothesis is based on the idea that financial deepening is a determining factor in economic development. As a result, this study aims to look at the effect of microfinance banks on Nigeria's economic development using income per capita to supplement the existing literature on the topic. According to the supply-leading theory, the financial sector's expansion contributes to the most efficient resource distribution (Hurlin & Venet, 2008). The supply-leading theory states that causality flows from finance to economic development without any feedback from the latter. A well-developed financial sector is needed for economic development. According to McKinnon (1973) and Shaw (1973), a well-developed financial sector lowers transaction and monitoring costs and asymmetric knowledge, resulting in improved financial intermediation. The presence of a well-developed financial sector makes it easier to create and access financial services in advance of demand from real-world participants.

1.3.2. Vicious cycle of poverty

The vicious cycle of poverty is a curse that individuals and countries fear because it is said that a person or a country is poor because it is poor,

and a country is underdeveloped because it is underdeveloped. According to the theory, the “vicious cycle of poverty” is a revolving relationship that tends to sustain low wages. Low income leads to lower savings, which leads to lower spending, which leads to lower productivity, and so on. Jhingan (2003) and Bradshaw (2006) proposed that there are circular relationships known as the “vicious cycle of poverty” that aim to keep less developed countries at a low level of growth (LDCs). Low income is the source of poverty, according to the trend. Low-income results in low savings, which leads to low investment. Low productivity is the result of the above, and the cycle continues. According to Jhingan (2003), the basic vicious cycle stems from the fact that total productivity in low developed countries (LDCs) is low due to a lack of resources, market imperfections, economic backwardness, and underdevelopment. The vicious cycle, according to Jhingan, works on both the demand and supply sides. Low real income contributes to low demand, which leads to low investment, which leads to capital deficiency, low productivity, and low income on the demand side of the vicious cycle. Low supply-side efficiency means lower real income. Savings are limited, resulting in a lack of investment and resources. A lack of resources contributes to a lack of production and, as a result, a lack of revenue. As a result, this principle regards poverty as self-perpetuating. Microfinance banks are expected to play an intermediation role to have a positive and meaningful impact on economic development, especially in reducing poverty, unemployment and improving living standards. As a result, this study aims to examine the impact of microfinance banks on Nigeria’s economic development by using income per capita to add the existing literature using microfinance banks.

1.4. Empirical review

Apere (2016) looked at the effect of microfinance banks on Nigerian economic development from 1992 to 2013. The study’s empirical evidence has revealed that if microfinance bank operations are well organized, they can affect the entire economy, and it has been concluded that microfinance bank loans and domestic investment have a significant and positive impact on Nigeria’s economic development. The effect of microfinance on

Nigeria’s economic development was investigated by Ademola and Arogundede (2014). The findings revealed that while asset base and deposit liability have a little effect on Nigeria’s economic development, loans and advances to the general public do. Alimukhamedova (2014) investigated the role of microfinance in the creation and growth of the financial sector. He first identified microfinance transmission channels and then tested them on a panel of 103 countries from 1995 to 2008 using the Arellano-Bond instrumental technique, ensuring the results’ robustness. Microfinance appears to contribute to Granger-cause economic growth, but only in less developed countries where formal financial intermediation is lacking, leaving space for alternative means such as microfinance. Ojo (2009) and Oluyombo (2011) stated that microfinance institutions have a positive relationship with the Nigerian economy, as measured by expanded GDP. His findings suggest that microfinance institutions and their activities play a significant role in determining the trend and level of the economy. Okpara (2010), Jegede et al. (2011), Taiwo (2012), and Ihugba et al. (2014) investigated the effect of microfinance on poverty alleviation in Nigeria and came to the conclusion that disbursed micro-credit facilities substantially reduced Nigeria’s poverty index. While microfinance bank loans and advances, according to Dauda (2007) and Ojiegbe et al. (2015), have a substantial negative impact on poverty alleviation. Babajide (2012) investigated the effect of microfinance on micro and small businesses (SMEs) in South-West Nigeria using the Diagnostic Test Kaplan-Meier Estimate, Hazard Model, and Multiple Regression Analysis. Microfinance helps small businesses survive in South-West Nigeria, but it does not help them develop or expand in Nigeria.

