IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925, Volume 16, Issue 4 Ser.2 (Jul. – Aug. 2025), PP 38-46
www.iosrjournals.org

An Experimental Study of Financial Inclusion, Poverty and Inequality in Nigeria

Oduneka, Anagha Emiemu[1]
Department of Economics, Evangel University, Akaeze, Ebonyi State anaghaoduneka@evangeluniversity.edu.ng

Oduneka, Ebere Anagha[2]
Department of Finance, University of Calabar, Calabar, Cross River State

Abstract
The problem of poverty and inequality is a great challenge that has faced the world at large, especially developing countries like Nigeria. There have been several reforms which have led to minimal or no impact in reducing this problem. However, after the recession in 2008, financial inclusion as a policy was seen as a tool that could significantly increase growth, reduce poverty and inequality. Thereby, this study intends to examine three measures of financial inclusion and its effect in reducing poverty and inequality in Nigeria using the Vector Autoregressive model (VAR) and quarterly data from 2004 to 2018. The result revealed an insignificant relationship between all financial inclusion measures and poverty reduction. However, the domestic credit by banks to the private sector had a significant long-run relationship with inequality in Nigeria. Lastly, institutional quality and inflation had no impact on poverty and reducing inequality in Nigeria. Thus, it is recommended that government should undertake policy interventions that would be targeted towards providing accessible and easy to use financial services to the poor. This would go a long way to reduce poverty and inequality in Nigeria.

Keywords: Financial Inclusion, Inequality, Poverty, VAR, Institutional Quality

---

Date of Submission: 04-07-2025 Date of Acceptance: 14-07-2025

I. Introduction

The sustainable development goals (SDG), which comprises of seventeen goals, was adopted in September 2015 and its focus was to bring an end to poverty, protect the environment and to ensure that everyone enjoyed peace and prosperity by 2030. These goals are integrated, because attending to one area will affect the outcomes of others and these would lead to balance in the social, economic and environmental sustainability. Thus, it would lead to several changing zeros globally, including zero poverty, hunger, AIDS and discrimination against women. Although, several researches have been done in examining the interlinkages between the 17 goals, for different countries and regions, the studies have pointed out the fact that poverty which is the first SDG has synergic relationship with many goals and that poverty alleviation and reduction in inequality has a compound positive impact on all other SDGs (Breuer et al., 2019; Pradhan, 2019; Kroll et al., 2019 & Lusseau et al., 2019). Thus, it is imperative to focus on the alleviation of poverty and reduction in inequality because they remain great challenges facing humanity, as several people are still struggling for the most basic human needs globally.

According to the United Nation Development Program (UNDP) 2015, about 736 million people still live on less than US $1.90 a day, while in Sub-Saharan Africa (SSA), half of the populace living in poverty are under the age of 18 and this has adverse effect on the economy. Also, inequality in income has been on the rise in recent decades and it has brought a need for global solutions that has led to improved regulation as well as monitoring of financial markets and institutions. In 2016, it was also noticed that the global income received by the top 1% was 22%, while 10% of income was received by the bottom 50% (SDG Index, 2019). In Nigeria, inequality-adjusted human development index ranked it 126 out of 151 countries.

The Nigerian economy has experienced economic expansion in recent times, after coming out of a recession in the third quarter in 2015, where the economy had a negative growth rate of -2.3%; and as at 2019 it has increased to 2.55% but it has not transmitted to a better standard of living or reduction in poverty levels. The income inequality gap as at 2019 was 59.8% and poverty rate was 42.9% (CBN, 2019; SDG Index, 2019). Also, the world bank report in 2018 affirms that Nigeria has bypassed India, bein the country with the largest number poor people. It further revealed that 82 million of the Nigerian populace live in extreme poverty, implying that they live under N684 per day. This was further buttressed by OXFAM (2017) that in 2010, Nigerians who lives under the poverty line increased from 69 million to 112 million, which constituted 69% of the population. Also,

the scale of income inequality is at the highest level, as Nigeria has been at the bottom of the index both in 2017 and 2018 out of 157 countries (IMF, 2018). Inequality is bad because it reduces growth in the economy, worsens health and other outcomes and its effect on the citizens is very severe (Keeley, 2015). Also, there has been renewed interest in inequality after the recession in 2008, as research showed that it has effect on other macroeconomic variables through several channels, such as direct effect on growth, underinvestment in human capital, decrease in aggregate demand, impedes intergenerational mobility and poses social risks (Aslan, Delechat, Newiak and Yang (2017). According to the IMF report, poverty cannot come to an end if inequality is not properly tackled, as it can lead to majority of the people in the world living in extreme poverty by 2030. This implies that rising level of inequality poses a great threat to economic stability and eradication of poverty, because inequality is linked with lower average growth and short growth spells (Aslan, Delechat, Newiak & Yang (2017)). Thus, they are major economic problems consequent upon poor governance and resource management.

