

Financial Inclusion And Poverty Reduction In Nigeria

Oladotun T. Mabinuori^{1*}, Oluwatoyin A. Matthew², Ebenezer I. Bowale³

^{1,2,3}Department of Economics and Development Studies, Covenant University, Ota, Nigeria
¹Department of Economics, Accounting & Finance, Bells University of Technology Ota, Nigeria
 Email: ¹ drdotman@yahoo.com

*Corresponding Author: Oladotun T. Mabinuori
 Department of Economics and Development Studies, Covenant University, Ota, Nigeria
 Department of Economics, Accounting & Finance, Bells University of Technology Ota, Nigeria
 DOI: 10.47750/pnr.2023.14.04.96

Abstract

Financial inclusion has gained widespread acceptance among governments, academics, and watchers of the global economy as a crucial instrument for eradicating poverty, creating jobs, building wealth, and enhancing human welfare and living standards, all of which contribute to economic growth. This study's objective was to ascertain how financial inclusion impacted Nigeria's efforts to combat poverty. It looked at the empirical connection between the struggle against poverty and financial inclusion. The study uses yearly time series data from the World Development Indicators (2021) covering the years 1980 to 2020 to examine how financial inclusion affects poverty in Nigeria. The study's independent and control variables were Per Capita Income (PCI), Financial Deepening Indicator (FDI), Social Investment Loan (SIL), Loan-Deposit Ratio (LDR), and Depositors with Commercial Banks (DCB), while the dependent variable was the Poverty Index (PI). The study employed the Auto-Regressive Distributed Lag (ARDL) model to estimate how financial inclusion affects Nigerian poverty levels. According to this research, Nigeria's attempts to combat poverty are positively and significantly impacted by financial inclusion. According to the study's findings, reducing poverty in Nigeria is positively impacted by financial inclusion. These outcomes illustrated the potential contribution of financial inclusion initiatives to raising the standard of living among Nigerians. The research suggested that the Central Bank of Nigeria develop efficient monetary policies that can have an impact on financial inclusion and poverty reduction.

Index Terms— Auto-Regressive Distributed Lag, Financial Inclusion, Per Capital Income, Poverty.

INTRODUCTION

Africa is thought to be the continent with the second-fastest growth rate in the world, after Asia, with an average yearly Gross Domestic Product (GDP) growth rate of more than 5% during the last ten years. Despite the region's excellent macroeconomic growth over the past ten years, the gains are not evenly distributed throughout the continent's nations (Triki & Faye, 2013). Despite the great increase, many people on this continent continue to live in poverty. 48% of people in sub-Saharan Africa continue to live on less than \$1.25 a day, according to the 2013 World Bank Report on poverty. Growth must be inclusive in order to be socially, economically, and politically sustainable as a principle of equality and social justice. Financial inclusion is a certain strategy to promote inclusive development, yet Africa typically lags behind other continents in this regard (Triki & Faye, 2013). According to studies, one in four adults in Africa maintains a personal account with a recognized financial institution, while 2.5 billion people worldwide do not (Karakara & Osabuohien 2019; Demirgüç-Kunt & Klapper, 2012a; World Bank, 2013). The World Bank (2013) study also states that about 80% of the 2.5 billion people live on less than \$2 per day. According to Efobi, Beecroft, and Osabuohien (2014), financial inclusion (FI) refers to broadening public access to formal financial services such as bank accounts and/or the usage of banks' credit and saving facilities.

Financial inclusion, according to Diniz, Birochi, and Pozzebon (2012), is the provision of formal financial services to all members of an economy at a fair price, with a focus on low-income groups. They claim that financial inclusion has been recognized as a key component of policy for both economic growth and the eradication of poverty. Financial inclusion, according to Triki and Faye (2013), refers to all measures that make formal financial services available, affordable, and accessible to all demographic groups. For at least two reasons, Nigeria is a significant case study. It has the most people living in poverty and runs Africa's biggest financial inclusion program. As one of the first countries in the world to sign the Maya Declaration, Nigeria established the National Financial Inclusion Strategy in 2012 with the intention of reducing the proportion of economically excluded people to 20% by 2020 (Central Bank of Nigeria, 2012). More over 200 million people call Nigeria home, with 60% of them being adults.

However, only 25% of the nation's total bank customers have had their accounts verified by the bank, and there are strong indicators that many of the other 80 million subscribers are duplicates. This proves that there is still some financial inclusion in

Nigeria. The majority of the bank's present clients reside in sizable cities with thriving economies. Ajide (2014) asserts that a sizeable proportion of residents of rural areas continue to be socially and economically marginalized. This demonstrates the relationship between economic activity and the level of financial inclusion in terms of a community's well-being. People who are financially involved tend to be more productive, spend more money, and invest more, per studies (Babajide, 2023; Beck et al., 2004). Due to its considerable effects on both the economy and society, financial inclusion has become a key factor for policymakers to take into account when trying to combat poverty. McKinsey (2014) estimates that just approximately 21% of Nigerians have access to financial services, compared to a rate of roughly 46% in South Africa. According to a 2014 World Bank report, 32% of South Africans have access to formal credit, compared to 2% of Nigerians who had that same access. Nigeria placed 135th out of 176 nations in 2015 research by Cyn-Young and Ragelio that analyzed financial inclusion. There are several definitions of poverty from various writers and research, and there isn't a single definition that applies to the notion of poverty. Due to a lack of essential utilities, such as financial services, individuals are unable to maintain their level of living. This is the case, according to Investopedia. Poverty, according to Ajakaiye (1998), is a state in which a person cannot even meet non-essential needs like identity and other items like water, food, housing, and education. Latifee (2003) asserted in a different study that poverty is caused by a person's lack of social, economic, and political privileges because of low income, fundamental human capacities, institutional protection, and occasionally all of these variables combined. The definition of poverty is extreme destitution.