2. HYPOTHESIS DEVELOPMENT

Some past studies concluded that microfinance has proven to be a successful tool for boosting economic growth in developing countries over time (Ihugba et al., 2014; Okafor et al., 2016; Ojiegbe et al., 2015). It has been noted from the literature that several other extant studies concluded that microfinance banks seem not to have performed well enough in their intermediation role to have a posi-

tive and meaningful impact on economic development (Alimukhamedova, 2014; Maksudova, 2010; Jegede et al., 2011). These contradictory results of the extant studies give this study motivation to empirically examine the independent variables (microfinance banks' total loans and advances, total investments and total deposits) on the dependent variables (economic development in Nigeria proxy as per capita income). Hence, the following hypothesis in its null form is being developed:

H_0 : *Nigerian economy development (per capita income) and microfinance banks' activities are not significantly related.*

3. METHODOLOGY

This study compiles historical data from 1996 to 2019. By extension, the study is a time series analysis that employs historical data to assess the impact of microfinance banks on living standards. Data were collected from secondary sources as this was an ex-post-facto study (Eluyela et al., 2020a; Otekunrin et al., 2020). Secondary sourced data has already been collected, analyzed, and preserved in a format that can be retrieved for further study. The CBN Statistical Bulletin (2019) and CBN Annual Reports and Statistics were used to compile this information. National Population Commission (NPC) and National Bureau of Statistics (NBS) have developed Nigerian Statistical Fact Sheets on Economic and Social Development and Social Statistics in Nigeria. Since the primary aim of this study is to examine microfinance banks and economic growth in Nigeria from 1996 to 2019, it was necessary to select variables that could accurately represent microfinance bank activities and the economy. Total Deposit and Total Credit of Microfinance Banks and Microfinance Bank Investments were the study's main microfinance bank variables. GDP measures the Nigerian economy development to total population ratio (i.e., per capita income), which measures living standards (Eseyin et al., 2021).

3.1. Model specification

The model of Okafor et al. (2016) was used in this analysis, with minor changes to meet the study's objectives. Okafor et al.'s (2016) initial model is as follows:

$$INPC = f(MBTLAA, MBTCD, MBTD). \quad (1)$$

The following models are mentioned after transforming the models from functional to log type to avoid the effect of an outlier:

$$\text{Log}INPC_{it} = a_0 + a_1 \text{log}MBTLAA_{it} + a_2 \text{log}MBTCD_{it} + a_3 \text{log}MBTD_{it} + \varepsilon_{it}. \quad (2)$$

INPC is per capita income: The standard of living is used to compare geographic areas and different points in time. It is usually calculated in terms of per capita income. As a result, for this analysis, income per head was calculated as the nation's gross domestic product to the total population, as recorded by the National Population Commission as a proxy for the Nigerian economy development.

MBTLAA is microfinance banks' total loans and advances: This is the cumulative amount of credit provided to customers for a set period. It comprises both debts and funds owned by a customer and a bank.

MBTCD is microfinance banks' total certificates of deposit: A total microfinance deposit, according to Ehigiamusoe (2008), is a fixed or time deposit account that serves as a consumer investment vehicle. Certificates of deposit are another name for it (CD). Microfinance bank time deposits have a higher rate of return than conventional savings accounts, but the money must be kept in the account for a certain amount of time. Time deposit accounts are also known as term deposits, fixed-term accounts, and savings bonds in other countries.

MBTD is microfinance banks total deposits: Full microfinance money deposited in a microfinance bank for safekeeping is known as a bank deposit. These funds are deposited into bank accounts such as savings, checking, and money market accounts. According to the terms and conditions of the account agreement, the account holder has the right to withdraw deposited funds.

β_0 is the constant coefficient in the regression models; β_1 to β_3 are the coefficient of the independent and control variables, and ε_{it} is the error/disturbance term.