There has been a general consensus that financial inclusion is a policy tool that has significantly increased growth, reduced poverty and inequality, since the economic global recession in 2008 and also a burning issue discussed on globally on issues for sustainable development (Dermirguc-Kent & Levine, 2009; Park & Mercado, 2015; Agyemand-Badu, Agyei & Duah, 2018; Abimbola, Olokoyo, Babalola & Farouk, 2018). Financial inclusion has no one single acceptable definition because it is a broad concept, but in its generality implies better access to financial services by the poor. IMF defines it as the ability to easily get access to and usage of formal financial services by household and firms (IMF, 2015), while, Sarma (2008), views it as the process which ensures easy accessibility, availability and usability of financial system for every member of the society. Thus, the part played by inclusion financially in combating poverty and inequality is now widely recognized, as several reforms have been targeted towards the financial sector, so as to improve, reduce poverty and inequality, promote entrepreneurship and advance economic development (Jahan et al., 2019). Thus, policy makers have come up with different measures to reduce those excluded from mainstream financial sector including strategies of financial inclusion that have led to rapid inrease of financial inclusion in recent times. Globally, it has been on the rise in developed economies because the global Findex database in 2017 reveals that adults with an account since 2011 are 1.2 billion and 515 million since 2014. Also, there has been a rise globally from 62% to 69% on adults that have accounts either in a financial institution or a mobile money service.

Despite the importance of financial inclusion, Nigeria still contributes significantly to financial exclusion in Africa. This is because 73.2 million adults out of a population of 190 million are financially excluded, while one in five adults and 38% of household disclose to having a formal bank account, with 44.1% male and 55.9% female (NBS, 2018). Also, 39.8% of the total adult population represents the banked population, while the unbanked population 71.3% and about 3 million Nigerians have financial services provided by Micro-finance banks. Though, there is still a portion of the population that is financially excluded, Nigeria has recorded a 4.8% increase in financial inclusion as at when compared to 2016. Several efforts have been put in place by the Nigerian government to decrease the proportion of adult financially excluded to 20% in year 2020 from 46.3% in 2010; and in 2018 survey of Enhancing financial innovation and access (EFIna), 63.6% of Nigeria's adult population now have access to financial services, while only 36.6% are financially excluded.

It can be seen from the above that financial inclusion has gained great grounds globally. Several studies have investigated the link between financial development and growth on one hand and financial inclusion and economic growth on the other hand, and financial inclusion is an important dimension of financial development. Also, efforts in the past have been on financial depth but this study would include financial access and usage, and its effect in reducing poverty and inequality. Although, several efforts have been taken to increase financial inclusion but Nigeria is still one of the poorest and income inequalities is still highly prevalent. Findings in literature on financial inclusion and income mainly associate it with poverty (Uruakpa et al, 2019; Kim et al, 2018; Evans et al, 2017), but much is not known in relating financial inclusion with inequality. The few existing studies in Nigeria mainly focused on poverty (Abimbola et al, 2018; Umoru et al, 2018). Thus, examining the link among financial inclusion, poverty and inequality is important because solving the problem of inequality to a great extent reduces the problem of inequality. Therefore, the study wants to examine the relationship among financial inclusion, poverty and income inequality in Nigeria. Thus, the paper is arranged in five sections, the introduction, followed by review of relevant literature, methodology, presentation and discussion of results and concludes with some policy recommendation.

II. Literature Review

In the last decade, focus has been on financial inclusion globally largely because studies have shown that it is an effective policy tool that increase growth, reduces poverty and inequality (Dermirguc-Kent & Levine, 2009; Park & Mercado, 2015). Economic theory has established the dynamic link` between financial development, poverty and inequality, as financial inclusion is seen as a subset of financial development. These interrelationships can be seen from three perspectives namely, Inequality-narrowing, Inequality-widening and the Inverted U-hypothesis (Zhang and Chen, 2016). According to them, the Inequality-narrowing hypothesis brings about

development in the financial sector which reduces the income-inequality gap, as more opportunities would be open to the poor, leading to exposure and easy access to credit facilities, which will minimize inequality and this shows a direct but adverse relationship with poverty and inequality. However, the inequality-widening hypothesis contradicts the latter, as it states that financial development increases poverty and inequality as the effect on individual endowment differs. This occurs when financial development favours those that are already financially included, thus widening the poverty and inequality gap. Lastly, the inverted U-hypothesis developed by Greenwood and Jovanovic (1990) predicts a reverse relationship among financial development, inequality and development in an economy. This implies that as financial development occurs initially, financial services becomes unaffordable and this would widen the gap, while as financial services becomes accessible and affordable, poverty and inequality gap would start to reduce (Olohunlana and Dauda, 2019).