Sanusi (2011) asserts that the challenges of financial exclusion are brought on by the rise in poverty in Nigeria. According to him, 70.0% of the population has to be empowered in order to attain the maximum degree of financial inclusion in Nigeria, which will promote growth and development. Increased access to financial services is thought to boost the poor's capacity to produce wealth, raise their standard of life, and lessen poverty. Each of the several causes of poverty has its own unique set of effects. The extent of poverty can vary greatly depending on the circumstances. Being poor in Canada is not the same as being poor in Zimbabwe or Russia. There may also be large inequalities between the wealthy and the poor within a country's borders. Few banks are interested in the savings of the poor in emerging nations, making it expensive and challenging for them to save. They are unable to save money to invest as a result (Khavul & Bruton, 2012).

According to Essegbey and Frempong (2011), one of the primary drivers of national development is the decrease of poverty. Achieving financial inclusion is being challenged on a worldwide basis because these problems are particularly acute in third-world nations and developing economies, particularly in Africa (Ardic et al., 2011). In order to combat poverty and raise living standards, it is now a universal objective to guarantee that financial services are accessible to billions of people globally, notwithstanding any obstacles. This objective tries to eliminate obstacles like age, gender, inconsistent income, education, and others. Financial isolation and the persistence of poverty in Nigeria were linked by Sanusi (2011). To maximize financial inclusion across the country, in his view, the government must aim to financially include and empower 70% of the population that is currently financially excluded. He pointed out that their integration has the ability to quicken economic activity, boosting economic growth and ultimately lowering poverty.

This study intends to explore the empirical relationship between financial inclusion and poverty reduction in order to contribute to the ongoing conversation in pertinent research. Its goal is to examine how financial inclusion may be utilized to raise people's standards of life. Following this introduction, the following portion of the study will feature a literature review where the author will assess the body of knowledge and points of view on financial inclusion and poverty reduction. The authors want to pinpoint any gaps in the body of research that the study will fill. The focus of the following session will be the research technique and design, supported by applicable models and theoretical foundations. The final section will give the results analysis, and the concluding session will make conclusions and recommendations.

LITERATURE REVIEW

According to the Rangarajan Committee's (2008) definition, financial inclusion is the process by which people who are already a part of the economy but are not eligible for these services because of their low income or inaccessibility are made available to them promptly and affordably. Credit services are included in this. Mohan (2006) defined financial inclusion as the process by which a population segment that did not previously have access to the financial system increasingly integrates into it by getting affordable, secure, and equitable financial products and services from well-established financial institutions. Making a country's financial system accessible to its residents is the process of financial inclusion, according to Ajide (2014). Sarma (2008) defined it as the process of guaranteeing easy access, reasonable price, and comfortable usage of formal financial services in her own research. Aduda and Kalunda (2012) define financial inclusion as the process used by service providers to make a variety of financial services available quickly, affordably, and easily to all community members.

According to Ukama and Adigun (2013), financial exclusion is the inability of an individual, family, or community to access formal financial goods and services. The practice of integrating specific individuals and groups into the financial services industry is known as financial inclusion. It is believed that some individuals and organizations are financially excluded. Financial isolation

might be voluntary or imposed. In contrast, involuntary exclusion, according to Cyn-Young & Rogalio (2015), frequently happens due to a lack of income, neighbourhood concerns, a high-risk profile, or discriminatory market trends. When former President Babangida announced the Structural Adjustment Program (SAP) in 1986, Nigeria accepted the idea of financial inclusion.

According to studies (Honohan, 2004), a more efficient and inclusive financial system is associated with more rapid and equitable growth. For households already operating enterprises, easier access to microcredit encourages investment and entrepreneurship (Karlan and Zinman, 2014). The Global Financial Inclusion (Global Findex) statistics, which also demonstrate significant differences in the consumption of financial services in high-income and poor nations, complement the conclusions of earlier research by Beck et al. (2007). Financial inclusion has been attained when people in Nigeria have simple access to a range of formal financial services that satisfy their needs and are offered at reasonable prices (CBN, 2012). The foundation of financial inclusion consists of five elements. These are:

- i. Being able to access a wide variety of financial services, including credit, savings, insurance, and payments.
- ii. All users of financial services, especially underserved and excluded populations, must be able to access the services. Particular attention must be paid to rural areas, individuals with disabilities, ethnic minorities, and other commonly excluded groups.
- iii. In a vibrant and cutthroat market with a wide range of financial service providers and a solid financial infrastructure.
- iv. Access to transaction banking, savings, credit, and insurance is crucial for promoting financial inclusion (World Bank, 2005; EU, 2008).

The term "poverty," which comes from the Latin phrase "periodis," meaning "poor," is commonly acknowledged as a problem on a global scale. According to the World Bank (1997), some signs of poverty include hunger, a lack of a place to live, poor health, a lack of education, the inability to read or write, unemployment, a high infant/child mortality rate, and a pervasive sense of fear. The inability of a person to access needs like food, housing, clothing, education, and identity is what Ajakaiye (1998) defines as poverty. Additionally, Aku et al. (1997) provide five viewpoints on poverty. They perceived it as a denial of people's economic and social needs as well as their needs for food, healthcare, education, and literacy. Economic denial can take the form of being denied access to a steady source of revenue, production inputs, financial resources, or employment.

Deprivation-driven participation in social, political, and economic activities was connected with social denial. Ogunsakin and Fawehinmi (2017) categorized poverty into four groups. It seemed at first to be terrible, enduring, or unchangeable. This form of poverty has an effect on the sufferer's mental health as well as their most fundamental requirements. This is most frequently seen in Africa, where individuals lack access to necessities including food, clothing, and shelter. The second group is relative poverty. The available living standards around the world are used to illustrate this. It involves comparing people's living standards throughout different areas of a society, allowing one to decide whether two things are comparable based on current circumstances. Even while a situation may be considered comfortable for one individual, it may be uncomfortable for another. Comparing the living standards of rich and developing nations makes this more obvious.