4. RESULTS AND DISCUSSION

4.1. Descriptive statistics

The descriptive summary of the data is shown in Table 1. The mean value of *INPC*, *MBTLAA*, *MBTCD* and *MBTD* are 145,726.6; 7,332.903; 52,651.12 and 57,887.72, while the median is 98,408.2; 2,662.445; 13,902.30 and 27,208.10 respectively. The maximum values of the variables are 476,308.2; 34,904.87; 262,630.0 and 260,810.5 for *INPC*, *MBTLAA*, *MBTCD* and *MBTD*, respectively. The minimum values are 7,262.910 for *INPC*, 218.4000 for *MFBI*, 708.2000 for *MBTCD*, and 2,188.200 for *MBTD*. The variables' standard deviations are 147,741.0 for *INPC*, 10,120.85 for *MFBI*, 78,656.18 for *MBTCD* and 73,051.18 *MBTD*. The data were skewed positively to normality as indicated by the positive sign of the skewness. The variables are leptokurtic, as shown by the Kurtosis statistic values, greater than three (3). The data were all normally distributed judging from the p-value of the Jarque-Bera statistics, which are significant at a 5% level of significance except *INPC*.

Table 1. Descriptive statistics

Source: Researcher's computations.

Variables	Mean	Median	Maximum	Minimum	Std. dev	Skewness	Kurtosis	Jarque-Bera	P-value	Obs.
<i>INPC</i>	145,726.6	98,408.45	476,308.2	7,262.910	147,741.0	1.159522	3.139871	5.397526	0.067289	24
<i>MBTLAA</i>	7,332.903	2,662.445	34,904.87	218.4000	10,120.85	1.536880	4.147443	10.76462	0.004597	24
<i>MBTCD</i>	52,651.12	13,902.30	262,630.0	708.2000	78,656.18	1.574657	4.061392	11.04473	0.003996	24
<i>MBTD</i>	57,887.72	27,208.10	260,810.5	2,188.200	73,051.18	1.441270	4.076950	9.468857	0.008787	24

Table 2. ADF test result at the second difference: intercept only

Source: Researcher's computations.

Variables	ADF test statistics	Test critical value at 1%	Test critical value at 5%	Remarks
<i>INPC</i>	-4.239377 (0.00)*	[-3.788030]	-3.012363	Stationary
<i>MBTLAA</i>	-6.017892 (0.00)*	[-3.788030]	-3.012363	Stationary
<i>MBTCD</i>	-7.568046 (0.00)*	[-3.788030]	-3.012363	Stationary
<i>MBTD</i>	-6.078699 (0.00)*	[-3.788030]	-3.012363	Stationary

Note: p-values are in parentheses where (*) and (*) means significance at the 1% significance level. Figures in [] indicate test critical value at 1%.

Table 3. PP test result at the second difference: intercept only

Source: Researcher's computations.

Variables	ADF test statistics	Test critical value at 1%	Test critical value at 5%	Remarks
<i>INPC</i>	-4.547890 (0.00)*	[-3.788030]	-3.012363	Stationary
<i>MBTLAA</i>	-9.328973 (0.00)*	[-3.788030]	-3.012363	Stationary
<i>MBTCD</i>	-16.42060 (0.00)*	[-3.788030]	-3.012363	Stationary
<i>MBTD</i>	-8.577484 (0.00)*	[-3.788030]	-3.012363	Stationary

Note: p-values are in parentheses where (*) and (*) means significance at the 1% significance level. Figures in [] indicate test critical value at 1%.

4.2. Unit root test

Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were performed. The ADF and PP were tested at the first and second difference at intercept. ADF and PP tests at the second difference are presented in Tables 2 and 3.

ADF unit root test results in Table 2 shows that all the variables were stationary at the second difference. Table 3 shows the affirmation ADF test using the Phillips-Perron (PP) unit root test, showing that all the variables are stationary at the second difference. The stationarity of the data based on the unit root test conducted allows for testing the co-integration relationship between microfinance banks' activities and Nigeria's economic development.