Several studies have been carried out to examine the link between financial inclusion and growth, with results showing positive relationship, (Evans et al (2017); Kim et al (2018); Uruakpa et al (2019); Sethi et al (2019); Ngwuling (2019). Evans et al (2017) made use of the cointegration and causality estimation procedure and observed a bidirectional relationship between financial inclusion and the economy as a whole, while financial usage granger causes the economy than financial access. Similarly, Uruakpa et al (2019) employing the Ordinary least square, the results shows a positive effect between financial inclusion and growth. Also, Kim et al (2018) in his study which focused on 55 organization of Islamic cooperation countries (OIC) found a bi-directional relationship between the variables using the dynamic panel VAR estimation technique. Sethi et al (2019) using panel estimation across 31 countries both developed and developing found a positive long-run relationship. Lastly, Ngwuling (2019) focused on 25 Sub-Saharan African countries using the panel estimation and findings of the study are based on a two-way random effect estimation and found that gross savings leads to growth in the economy while gross primary school enrolment rate has an unanticipated negative effect.

Also, some other research have explored the dynamic interaction among the three variables developed and New emerging economies, (Parks et al (2015); Neaime et al (2018)). Park et al (2015) in his study examined the effect of financial inclusion on poverty and income inequality in 37 selected developing Asian economies. The findings showed that per capita income, rule of law and demographic characteristics had significant effect on financial inclusion in developing Asian countries. Although it reduced poverty significantly, there was no significant evidence that it brought about a decrease in income inequality. Due to the fact that there was no evidence to support that financial inclusion lowers income inequality, they suggested that provisions should be made for both the young and old such as retirement pension; effective rule of law, such as enforcing financial contracts and regulation, which will further lead to more inclusion of the populace, thus, lead to reduction in poverty and income inequality. The reverse is the case of Neaime et al (2018), where using the Generalized methods of moments and the Generalised least square estimation technique for MENA countries, the study found that financial inclusion reduces income inequality and has no effect on poverty. However, population, inflation and trade openness were all found to significantly increase poverty.

Furthermore, Mushtaq et al (2019) examined the role played by information and communication technologies (ICT) in poverty and inequality reduction in 62 countries using panel estimation technique. The focus was mainly on two dimensions of financial inclusion, which are commercial banks and microfinance inclusion and found that ICTs boost financial inclusion and helps in decreasing poverty and inequality. Similarly, Ozsuca (2019) investigated the effect of the accessibility and usage dimension of financial inclusion for reducing poverty and income inequality in emerging and developing countries by employing the GMM estimation procedure.

The study concluded that it leads to a decrease in poverty and inequality significantly, while the usage indicator has no impact on both variables and other control variables (inflation and education) tend to reduce, however, higher age dependency appears to increase poverty and inequality.

Few studies on the interaction among the variables were seen in the African continent but there was no consensus (Tita et al, 2017; Bakari et al, 2019 and Agyemang-Badu et al, 2018). Tita et al (2017), analysed the link between various financial inclusion dimensions and income inequality in Sub-Saharan African countries using the correlation analysis. The study found that all financial inclusion variables used have a direct relationship with income inequality. Similarly, Bakari et al (2019) in his study on financial inclusion and poverty reduction in 49 Sub–Saharan African countries using the static panel model, found that all variables used plays an important role in reducing poverty with the exception of interest rate and economic growth that led to an increase poverty. Agyemang-Badu et al (2018) investigated the impact of financial inclusion on certain macroeconomic variables using the fixed effect panel estimation technique and the results shows that financial inclusion is indirectly related to poverty and income inequality in Africa.

Furthermore, Omojolaibi (2017) analysed the interaction among financial inclusion, governance and economic progress through three channels and they are investment in infrastructure, GDP per capita and income inequality using the Generalized method of moments (GMM). The result shows that commercial bank deposit increases per capita GDP significantly and can bridge the gap between the rich and the poor, which can lead to reduction in poverty in the economy. Abimbola et al (2018) investigated how financial institutions and the use of

various mobile initiatives stimulates poverty reduction and found that those without bank account in Nigeria are majorly low-income earners who have no access to financial services. Umoru et al (2018) examined the effects of financial inclusion on poverty reduction with a focus on microfinance using questionnaire, partial least square and structural equation technique in analyzing the relationship among the variables. A crucial relationship was found between financial inclusion and poverty reduction while microfinance positively moderates the relationship between the variables. Thus, financial inclusion should be more robust in the rural areas and to make microfinance a more effective means of poverty reduction. The study on financial inclusion on inequality can be seen in the study of Mallick et al (2019) in identifying the causal relationship between financial inclusion and household welfare using the household survey data and employed an innovative method of heteroscedasticity-based identification. The findings show that the effects of financial inclusion on welfare differs in urban and rural areas and income groups. Also, it increased overall consumption significantly, however, the effect was more in urban than rural households, while a decrease in consumption inequality was noticed in urban households.