The third category of poverty, known as masquerade poverty, describes circumstances where individuals or groups consider the advantages of living in poverty as a way to amass money. Since doing so would undercut the financial benefits they currently obtain from their deplorable living conditions, organizations in various states of Nigeria have continued to oppose government initiatives to enhance the quality of life for inhabitants. This particular form of poverty, which is common in areas with high levels of corruption and systemic porosity, is frequently terminal. The final type of poverty covered by Ogunsakin & Fawehinmi (2017) is the poverty of the mind. In this situation, a person or person cannot be content with oneself. As of May 2018 (CBN, 2018), there were 22 Deposit Money Banks in Nigeria, each of which had a network of more than 6,000 branches. These figures are concentrated in a few states—over 40% of them. Additionally, according to CBN (2014), banks presently have over 15,000 POS terminals and over 19,000 ATMs installed across the nation, however, these numbers are heavily concentrated in a select few areas.

Despite the nation's sizable bankable population, banks have continued to innovate and extend their infrastructure, yet these resources are still largely underutilized. The Central Bank of Nigeria (2012) projected that each of its branches serves an average of 3,882 customers, according to Fadun (2014). Financial inclusion makes it possible for those who are less fortunate to invest in both material and immaterial assets, stimulating the economy in undeveloped regions. However, since they frequently lack access to formal financial services, the poor in developing countries are unable to take advantage of the ways that financial institutions may influence the economy. Richter (2011) stated that a location's degree of financial services depends on a variety

of factors, including the region's geography, the local population's linguistic makeup, their level of literacy, and the business climate. These elements are severely restricted in rural locations where there are substantial investment risks and a high level of illiteracy-based community animosity. People who reside in these places are thus forced to rely on the assistance of informal organizations in order to acquire basic financial services, the most notable of which are short-term loans and group gifts known as "ajo" or "esusu."

2.1 Theoretical Framework

The theoretical underpinning for this study is Gerschenkron's huge spurt theory, which claims that a less developed economy requires a significant break with the past or a huge spurt of industrialization to move from a traditional level of economic backwardness to a modern industrial economy (Balami, 2006). The idea is that the economic level of a nation affects how quickly it industrializes. The idea holds that all economies started out as being underdeveloped and over time progressed into different classes based on how industrialized they were. He divided the world's economy into four groups: the extremely backward, the backwards, the moderate, and the advanced. According to the hypothesis, activity in industries, bank engagement, and government policy assistance will be the starting points for the growth and transformation of an extremely backward economy, respectively.

To accomplish the desired economic growth and raised living standards, it also recognizes the significance of a strong financial system that can record all of the economic activity of the individuals within the economy. The hypothesis suggests using capital-intensive production strategies to launch a significant upswing. The three components of manufacturing activity, bank involvement, and government policy support have a strong positive link in all advanced economies with high standards of living, according to Demircug-Kunt's (2008) Great Spike Theory. In contrast to the negative association discovered between financial deepening and poverty level, some other studies have revealed a favourable correlation between financial depth and income (Beck, Demircug-kunt & Levine, 2007). Fadun (2014) looks at financial inclusion as a strategy for lowering poverty and redistributing income in Nigeria. Some chosen respondents in the research region received structured questionnaires. As a result, using descriptive statistics to assess the data produced was more advantageous.

According to the study's findings, financial inclusion is a real instrument for reducing poverty and redistributing income in Nigeria. Similar to this, the report by Enhancing Financial Innovation and Access (EFINA 2010) reveals that in Nigerian urban centres, 53.7% of people are financially served, 46.3% are financially excluded, 36.63% are formally served (included), 17.49% are served informally (included), 30.0% are banked, and 6.3% are served by other financial institutions. On the basis of Nigerian zones, the record also reveals that the Northwest had 13% of formal bank accounts, 13% of informal services, and 68% of financial exclusion. In North Central (FCT), 44% of people were financially excluded, 27% used informal services, and 23% were properly banked.

In the southwest (Lagos), 33% were economically excluded, while 18% received informal assistance. Financial exclusion affected 68% of those in the Northeast (15%), 11% of those in the Southeast (41%), 21% of those in the Northeast (11%), and 15% of those in the Southeast (15%). In Nigeria, rural areas account for 80.4% of persons who are voluntarily excluded from formal and informal financial services, while urban areas account for the remaining 19.6%. In the South-South, 39% of people had access to formal banking, 19% received informal services, and 36% were financially excluded (EFINA, 2010).

METHODOLOGY

Model Specification

The model utilized in Onaolapo (2015) is modified and adjusted in this study. For instance, Onaolapo (2015) looked at how financial inclusion affected Nigeria's economic expansion.

$$PI = \beta_0 + \beta_1 PCI_t + \beta_2 CBB_t + \beta_3 DCB_t + \beta_4 BCB_t + e_1$$

Where;

According to Oluyombo (2013) and Onaolapo (2015), PI and PCI were utilized as indicators of the reduction of poverty.

The poverty index is a measurement of the extent of poverty.

PCI: Per Capita Income, which serves as a gauge for income.

The variables listed below were used as stand-ins for financial inclusion:

CBB: The branches of commercial banks.

DCB: Depositors with commercial banks

The BCB: The Commercial Bank Borrowers.

ATM: Automated teller machines, or ATMs.

β_1 to β_4 represent the coefficient of the parameters of estimation and is the period in question. However, for the purpose of this study, the above mathematical model will be modified to achieve the objective of the study.

$$PI = \beta_0 + \beta_1 PCI_t + \beta_2 LDR_t + \beta_3 FDI_t + \beta_4 SIL_t + \beta_5 DCB_t + e_2$$

PI: The Poverty Index is used as a stand-in for decreasing poverty.

PCI: The Per Capita Income used as a stand-in for reducing poverty.