4.3. Long-run relationship

The stationarity test result of the data in subsection 4.1 shows that the variables have no stationarity defect that may impede the regression result's reliability; hence the long-run relationship between the

variables of interest is determined as presented in Table 4 (Eluyela et al., 2020b). The Johansen co-integration approach was adopted to test the co-integration relationship between microfinance activities and Nigeria's economic development. Table 4, through the trace test and maximum eigenvalue, revealed two co-integrating equations at a 5% significance level. The co-integration analysis shows a long-run equilibrium relationship between microfinance banks' activities (total loans of microfinance banks, total investments of microfinance banks, and total deposits of microfinance banks) and economic development in Nigeria, as measured by the standard of living. These results point to the critical role of microfinance institutions in the growth and development of emerging economies, and Nigeria is no exception. The presence of two (2) co-integrating equations in the nexus between the standard of living and microfinance banks' activities entails microfinance institutions as a great tool for poverty reduction, especially in rural areas where dwellers have no access to deposits money banks. With the long-run relationship, there is a need to analyze normalized long-run coefficients based on the Johansen test. The normalized coefficients in Table 5 show a long-run effect between microfinance activities and economic development in Nigeria.

In the long run, total loans and total deposits of microfinance banks positively affect income per capita, while total investments of microfinance banks have a negative effect. The coefficients of *MBTLAA*, *MBTCD* and *MBTD* are statistically significant at a 5% level. Hence, the null hypothesis of no cointegration is rejected against the alternative of cointegrating relationship in the model. Therefore, Nigerian economic development (per capita income) and microfinance banks' activities (proxied by *MBTLAA*, *MBTCD* and *MBTD*) are significantly related. The findings are in line with Ihugba et al. (2014), Oluyombo (2011), Ademola and Arogundede (2014), but are inconsistent with Apere (2016), Brune (2009), and Ojiegbe et al. (2015).

4.4. Sensitivity tests

Before policy inference/conclusions can be drawn from the estimated regression, it is imperative to carry out residual sensitivity tests to determine the validity of the fundamental assumptions. The sensitivity tests of VAR Residual Serial Correlation LM Tests, VAR Residual Normality Tests and VAR Residual Heteroskedasticity Tests were conducted.

Table 4. Johansen co-integration for *INPC*, *MBTLAA*, *MBTCD* and *MBTD*

Source: Researcher's computations.

Unrestricted Co-integration Rank Test (Trace) <i>INPC</i> , <i>MBTLAA</i> , <i>MBTCD</i> & <i>MBTD</i>				
Hypothesized Number of CE(s)	Eigen value	Trace statistic	0.05 Critical value	Prob.**
None*	0.862593	82.02840	48.76522	0.0000
At most 1*	0.729518	40.34738	28.88808	0.0021
At most 2	0.422062	12.88886	16.58582	0.1189
At most 3	0.063371	1.374819	3.952557	0.2410
Unrestricted Co-integration Rank Test (Maximum Eigenvalue) <i>INPC</i> , <i>MBTLAA</i> , <i>MBTCD</i> & <i>MBTD</i>				
Hypothesized Number of CE(s)	Eigen Value	Maximum Eigen Statistic	0.05 Critical Value	Prob.**
None*	0.862593	41.68102	28.69545	0.0004
At most 1*	0.729518	27.45852	22.24373	0.0056
At most 2	0.422062	11.51405	15.37561	0.1303
At most 3	0.063371	1.374819	3.952557	0.2410

Note: Trace test and Max-eigenvalue test each indicates (2) co-integrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.

Table 5. Normalized long-run coefficient based on the Johansen test

Source: Researcher's computations.

C	MBTLAA	MBTCD	MBTD
-781.0230	42.44329	-1.802862	-5.605430
-	(6.34785)	(0.48212)	(0.36945)
-	[-6.6862]	[3.7394]	[15.1723]

4.4.1. VAR residual serial correlation LM tests

The LM test was conducted to test for serial correlation between the residuals, and the results are shown in Table 6.