The studies that showed the interaction among the core variables in the Nigerian economy can be seen in the study of Ogbeide et al (2019) and Olohunlana et al (2019). Ogbeide et al (2019) examined the effect of financial inclusion on poverty alleviation in Nigeria employing the ordinary least square estimation technique. The study found that financial inclusion impacts per capita income, leads to poverty reduction and improves the standard of living significantly. Also, commercial bank branches per 100,000 adults significantly affects per capita income, improves the standard of living and reduces poverty. However, Olohunlana et al (2019) examined the short and long-term effects using several measures of financial development and how it affects poverty and income inequality in Nigeria using the autoregressive distributed lag model (ARDL) estimation method. The results show insignificant positive relationship exist between financial development, poverty and inequality in the short run, as well as the long run. Lastly, corruption and inflation levels had a direct impact on poverty and inequality reduction. Findings by Omar and Inaba (2020) examined the effect of financial inclusion on poverty and income inequality in 116 developing countries taking into consideration their determinants and conditional effect for the period 2004- 2016. Findings showed that income per capita, internet users ratio, age dependency ratio, inflation and inequality in income have significant impact on financial inclusion level in developing countries and that financial inclusion reduces poverty rate and income inequality in developing countries significantly.

In the review of existing literature, it was noticedthat most of the studies focused on the effect of financial inclusion on poverty and inequality separately in the Nigerian economy. Also, few studies focused on interactions among financial inclusion, poverty and inequality and reached no consensus. Thus, this study intends to fill the gap by investigating the interaction of financial inclusion indicators and its effect on reducing poverty and inequality in Nigeria.

III. METHODOLOGY

The theory on which this study is based is the Inverted U-hypothesis (Greenwood and Jovanovic,1990), which states that financial intermediary development leads to income inequality following an inverted U-shaped path. The study focuses on the dynamic interaction among financial inclusion, poverty and inequality in Nigeria based on the Inverted U-hypothesis, which states that at the initial stage of financial inclusion reforms, the relationship would be linear and positive and it would get to a point where a reverse relationship would be witnessed.

This study would adopt and modify the study of Sharma (2016) using the Vector Autoregressive Model (VAR) estimation technique. The VAR model introduced by Sims (1980) would be used to examine the dynamic interaction and the model helps to investigate joint dynamic behaviour of a collection of time series and lag effect of variables. It is also a very robust framework as it is a stochastic process model that captures linear interdependencies and determine the relationship among several variables. In analysing the interrelationship among financial inclusion, poverty and inequality in Nigeria, financial depth, financial access and financial usage will be used. Theoretical underpinning posits that financial depth or its level of development contributes significantly to poverty reduction either directly or indirectly. This is because it encourages through savings, providing insurance and having access to credit, which will lead to enhanced productivity of asset, which enables the poor to invest (Dhrifi, 2013). Financial inclusion in terms of access is expected to have a negative relationship with poverty because increased access to financial services by people of low-income helps to mitigate poverty by facilitating consumption and leading to economic productive activities. Also, increased access helps in the saving culture of people, thereby preparing for the future, which helps to decrease income inequality (Omar and Inaba; 2020). Financial usage indicates the efficiency of a financial system, which implies that the more efficient the financial system, the more people would be encouraged to make use of their services (Omar et al; 2020). Thus, the specific form of the model used in this study is stated as:

$$POV_t = \beta_0 + \beta_1 POV_{t-i} + \beta_2\, GINI_{t-i} + \beta_3\, DEPTH_{t-i} + \beta_4\, ACCESS_{t-i} + \beta_5\, USAGE_{t-i} + \beta_6\, CV_{t-i} + \in_t \quad \ldots (1)$$

$$GINI_t = \beta_0 + \beta_1 GINI_{t-i} + \beta_2\ POV_{t-i} + \beta_3\ DEPTH_{t-i} + \beta_4\ ACCESS_{t-i} + \beta_5\ USAGE_{t-i} + \beta_6\ CV_{t-i} + \in_t \quad \ldots (2)$$