LDR: The Loan to Depositors Ratio, or LDR, is a metric for financial inclusion.

FDI: The Financial Deepening Indicator (FDI) is a tool for measuring financial inclusion.

SIL: The Social Investment Loan measure financial inclusion scheme.

DCB: The Depositors with commercial banks.

RESULTS AND DISCUSSION

This section basically focuses on the results of this study which include, descriptive statistics, the stationarity test, and the ARDL estimation technique.

Descriptive Statistics

The goal of descriptive statistics is to summarize and describe the main characteristics of a dataset. It necessitates the study, organization, and presentation of data in order to gain insights and identify its underlying patterns. Before conducting additional analysis, descriptive statistics are frequently used to summarize the data or to quickly ascertain the characteristics of the dataset. Descriptive statistics helps provide an overview of the central tendency, the spread of skewness, kurtosis, and other characteristics of the data distribution for each variable:

Table 1: Descriptive Statistics

Descriptive	PI	PCI	LDR	FDI	SIL	DCB
Mean	5.322114	117.6778	34.32862	37.16553	3.199394	39746706
Median	3.420627	123.6098	36.04641	49.81501	2.723563	42230018
Maximum	15.46916	160.1723	39.06250	49.30000	41.38866	71620041
Minimum	-3.125119	67.14614	29.40333	26.30000	-23.74670	41836586
Std. Dev.	3.027196	29.34800	3.832178	6.837357	13.44626	22247705
Skewness	0.426426	-0.164357	-0.253980	-0.512168	0.313052	0.279833
Kurtosis	3.286568	1.557060	2.149267	2.499115	4.784686	2.076073
Jarque-Bera	1.120671	4.318290	1.549223	1.733533	4.769480	1.555822
Probability	0.571017	0.190302	0.460883	0.420308	0.092113	0.459365
Sum	138.2437	4701.330	1066.516	1508.657	70.02861	1.56E+09

Descriptive	PI	PCI	LDR	FDI	SIL	DCB
Sum Sq. Dev.	500.2737	24185.31	455.2533	1904.149	4802.195	3.85E+15
Observations	32	32	32	32	32	32

Source: Authors' Computation, 2023.

Table 1 presents the descriptive statistics for several variables: PI (Poverty Index), PCI (Per Capita Income), LDR (Loan-Deposit Ratio), FDI, SIL, and DCB (Depositors with commercial banks). The mean values for each variable are as follows. The mean value of PI is 5.322114. This indicates the average level of the poverty index. It provides an idea of the overall magnitude of the poverty index. The mean of PCI is 117.6778. This value represents the average income earned by everyone. It gives an indication of the economic prosperity or standard of living on a per-person basis. The average loan-deposit ratio is 34.32862. This ratio measures the proportion of loans granted by financial institutions relative to the deposits they hold. It signifies the extent to which banks or other lending institutions rely on borrowed funds for lending purposes. The average financial deepening indicator is 37.16553 which represents the average amount of investment made by foreign entities directly into the given context. It provides insight into the level of international investment flowing into the area. The average value for SIL is 3.199394. This variable measures the relationship between savings and investment, indicating the extent to which savings are used for productive investment purposes. The average value of DCB is 39,746,706.

These minimum and maximum values provide insights into the extremes of each variable, indicating the range of values observed in the dataset. The minimum value of the poverty index is -3.125119. This indicates the lowest recorded level of poverty index. A negative value suggests that, on average, the poverty index is below zero, which could imply a decrease in investments or financial losses. The maximum value of private investment is 15.46916. This represents the highest recorded level of the poverty index. It suggests that, on average, there have been instances of significant investments. The minimum per capita income is 67.14614. This represents the lowest recorded individual income in the dataset. It suggests that there are individuals in the context with relatively lower incomes.

The maximum per capita income is 160.1723. This indicates the highest recorded individual income in the dataset. It suggests that there are individuals with relatively higher incomes in the given context. The minimum loan-deposit ratio is 29.40333. This represents the lowest recorded ratio of loans to deposits. It suggests a relatively lower level of borrowing or reliance on loans by financial institutions. Maximum: The maximum loan-deposit ratio is 39.06250. This indicates the highest recorded ratio of loans to deposits. It suggests a relatively higher level of borrowing or reliance on loans by financial institutions. The minimum financial deepening indicator is 26.30000. This represents the lowest recorded level of FDI in the dataset. It suggests that there have been instances of relatively lower financial deepening indicators. The maximum FDI is 49.30000. This indicates the highest recorded level of financial deepening indicators. It suggests that there have been instances of significant financial deepening indicators.

Statistical measurements like skewness and kurtosis can shed light on the distribution and form of a dataset. Skewness is a metric for asymmetry in the distribution. An entirely symmetrical distribution has a skewness value of 0. Positive skewness (skewness > 0) denotes a longer or fatter tail on the right side of the distribution. It implies that the dataset is favorably skewed and has more extreme values on the right side. A distribution with a longer or fatter tail on the left is said to have negative skewness (skewness < 0). It implies that the dataset is negatively skewed and contains more extreme values on the left. For, PI, the skewness value is 0.426426 which suggests a slightly right-skewed distribution for the poverty index, indicating the presence of relatively more high values.

The skewness value for PCI is -0.164357 which suggests a slightly left-skewed distribution for per capita income, indicating the presence of relatively more low values. For LDR, the skewness value of -0.253980 suggests a slightly left-skewed distribution for the loan-deposit ratio, indicating the presence of relatively lower values. The skewness value for FDI is -0.512168 which suggests a moderately left-skewed distribution for FDI, indicating the presence of relatively more low values. Then for SIL, the skewness value is 0.313052 which suggests a slightly right-skewed distribution for the social investment loan, indicating the presence of relatively higher values. Also, the skewness value for DCM is 0.279833 which suggests a slightly right-skewed distribution for Depositors with commercial banks, indicating the presence of relatively more high values.