Table 6. VAR residual serial correlation LM tests

Source: Researcher's computations.

Lags	LM-Stat	Prob.
1	27.50918	0.0662
2	21.10988	0.1743

Note: Probs. from chi-square with 25 df. The result showed no serial/autocorrelation among the residuals, since the null hypothesis of no serial or autocorrelation is accepted at the 0.05 significance level for both lags 1 and 2.

4.4.2. VAR residual heteroskedasticity tests

To test for heteroskedasticity among the residuals, the Levels and Squares joint test was conducted, and the results are presented in Table 7.

Table 7. VAR residual heteroskedasticity tests

Source: Researcher's computations.

Joint test		
Chi-sq	df	Prob.
187.5202	160	0.0675

The joint test of the VAR residual heteroscedasticity test shows that there are equal variances among the residuals in the VAR model, given that the probability value of the test statistic (Chi-sq) is greater than 0.05, which implied the acceptance of the null hypothesis of the absence of heteroskedasticity.

4.4.3. VAR residual normality tests

The normality test was carried out using the Jarque-Bera normality test, which demands that a sequence be normally distributed to be relevant for the Jarque-Bera statistics. To accept the null hypothesis that the sequence is normally distributed, the p-value of the normality test table must be greater than the chosen degree of significance.

Table 8. VAR residual normality tests

Source: Researcher's computations.

Component	Jarque-Bera	df	Prob.
1	2.844633	2	0.2412
2	0.965185	2	0.6172
3	0.357160	2	0.8365
4	0.11883	2	0.9423
Joint	4.285811	10	0.8305

The result of the normality test (see Table 8) shows that the probability value of the individual variables is 0.2412, 0.6172, 0.8365 and 0.9423 for *INPC*, *MBTLAA*, *MBTCD* and *MBTD*, respectively, greater than 0.05%. The joint probability for all the variables was shown to be 0.8305 and is greater than 0.05%. Based on that, however, H_0 is accepted. It is then concluded that the residuals are normally distributed and random.

4.4.4. Multicollinearity test

The degree of association between variables is indicated by correlation. It determines the magnitude and strength of the relationship between two variables. Table 9 showed that most of the variables employed are highly correlated and that there is a significant correlation between the variables used in the models as most of them are not considered insignificant as they are above the 50% significance level. Hence, there is no suspicion of possible multicollinearity.

Table 9. Multicollinearity test

Source: Researcher's computations.

Parameters	INPC	MFBI	TCMB	TDMB
INPC	1.000000	0.760961	0.786134	0.786421
MFBI	0.760961	1.000000	0.780173	0.785406
TCMB	0.786134	0.780173	1.000000	0.742418
TDMB	0.786421	0.785406	0.742418	1.000000

Table 10. Short-run dynamic estimates of VAR normalized on *INPC*

Source: Researcher's computations.

Parameters	Coefficient	Standard error	t-statistic
<i>INPC</i> (-1)	1.030485	0.50651	2.03449
<i>MBTLAA</i> (-1)	11.47131	5.14127	2.23122
<i>MBTCD</i> (-1)	0.025673	0.68906	0.03711
<i>MBTD</i> (-1)	-0.299654	0.74221	-0.40373
C	12646.07	8696.57	1.45415

Note: Adjusted R-squared = 0.99; F-Statistic = 220.0076.

Vector Autoregressive Estimates result in Table 10 revealed that *INPC*, *MBTLAA* and *MBTCD* positively affect *INPC*, while *MBTD* has a negative effect on *INPC*. A one percent change in a one-year lag of *INPC*, *MBTLAA* and *MBTCD* will positively change *INPC* by 1.0 percent, 11.47 percent and 0.025 percent, respectively. A one percent change in *MBTD* over a one-year lag, on the other hand, would result in a 0.299 percent decrease in *RGDP*. Given the high values of their t-statistics, the find-