$$DEPTH_t = \beta_0 + \beta_1 DEPTH_{t-i} + \beta_2\ POV_{t-i} + \beta_3\ GINI_{t-i} + \beta_4\ ACCESS_{t-i} + \beta_5\ USAGE_{t-i} + \beta_6\ CV_{t-i} + \in_t \quad \ldots (3)$$

$$ACCESS_t = \beta_0 + \beta_1 ACCESS_{t-i} + \beta_2\ POV_{t-i} + \beta_3\ GINI_{t-i} + \beta_4\ DEPTH_{t-i} + \beta_5\ USAGE_{t-i} + \beta_6\ CV_{t-i} + \in_t \quad \ldots (4)$$

$$USAGE_t = \beta_0 + \beta_1 USAGE_{t-i} + \beta_2\ POV_{t-i} + \beta_3\ GINI_{t-i} + \beta_4\ DEPTH_{t-i} + \beta_5\ ACCESS_{t-i} + \beta_6\ CV_{t-i} + \in_t \quad \ldots (5)$$

$$CV_t = \beta_0 + \beta_1 CV_{t-i} + \beta_2\ POV_{t-i} + \beta_3\ GINI_{t-i} + \beta_4\ DEPTH_{t-i} + \beta_5\ ACCESS_{t-i} + \beta_6\ USAGE_{t-i} + \in_t \quad \ldots (6)$$

Here, t represents the current year and t-i shows the lag relationship.

Where POVt is poverty and the household consumption expenditure per capita is used as a measure (see; Olohunlana et al, 2019; Keho, 2017; Uddin et al, 2014). The GINI coefficient is used as a measure of inequality and it is measured on a scale of 0 to 1, where the Zero value corresponds to perfect inequality while 1 implies perfect equality. Financial inclusion indicators can be seen from four aspects namely depth, access, usage and quality of delivery. The depth indicator that was used is the credit provided domestically by banks to private sector (% of GDP) (DCBP). In terms of access, the indicator used is commercial bank branches (per 100,000 adults) (CBB). While for usage, the outstanding deposits from commercial banks (per 1000 adults) (OCB) was used. The control variables are institutional quality (IQ) and inflation (INF) which shows the quality of institutions and macro stability of the economy.

The data used for the study were accessed from the World Bank development indicator base, World income inequality database and the World governance data base between the period 2004 to 2018. The period covered was limited due to the inadequacy of data, thus, the data was transformed to quarterly data in order toincrease the time periods.

Experimental Results Descriptive Statistics

Table1 below contains descriptive statistics for the study. Poverty recorded the highest consumption expenditure level of 34.25 per individual while the least was negative. The mean value which shows the mean expenditure was around 1.320. The Gini coefficient explains the inequality level in a country and its within the range of 60% and 47%. The credit provided domestically by banks to the private sector recorded during the period was 22% at its highest and 7% at the lowest. Commercial banks branches per 100,000 adults was within the range of 6% and 3%. There was a significant increase in outstanding deposits from commercial banks, as it increased from 17% to 31%. Inflation also experienced an increase from 4% to 18%, while, institutional quality documented a negative rate of 1.7% and 0.6% at its highest, slight improvement was noticed. The observation shows that on the average, poverty recorded the highest across the sample variable, followed by domestic credit by banks to private sector, outstanding deposits from commercial banks, inflation, commercial bank branches, institutional quality and inequality. Also, inequality with an index point of 0.047 is the least volatile as at when compared to other variables used in the study.

Table 1: Descriptive Statistics

Variable(s)	Obs	Mean	Maxima	Minimum	Std.dev
POV	60	1.32074	34.23591	-21.62981	13.24823
GINI	60	0.526473	0.604038	0.472567	0.04752
DCBP	60	13.65978	22.97773	7.128547	4.063773
CBB	60	5.290998	6.575866	3.644164	0.911878
OCB	60	25.83065	31.52394	17.06336	3.9932
IQ	60	-0.839449	-0.646584	-1.735155	0.17707
INF	60	11.74667	18.78125	4.90625	3.637114

Source: Authors computation, 2025

Correlation

Table 2 below presents the results of correlation matrix in the study. The results show weak relationship among the variables with the exception of few variables exhibiting strong correlation. The results are in good fit, as the rule of correlation states that variables should not have a correlation of 80% .