A statistical test called the Jarque-Bera test evaluates the normality of a dataset by looking at its skewness and kurtosis values. It tests the null hypothesis that the data follows a normal distribution. Based on the Jarque-Bera test results, the distributions of the poverty index, loan-deposit ratio, financial deepening indicator, and depositors with commercial banks are likely to be approximately normal. However, the distributions of per capita income and the social investment Loan may deviate from a normal distribution.

UNIT ROOT TEST

A time series variable's unit root or stationarity can be determined using a statistical test known as the unit root test, also known as the stationarity test. A variable has a stochastic trend and does not progressively revert to its constant mean if it has a unit root.

Table 2: Unit Root Test Results

Variables	ADF	5%critical value (*)	Order of integration	PP	5%critical value (*)	Order of integration
PI	-3.142158	-2.938987	I (0)	-4.273959	-2.936942	I (0)
PCI	-8.343868	-2.938987	I (1)	-8.691326	-2.938987	I (1)
LDR	-7.262780	-2.938987	I (1)	-7.630125	-2.938987	I (1)
FDI	-6.060415	-2.938987	I (1)	-6.059906	-2.938987	I (1)
SIL	-5.175990	-2.938987	I (0)	-6.073492	-2.936942	I (0)
DCB	-2.979454	-2.963972	I (1)	-2.970855	-2.963972	I (1)

Source: Authors' Computation, 2023.

The results of the Augmented Dickey-Fuller (ADF) and Philips-Peron (PP) tests for each variable's stationarity are shown in Table 2. The test is frequently used to establish the sequence in which a time series of data is integrated, which reveals how many differencing operations are necessary to make the series stationary. The ADF and PP tests provide information about the order of integration for each variable. The results indicate whether a variable is already stationary (I (0)) or requires differencing to become stationary (I (1)). Given that the ADF and PP test statistics for PI and PCI are below their corresponding critical values, we may infer from the table that these variables are stationary at the 5% level. Since their ADF and PP test statistics are higher than their respective critical values and the PP test shows that they are integrated at order one, LDR, FDI, SIL, and DCB have unit roots. In summary, PI and PCI are stationary variables, while LDR, FDI, SIL, and DCB are non-stationary variables that require further differencing to become stationary. This therefore determined the choice of the autoregressive distributed lag (ARDL) test as an analytical tool for this study.

Autoregressive Distributed Lag (ARDL)

A regression model called an Autoregressive Distributed Lag (ARDL) model is used to calculate the long- and short-term associations between different variables. Both stationary and non-stationary variables can be included in the study. The ARDL model takes into account both short-run and long-run dynamics between the variables by allowing for various delays of the dependent and independent variables. The choice of lag lengths (p and q) can be determined using statistical criteria or economic theory.

Table 3: Autoregressive Distributed Lag Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
PI(-1)	0.246241	0.241567	1.019349	0.3232
PI(-2)	0.414978	0.187985	2.207509	0.0422
PCI	0.126652	0.070867	1.787178	0.0929
PCI(-1)	0.292922	0.080985	-3.617001	0.0023
PCI(-2)	0.129559	0.081627	1.587204	0.1320
LDR	-0.789790	0.427396	-1.847912	0.0832
LDR(-1)	0.495294	0.334903	1.478919	0.1586
FDI	0.015482	0.243811	0.063500	0.9502
SIL	0.055024	0.049436	1.113022	0.2821
SIL(-1)	-0.108957	0.050559	-2.155064	0.0467
DCB	-3.55E-07	7.68E-07	-0.461666	0.6505
DCB(-1)	-1.06E-06	1.36E-06	-0.776620	0.4487
DCB(-2)	1.61E-06	8.82E-07	1.821367	0.0873
C	7.839822	9.390234	0.834891	0.4161
R ²	0.766176	Mean dependent var		4.203614

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Adjusted R ²	0.576193	S.D. dependent var		3.844241
F-statistic	4.032878	Durbin-Watson stat		1.674346
Prob(F-statistic)	0.004991			

Source: Authors' Computation, 2023.

It is a better model than others at capturing the short-run and long-run impact of independent variables based on the study's purpose. The coefficients, standard errors, t-statistics, and probability values for the autoregressive distributed lag (ARDL) model are displayed in the table above. The coefficient for PI (-2) is 0.414978, indicating that a 1% increase in the value of two periods ago will result in a 0.414978% increase in the current value of the dependent variable, holding all other variables constant. Similarly, the coefficients for the lagged values of PCI and LDR are positive, indicating that increases in these variables in the previous period or two periods ago are associated with increases in the current value of the dependent variable. The coefficient for PCI (-1), however, is negative, indicating that an increase in PCI in the previous period is associated with a decrease in the current value of the dependent variable.

The coefficient for FDI is positive but very small, indicating that FDI has little effect on the dependent variable. The coefficient for SIL (-1) is negative, indicating that an increase in SIL in the previous period is associated with a decrease in the current value of the dependent variable. The coefficients for the lagged values of DCB are very small and statistically insignificant, indicating that DCB has little effect on the dependent variable. For example, the coefficient of multiple determination is high given various pertinent statistical and econometric criteria of this model, indicating that the independent variables' explanatory power is more reliable. In this regard, the coefficient of determination is 0.77, which indicates that the explanatory variables in the model account for almost 77% of the variation in PI. The statistically significant value of the F-test statistic is evidence that the overall association in the model is substantial, as shown by the F-Statistic. The independent variables in the model account for roughly 57.6% of the variation in the dependent variable, according to the adjusted R-squared value of 0.576193. The F-statistic of 4.032878 indicates that the model as a whole is statistically significant with a probability value of 0.004991. However, in terms of the variable significance, PI has no statistical significance in the first period included in the model, but statistical significance in the second period. This suggests that the PI model is an exogenous one. Furthermore, PCI was not statistically significant for the initial and second periods but was statistically significant in the first period, and its coefficients indicate a positive relationship with financial inclusion. This, therefore, confirms the study's *a priori* expectation. This means that an increase in financial inclusion schemes will translate into a decrease in the poverty index.