ings of the individual variables showed that only a one-year lag of *INPC* and *MBTLAA* was statistically important. The modified R-squared value of 0.999 percent shows that the combined effect of the independent variables explains about 99.9% of the variations in *INPC*. It also means that the model is well-suited to elucidating the relationship. Similarly, the F-statistic, which tests the mod-

el's overall significance, showed a high value of 220.0076, indicating that in Nigeria, microfinance banks' impact on economic development is statistically significant. The findings are in line with the previous studies of Ihugba et al. (2014), Oluyombo (2011), Ademola and Arogundede (2014), but are inconsistent with the study of Apere (2016), Brune (2009), Ojiegbe et al. (2015).

CONCLUSION

The notion of microfinance alone or microfinance plus being capable of reducing poverty is still being debated. Some argue that microfinance alone is insufficient to combat poverty. According to some scholars and practitioners, microfinance plays a critical role as a tool for a poor person to explore her/his potential and take steps toward a better life. As such, the empirical study on this subject in Nigeria remains a conflicting issue and is based on that, and the research tends to discover the effect of microfinance banks on Nigeria's economic development from 1996 to 2019. Descriptive statistics were used to describe the variables, while the unit root was used to discover the stationarity of the variables; it was discovered that the variables were stationary at the second difference. Johansen Co-integration results showed a relationship between microfinance banks and Nigerian economic development in the long run. The short-run relationship was tested using Vector Autoregressive Estimates (VAR), and it was discovered that microfinance banks have a positive but negligible impact on Nigeria's economic development during the study period. The insignificant positive effect shows that microfinance banks have not succeed in their intermediation function in terms of positive and significant impact on economic development, especially in reducing poverty, unemployment and improving living standards, among other macroeconomic development indices in the short run.

POLICY IMPLICATION

Microfinance banks were founded to provide credits to the poor, who previously did not have access to financial services in the formal financial system, with the aim of improving the population's living standards and reducing unemployment in the country. Notwithstanding the establishment and increase in the number of microfinance banks in the country, poverty keeps increasing as such, and the study makes the following recommendations. Microfinance banks should direct a large percentage of their credits to the productive and real sectors of the economy to have a significant impact on Nigeria's economic development. Microfinance banks will help improve living standards in the country by granting more credits to rural dwellers through the formation of corporative societies, age grade, and unions predominant in rural areas. Microfinance banks should create more community tailored products such as newborn savings accounts and child education saving accounts. This will allow them to choose from a wide range of tailored products to their particular needs, thus raising their standard of living. The government, through the CBN, should make sure that microfinance bank loans are extended to the poor with minimum deposit requirements. To allow repayment of interest and money lent, the interest rate paid on the loans should be lower than that charged by commercial banks. Instead of the weekly payment that microfinance banks use to promote manufacturing capacity utilization, the repayment should include a grace period and a fair schedule.

AUTHOR CONTRIBUTIONS

Conceptualization: Ayomide Ibrahim.
Data curation: Ayomide Ibrahim.
Formal analysis: Ayomide Ibrahim.
Funding acquisition: Adegbola Olubukola Otekunrin, Onyegiri Paul Kenechukwu, Damilola Felix Eluyela.
Investigation: Ayomide Ibrahim.
Methodology: Damilola Felix Eluyela, Okoye Nonso John.
Project administration: Adegbola Olubukola Otekunrin, Onyegiri Paul Kenechukwu, Okoye Nonso John.
Resources: Onyegiri Paul Kenechukwu, Damilola Felix Eluyela, Ayomide Ibrahim.
Software: Okoye Nonso John.
Supervision: Adegbola Olubukola Otekunrin.
Validation: Adegbola Olubukola Otekunrin, Okoye Nonso John.
Visualization: Adegbola Olubukola Otekunrin, Okoye Nonso John.
Writing – original draft: Ayomide Ibrahim.
Writing – reviewing & editing: Adegbola Olubukola Otekunrin, Onyegiri Paul Kenechukwu, Damilola Felix Eluyela, Okoye Nonso John, Ayomide Ibrahim.

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