Table 2: Correlation coefficients matrix

Variables	POV	GINI	DCBP	CBB	OCB	IQ	INF
POV	1						
GINI	0.17	1					
DCBP	0.11	0.08	1				
CBB	0.13	-0.14	0.67	1			
OCB	0.05	-0.25	0.49	0.73	1		
IQ	0.21	-0.30	0.30	0.45	0.54	1	
INF	-0.23	-0.05	-0.11	-0.22	-0.37	-0.11	1

Authors computation, 2025

Table 3: Stationarity Test

Variables	PP Test@levels	Prob @ levels	PP Test@FD	Prob @ FD	Decision
POV	-3.299	0.076	-5.291	0.0003	I(1)
GINI	-1.809	0.687	-4.194	0.0082	I(1)
DCBP	-1.585	0.787	-2.662	0.0086	I(1)
CBB	-1.088	0.922	-2.987	0.0042	I(1)
OCB	-0.608	0.974	-3.487	0.0008	I(1)
IQ	-1.899	0.765	-4.374	0.0085	I(1)
INF	-2.405	0.373	-3.774	0.025	I(1)

Source: Authors computation 2025

Table 3 above shows the unit root test and the unit root property states all variables to be stationary in levels or at first differences. The Phillip Perron test was used and the result showed that all the variables were integrated of order one I (1).

Variance Decomposition

The VAR lag selection criteria was done before estimating the model and the optimal lag selection criteria 2 was chosen by all the selection criteria test. The results of the Variance decomposition are presented in Table 4.1 to Table 4.5 below representing Financial inclusion as it relates to depth, access and usage. In the short run, 100% of forecast error variance in poverty is explained by the variable itself. This implies that the other variables do not have any strong influence on poverty. Thus, the variable exhibits strong exogeneity, which implies weak influence on poverty. In the long run, 93.3% of forecast error variance of poverty is explained by itself. Therefore, poverty is exhibiting strong influence on itself from the short run period into the future. Thus, the other variables have rising but insignificant influence on poverty reduction.

Table 4.1: Variance Decomp of POV

Period	S.E.	POV	GINI	DCBP	CBB	OCB	IQ	INF
1	8.640	100.00	0.00	0.00	0.00	0.00	0.00	0.00
2	12.830	98.624	0.893	0.016	0.248	0.024	0.020	0.176
3	14.005	96.496	1.960	0.018	0.875	0.066	0.017	0.569
4	14.136	94.822	2.340	0.106	1.596	0.129	0.055	0.952

5	14.371	94.111	2.264	0.239	1.965	0.194	0.138	1.089
6	14.626	93.807	2.343	0.307	2.035	0.243	0.189	1.076
7	14.720	93.564	2.554	0.318	2.037	0.268	0.196	1.063
8	14.733	93.411	2.690	0.317	2.039	0.273	0.197	1.072
9	14.748	93.346	2.725	0.320	2.038	0.272	0.212	1.087
10	14.764	93.309	2.723	0.323	2.038	0.275	0.230	1.102

Source: Authors computation 2025

Table 4.2 indicates that 96% of forecast error variance in inequality is explained by the variable itself in the short run. This implies strong endogeneity, which implies strong impact from the variable. The result also showed that other variables accounted for insignificant effect on inequality as they were strongly exogenous, which implies weak impact on inequality. In the long run, 79% of forecast error variance of inequality is explained by itself. Poverty, domestic credit by banks to the private sector and commercial bank branches per 100,000 adults increased gradually but they were not highly significant with variation of 8%, 6% and 4% respectively.

Table 4.2: Variance Decomp of Inequality (GINI)

Period	S.E.	POV	GINI	DCBP	CBB	OCB	IQ	INF
1	0.007	3.380	96.620	0.000	0.000	0.000	0.000	0.000
2	0.012	1.462	95.787	2.038	0.420	0.002	0.004	0.286
3	0.016	2.210	91.065	4.746	1.293	0.037	0.003	0.645
4	0.019	5.365	85.051	6.401	2.184	0.172	0.021	0.806
5	0.022	7.887	81.004	7.044	2.880	0.324	0.055	0.807
6	0.024	8.860	79.331	7.142	3.396	0.428	0.088	0.755
7	0.025	8.925	79.031	6.976	3.777	0.478	0.112	0.702
8	0.026	8.762	79.194	6.719	4.040	0.495	0.124	0.665
9	0.026	8.650	79.350	6.529	4.189	0.499	0.126	0.656
10	0.027	8.631	79.303	6.508	4.235	0.500	0.124	0.698

Source: Authors computation 2025

Table 4.3, shows that 54% of forecast error variance in domestic credit by banks to private sector is explained by the variable itself in the short run. Also, inequality has strong exogeneity with domestic credit to private sector, which implies strong influence on the variable with 36% variation followed by poverty which has 8% variation and shows weak influence on the variable. In the long run, 27% of forecast error variance of credit provided domestically by banks to private sector is explained by itself, while there was strong endogeneity which implies that inequality strongly influenced variations in domestic credit to private sector by 40%. It can be seen that inequality has the highest value that explains shock in financial depth. This follows the inverted-narrowing hypothesis which states that financial development reduces the income- inequality gap, as more opportunities would be available to the poor because of exposure and easy access to credit facilities, which reduces inequality.