RECOMMENDATIONS AND CONCLUSION

In this study, the effect of financial inclusion on poverty in Nigeria has been empirically explored. The study's findings make it abundantly evident that financial inclusion has a major impact on the poverty index, which lowers the amount of poverty. These results suggest that financial inclusion has a favourable impact on poverty in Nigeria. However, the immediate impact of financial inclusion and the relationship between LDR and the poverty index requires further examination. These results emphasize the potential significance of financial inclusion schemes and policies in enhancing and endorsing financial inclusion schemes in order to reduce or eliminate poverty in Nigeria. These results suggest that financial inclusion is a key instrument for reducing poverty, especially in emerging nations like Nigeria. The report advises the Central Bank of Nigeria to develop efficient monetary policies that can have an impact on financial inclusion and poverty reduction. This would promote easy access to affordable financial services for the purpose of reducing poverty. The paper also recommends that future researchers carry out comparative studies on how financial inclusion affects reducing poverty across nations on the African continent.

REFERENCES

1. Aduda, J., & Kalunda, E. (2012). Financial inclusion and financial sector stability with reference to Kenya: A Review of Literature. *Journal of Applied Finance & Banking*, 2(6), 95 – 120.
2. Aluko, T. (2011). Managing poverty scourge in a developing country: the Nigeria perspective. *Journal of Economics*, 8(5), 1-9.
3. Atolaye, D.R., & Bamidele, M. (1997). Why don't the poor save more? Evidence from health savings experiments. *The American Economic Review*, 103(4), 38–71.
4. Ajide, F.M. (2014). Stock market activities and economic growth in Nigeria: Using oil and gas Sector (1991 to 2010). *ICAN Amuwo Journal*, 3,37-46.
5. Ajide, F.M. (2013). Socio-economic antecedents of failing rural development policy: An appraisal of rural development programmes and projects in Nigeria. *International Journal of Humanities and Management Sciences*, 1(1), 94-102.
6. Ajide, F. M (2012). The effects of stock market activities on the performance of economic indicators in Nigeria: An empirical investigation (1985 - 2010). *Lagos Journal of Entrepreneurship and Technology (LJET)*, 1(6), 73-83.
7. Ajakaiye, O. (1998). Conceptualization of Poverty in Nigeria,' Proceedings of the 7th Annual Conference of the Zonal Research Units, Central Bank of Nigeria, Makurdi, June, 8-12, 2008.
8. Aku, P.S. et al, (1997). Perspective on Poverty Alleviation Strategies in Nigeria,' Proceedings of the Nigerian Economic Society Annual Conference on Poverty Alleviation in Nigeria 1997.
9. Ajide, F. M. (2014). Stock market activities and economic growth in Nigeria: Using oil and gas Sector (1991 to 2010). *ICAN Amuwo Journal*, 3, 37-46.