Table 4.3: Variance Decomp of Financial Depth (DCBP)

Period	S.E.	POV	GINI	DCBP	CBB	OCB	IQ	INF
1	0.583	8.070	36.958	54.971	0.000	0.000	0.000	0.000
2	1.027	4.452	34.504	60.151	0.339	0.185	0.061	0.308
3	1.403	2.400	35.720	58.720	1.303	0.440	0.323	1.094
4	1.724	1.903	38.241	53.503	2.743	0.500	0.795	2.315
5	1.996	1.927	40.699	47.278	4.419	0.403	1.357	3.916
6	2.223	1.901	42.363	41.508	6.192	0.342	1.860	5.835
7	2.408	1.767	42.985	36.651	7.999	0.439	2.204	7.954
8	2.560	1.608	42.668	32.786	9.789	0.702	2.362	10.084

9	2.683	1.474	41.714	29.880	11.496	1.068	2.366	12.002
10	2.780	1.373	40.465	27.842	13.044	1.464	2.283	13.529

Source: Authors computation 2025

Table 4.4, indicates commercial bank branches explains itself by 36% in the short run. It was however noticed that credit by banks to private sector domestically had a strong influence on the variable, followed by poverty with variation of 44% and 16% respectively. In the long run, 59% of forecast error variance of commercial bank branches explained itself, implying strong exogeneity. However, other variables had weak influence on the variable. This could be as a result of non favourable policies towards the poor in the economy. Lastly, all other variables had weak influence on outstanding deposits with commercial banks in the short and long run.

Table 4.4: Variance Decomp of Financial Access (CBB)

Period	S.E.	POV	GINI	DCBP	CBB	OCB	IQ	INF
1	0.111	16.5	1.6796	44.822	36.996	0	0	0
2	0.193	14.49	1.2157	41.714	41.369	0.332	0.79	0.093
3	0.259	12.89	0.8282	36.997	45.13	1.469	2.428	0.253
4	0.315	11.48	0.5636	31.399	48.396	3.425	4.363	0.376
5	0.363	10.09	0.5274	25.885	51.198	5.832	6.055	0.412
6	0.409	8.729	0.8197	21.15	53.577	8.17	7.171	0.383
7	0.452	7.471	1.466	17.427	55.596	10.05	7.661	0.331
8	0.494	6.397	2.4008	14.626	57.309	11.32	7.666	0.285
9	0.534	5.538	3.5068	12.551	58.738	12.03	7.386	0.253
10	0.57	4.879	4.6673	11.026	59.885	12.31	6.984	0.247

Source: Authors computation 2025

The results above indicates that all the measures of financial inclusion have no significant relationship with poverty both in the short and long term. This is not in variant with the study of Bakari et al (2019), where financial inclusion has a positive effect with poverty. However, findings show weak interrelationship between credit by banks to the private sector in the short run but strong relationship exists in the long run. This supports the Inequality-narrowing hypothesis which posits that financial inclusion decreases the gap between the poor and the rich and our findings corroborate the work of Neaime et al (2018). However, it contradicts the work of Park et al (2015), Ozsuca (2019), where no relationship exists between financial inclusion and inequality. Lastly, the study shows that both institutional quality and inflation had no significant effect on poverty and inequality reduction in Nigeria.

IV. Conclusion and Policy Recommendation

The paper analysed the interaction between financial inclusion, poverty and inequality in Nigeria. The result of the VAR estimates showed that domestic credit to private sector by banks, commercial banks branches (per 100,000 adults) and outstanding deposits from commercial banks had no significant effect in reducing poverty. However, it was only outstanding deposits from commercial banks, which represents the usage that had a significant positive effect in reducing inequality. Also, the result of the Variance decomposition showed that financial inclusion had minimal shocks on poverty, while domestic credit to private sector accounted for a significant variation in inequality. The findings indicate that financial services in terms of depth, access, usage did not lead to a reduction in poverty. Thus, it recommends that government should undertake policy interventions that would be targeted towards providing accessible and easy to use financial services to the poor. This would go a long way to reduce poverty in Nigeria. Thus, if this occurs, it would lead to reducing the gap between the rich and the poor and this would further decrease inequality in the country.

References

[1]. Adebowale. O. & Dimova. R. (2017). Does access to formal finance matter for welfare and inequality? Micro level evidence from Nigeria. GDI Working Paper 2017-007. Manchester: The University of Manchester.