10. Ardic O.P. et al, (2011), ‘Access to Financial Services and the Financial Inclusion Agenda around the World - A Cross- Country Analysis with a New Data Set’ – A publication of the World Bank Financial and Private Sector Development Consultative Group to Assist the Poor January 2011.
11. Ajisafe, R.A. & Ajide, F.M. (2014). Bank competition and economic growth: Evidence from Nigeria (1986-2012). *Journal of Emerging Trends in Economics and Management Sciences*, 5(5), 419-425.
12. Ajakaiye, O. (1998), ‘Conceptualization of Poverty in Nigeria,’ Proceedings of the 7th Annual Conference of the Zonal Research Units, Central Bank of Nigeria, Makurdi, June, 8-12, 2008.
13. Babajide, A.A (2023) Financial Inclusion and Climate Action among micro small and medium enterprises (MSME) in Africa. *Reference Module in Social Science*, 1.
14. Beck, T. Demirguc-Kunt, A. & Levine, R. (2004). Finance, inequality and poverty: Cross- country evidence. *World Bank Policy Research Working Paper* 3338. Retrieved on March 15, 2015 from www.aeaweb.org/assa/2005/0108_0800_0302.pdf.
15. Beck, T. Demirguc-Kunt, A. and Peria, M. S. M. (2007). Reaching out: Access to and use of banking services across countries. *Journal of Financial Economics*, 85(1), 234-266.
16. Balami, D. H. (2006). *Macroeconomic Theory and Practice*, University of Maiduguri Centre for Distance Learning, Retrieved on 16th April 2020 from www.unimaid.edu.ng/oer/...oer/.../ECO%20202%20MACROECONOMICS%20I.pdf.
17. Bruce, A.S., Gine, P., Golberg, G., & Yan, U. (2011). Group lending or individual lending? evidence from a randomized field experiment in Mongolia. Working Paper W11/20. London: Institute for Fiscal Studies.
18. Burgess, R., & Pande, T. (2005). Do rural banks matter? evidence from the Indian social banking experiment. *American Economic Review*, 95(3), 780 – 795.
19. Clark, Y. (2013). Impact of microcredit in rural areas of morocco: evidence from a randomized evaluation. working paper. Cambridge, Mass.: Massachusetts Institute of Technology.
20. Cyn-Young, P. and Rogelio, V.M. (2015), ‘Financial Inclusion, poverty and Income Inequality in Developing Asia,’ ADB Economic Working Paper Series no 426.
21. Central Bank of Nigeria (2014), ‘National Financial Inclusion Strategy’ Summary Report, Central Bank of Nigeria, Abuja.
22. Central Bank of Nigeria (2018), 2017 Statistical Bulletin: Financial Statistics, Retrieved on May 12 2021 from <http://www.cbn.gov.ng/documents/statbulletin.asp>.
23. Dang, H. & Rogers, F. (2015). The decision to invest in child quality over quantity: Household size and household investment in Vietnam. *World Bank Economic Review*, 30, 104-142.
24. Demirgüç-Kunt, A. and Levine, R. (2008). Finance, financial sector policies, and long-run growth. *World Bank Policy Research Working Paper*, No. 4469.
25. Demirgüç-Kunt, A., & Klapper, L. (2012). Financial inclusion in Africa. *Policy Research Working Paper. The World Bank Development Research Group Finance and Private Sector Development Team*, 1-18.
26. Demirguc-Kunt, A., Klapper, L., & Singer, D. (2017). *Financial inclusion and inclusive growth: a review of recent empirical evidence*. Washington DC.: The World Bank.
27. Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*. Washington DC.: The World Bank.
28. Denny, K., & Oppedisano, V. (2013). The surprising effect of larger class sizes: Evidence using two identification strategies. *Labour Economics*, 23, 57-65. doi:<https://doi.org/10.1016/j.labeco.2013.04.004>
29. Dimova, R., & Adebowale, O. (2018). Does access to formal finance matter for welfare and inequality? Micro level evidence from Nigeria. *The Journal of Development Studies*, 54(9), 1534-1550.
30. Dia, C. (2006). Finance, institutions and economic development, *International Journal of Finance and Economics*, 11(3), 245–60.
31. Diniz, E. Birochi, R. and Pozzebon, M. (2012). Triggers and barriers to financial inclusion: The use of ICT-based branchless banking in an Amazon county. *Electronic Commerce Research and Applications*, 11(5), 484-494.
32. Ene, J., & Inemesit, E. (2015). Financial inclusion and financial sector stability with reference to Kenya: A Review of Literature. *Journal of Applied Finance & Banking*, 2(6), 95 – 120 Enhancing financial innovation and Access (2010).EFINA access to financial services in Nigeria 2010 survey. EFINA.
33. Essegbey, G. O. & Frempong, G. K. (2011). ‘Creating space for innovation—the case of mobile telephony in MSEs in Ghana,’ *Technovation*, 31(12), 679-688.
34. Efobi, U. Beecroft, I. & Osabuohien, E. (2014). Access to and use of bank services in Nigeria: Micro-econometric evidence. *Review of Development Finance*, 4(2), 104-114.
35. Fadun, S.O. (2014). Financial inclusion, tool for poverty alleviation and income redistribution in developing countries: evidence from Nigeria. *Academic Research International Journal*, 5(3), 137 – 145.
36. Flannery, E.R. (2018). Eradicating poverty in the globe through effective financial inclusion policy. *Journal of Financial Studies*, 3(4), 1-17.
37. Global Findex Report (2014). The Global Findex Database. World Bank Policy Research Paper 6025. Washington, D.C.: World Bank.
38. Honohan, P. (2004). Financial development, growth and poverty: How close are the links, in *financial development and economic growth: Explaining the links*, Ed. Charles
39. Goodhart. London: Palgrave. Igbinsosa, O.S., & Ogbeide, S.O. (2016). Banking sector development and performance of the Nigerian economy. *International Journal of Management Science Research (IJMSR)*, 1(1), 1-14.
40. Karlan, D., Ratan, A.L., & Zinman, J. (2014). Savings by and for the Poor: A Research Review and Agenda. *Review of income and wealth*, 60(1), 36-78.
41. Karakara, A.A. and Osabuohien, E.S. (2019). Households' ICT access and bank patronage in West Africa: Empirical insights from Burkina Faso and Ghana. *Technology in Society*, 56:116-125.
42. Khavul, S. & Bruton G. D. (2012). Harnessing innovation for change: Sustainability and poverty in developing countries. *Journal of Management Studies*, 10(4), 35-50.
43. Lindsay, N., & Gillespie, Q. (2009). *Portfolios of the Poor: How the World's Poor Live on \$2 a Day*. Princeton, N.J.: Princeton University Press
44. Latifee, H.I. (2003). Microcredit and Poverty Reduction,’ A Paper presented at the International Conference on Poverty Reduction through Microfinance, held at Ceylan Intercontinental Hotel, Taksim, Turkey June 9-10, 2003.
45. Mehrotra, M. (2009).Financial inclusion, poverty reduction and the millennium development goals. *European Journal of Development Research*, 3(1), 213 – 236.
46. Mohan, R. (2006), ‘Economic growth, financial deepening and financial Inclusion’. A Paper presented at the Annual Bankers' Conference 2006, at Hyderabad on Nov 3, 2006.
47. Mbutor, M. O & Ibrahim A. U. (2013). The impact of financial inclusion on monetary policy in Nigeria. *Journal of Economics and International Finance*, 11(3), 86-100
48. McKinsey Global Institute (2014). Nigeria’s Renewal: Delivering Inclusive Growth in Africa’s largest Economy, retrieved on April 13, 2021 from <http://www.mckinsey.com/mgi>,

49. Migap, J., Okwanya, I. & Ojeka, G. (2015), Financial Inclusion for Inclusive Growth: The Nigerian Perspective. *International Journal of Information Technology and Business Management*, 12(2), 23-40.
50. Miller, C. (2005), 'Global perspectives in rural finance and poverty alleviation'. Paper presented at the 4th AFRACA Microfinance forum: Lessons learnt in micro and rural finance service provision in Africa. Kampala. Retrieved from www.ruralfinance.org/.../1132063684235_AFRACA_Global_Perspect.
51. Mohan, R. (2006), Economic growth, financial deepening and financial Inclusion'. A Paper presented at the Annual Bankers' Conference 2006, at Hyderabad on Nov 3, 2006.
52. National Bureau of Statistics (2017), 'Selected Banking Sector Data, retrieved on June 26, 2021 from www.nigerianstat.gov.ng/download/
53. Nwankwo, O.O., & Abah, E. (2013). Impact of microfinance on rural transformation in Nigeria. *International Journal of Business and Management*, 8(19), 12-29.
54. Odi, V., & Ogonna, A. (2014). Does the classic microfinance model discourage entrepreneurship among the Poor? Evidence from Nigeria. *American Economic Review*, 12(9), 45-67.
55. Ogunsakin, S. & Fawehinmi, F.O. (2017). Financial Inclusion as an effective policy tool of poverty alleviation: A case of Ekiti State. *Journal of Economics and Finance*, 11(6), 42- 58.
56. Ogbeide, S.O. (2019). Empirical assessment Ogwumike, M. (2011). Financial inclusion, poverty reduction and the millennium development goals. *European Journal of Development Research*, 3(1), 213 – 236.
57. Okafor, L. (2012). Impact of micro financing on rural dwellers in Nigeria: A case study of selected communities in Enugu State. *African Journal of Commerce*, 6(2), 112.126.
58. Okpara, G.C. (2010). Microfinance banks and poverty alleviation in Nigeria.
59. *Journal of Sustainable Development in Africa*, 12(6), 177 – 191. Olowononi, K.L. (1982). Financial inclusion for financial stability: access to bank deposits and the growth of deposits in the global financial crisis." Washington, D.C.: World Bank. <https://openknowledge.worldbank.org/handle/10986/16010>.
60. Olumuyiwa, S.O., & Oluwatosin, O.A.(2012). Impact of microfinance bank on standard of living of hairdresser in Oshodi-Isolo local government of Lagos State. *Journal of Humanities and Social Science*, 1(4)1-16.
61. Oluyombo, O.O. (2013). Impact of cooperative finance on household income generation. *DLSU Business and Economic Review*, 23(1) 53 – 65.
62. Onaolapo, A.R. (2015). Effects of financial inclusion on the economic growth of Nigeria. *International Journal of Business and Management Review*, 4(2), 1-19.
63. Park, C., & Mercado, R.V. (2015). Financial inclusion, poverty and income inequality in developing Asia. ADB Economics working paper series No. 426.
64. Park, C.Y., & Mercado, R. (2015). Financial inclusion, poverty, and income inequality in developing Asia. *Asian Development Bank Economics Working Paper Series No. 426*.
65. Rosenbaum, P. R., & Rubin, D. B. (1983). The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrika*, 70(1), 41-55. doi:10.2307/2335942
66. Roser, M., & Ortiz-Ospina, E. (2018). Global Extreme Poverty. Retrieved on July 10, 2019 from '<https://ourworldindata.org/extreme-poverty>'.
67. Richter, P. (2011). Rural policy brief, International Labour Office Publication, Retrieved on June 11, 2019 from www.ilo.org.
68. Rupasingha, A., & Goetz, S.J. (2007). Social and political forces as determinants of poverty: A spatial analysis. *The Journal of Socio-Economics*, 36(4), 650-671.
69. Rangarajan Committee (2008). *Report of the committee on financial inclusion*. India: Government of India Publication.
70. Sanusi, L. S. (2011), 'Financial Inclusion for Accelerated Micro, Small and Medium Enterprises Development: The Nigerian Perspective,' Paper presented at the 2011 Annual Microfinance and Entrepreneurship Awards.
71. Sabia, J. (2007). Early adolescent sex and diminished school attachment: Selection or spillovers? *Southern Economic Journal*, 74, 239-268.
72. Seck, O., Naiya, I.I., & Muhammad, A.D. (2017). *Effect of Financial Inclusion on Household Consumption in Nigeria*. IRTI Working Paper Series WP/2017/03.
73. Sen, G., & De, S. (2018). How Much Does Having a Bank Account Help the Poor? *The Journal of Development Studies*, 54(9), 1551-1571.
74. Stock, J.H., & Yogo, M. (2005). Testing for weak instruments in linear IV regression. In D. Andrews & J. Stock (Eds.), *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg* (pp. 80-105). Cambridge: Cambridge University Press.
75. Triki, T., & Faye, I. (Eds.). (2013). Financial Inclusion in Africa. Tunisia: *African Development Bank*.
76. Ukama, K., & Adigun J.A. (2013). Financial inclusion policy of the Central Bank of Nigeria: Implication for the economy, *Central Bank of Nigeria Official publication*, 7(2), 11-34.
77. Van Rooyen, C., Stewart, R., & De Wet, T. (2012). The impact of microfinance in sub-Saharan Africa: a systematic review of the evidence. *World Development*, 40(11), 2249-2262.
78. Wanga, C., & Schueth, S. (2018). In the Face of Economic Headwinds, Financial Inclusion is Declining in Nigeria. <http://finclusion.org/blog/fii-updates/in-the-face-of-economic-headwinds-financial-inclusion-is-declining-in-nigeria.html> Retrieved 16 October, 2018.
79. World Bank (2018a). Financial Inclusion. Retrieved on July 13, 2021 from <http://www.worldbank.org/en/topic/financialinclusion/overview>
80. World Bank (2018b). The World Bank in Nigeria. Retrieved July 19, 2021 from <http://www.worldbank.org/en/country/nigeria/overview>.
81. World Bank (2013). End Extreme Poverty 2030 Promote Shared Prosperity. Annual Report
82. Washington DC: World Bank.
83. World Bank (2015), Global Financial Development Report 2014: Financial Inclusion. Washington, DC. http://data.worldbank.org/datacatalog/financial_inclusion
84. World Poverty Clock (2018). Nigeria. <https://worldpoverty.io/> Retrieved 17 October, 2018.
85. Xue, S. (2018). Does contact improve attitudes towards migrants in China? *Economics of Transition* 26, 149-200.
86. Zhang, Q. (2017). Does microfinance reduce poverty? Some international evidence. *The BE Journal of Macroeconomics*, 17(2).
87. Zhang, Q., & Posso, A. (2018). Thinking inside the Box: A Closer Look at Financial Inclusion and Household Income. *The Journal of Development Studies*, 1-16.