[2]. Agyemang-Badu. A.A., Agyei. K. & Duah. E.K. (2018). Financial inclusion, poverty and income inequality: Evidence from Africa. Spiritan International journal of poverty studies, 2(2).

[3]. Akeem. A., Felicia. O., Opeyemi. B. & Elemide. F. (2018). Financial Inclusion as a Catalyst for Poverty Reduction in Nigeria. International Journal of Scientific Research and Management, 6 (6), 481-490.

[4]. Bakari. I.H., Donga. M., Idi. A., Hedima. J.E., Wilson. K., Babayo. H. & Ibrahim. Y. (2019). An examination of the Impact of Financial Inclusion on Poverty Reduction: An Experimental Evidence from Sub-Saharan Africa. International Journal of Scientific

and Research Publications, 9 (1).
[5]. Breuer. A., Janetschek. H. & Malerba. D. (2019). Translating Sustainable development goal (SDG) interdependencies into policy advice sustainability. MDPI, 11(7).
[6]. CBN (2019).Central Bank of Nigeria Annual Report and Statement of Accounts (Various Issues).
[7]. Demirguc-Kunt, A. & Levine, R. (2009). Finance and inequality: Theory and evidence. Annual Review of Financial Economics 1(1), 287–318.
[8]. Dhrifi, A. (2013). Financial development and poverty: What Role for Growth and Inequality? International Journal of Academic Research in Accounting, Finance and Management Sciences, 3(4), 119-129.
[9]. EFInA (2018). Access to Financial Services in Nigeria 2014 survey. Retrieved from http://www.dalberg.ng.org
[10]. Evans. O. & Lawanson. O. (2017). A multi-sectoral study of financial inclusion and economic output in Nigeria. Ovidius University Annals, Economic Sciences Series, 17 (1).
[11]. GDFI (2016). G20 financial inclusion indicators. Global partnership for financial inclusion. Global Findex Report (2017). The Global Findex Database. World Bank Policy Research Paper 6025. Washington, D.C.: World Bank.
[12]. Greenwood J, Jovanovic B. 1990. Financial development, growth, and the distribution of income. Journal of Political Economy. 98(5), 1076–1107.
[13]. IMF (2018). Nigeria: Selected Issues Country Report, No. 18/64. https://www.imf.org/en/Publications/CR/Issues/2018/03/07/Nigeria-Selected-Issues-4570
[14]. Jahan. S. J., Jamaludin. F., Sodsriwiboon. P. & Sullivan. C. (2019). The financial inclusion landscape in the Asia-pacific region: A dozen key findings. International Monetary Fund No. 19/79
[15]. Keeley, B. (2015), "How does income inequality affect our lives?", in Income Inequality: The Gap between Rich and Poor. OECD Publishing, Paris
[16]. Keho, Y. (2017), Financial development and poverty reduction: evidence from selected African countries. International Journal of Financial Research, 8(4), 90-98.
[17]. Kim. D.W., Yu. J.S. & Hassan. M.K. (2018). Financial inclusion and economic growth in OIC countries. Research in International Business and Finance, 43, 1- 14.
[18]. Kroll.C., Warshold.A. & Pradhan. P. (2019). Sustainable development goals (SDGs): Are we successful in turning trade-offs into synergies? Palgrave Communication 5 (140).
[19]. Lusseau. D. & Mancini. F. (2019). Income- based variation in sustainable development goals interaction networks. Nat Sustain 2: 242-247.
[20]. Mallick. D. & and Zhang. Q. (2019). The Effect of Financial Inclusion on Household Welfare in China. MPRA Paper No. 95786
[21]. Mushtaq. R. & Bruneau. C. (2019). Microfinance, financial inclusion and ICT: Implications for poverty and inequality. Technology in society, 59, 101-154.
[22]. Neaime. S. & Gaysset. I. (2018). Financial inclusion and Stability in MENA: Evidence from poverty and inequality. Finance Research Letters, 24, 230-237.
[23]. Ngwulingwa P.B. (2019). The impact of financial inclusion on economic growth in Sub-Saharan Africa. Journal of Applied Economics and Business. 7(4), 51-68.
[24]. Ogbeide. S.O. & Igbinigie. O.O. (2019). Financial inclusion and poverty alleviation in Nigeria.
[25]. Accounting and Taxation Review, 3(1), 42-54
[26]. Olohunlana. A.O. & Dauda, R.O.S. (2019). Implications of financial development on poverty and inequality: Evidence from Nigeria. The Romanian economic Journal, 17, 42-60.
[27]. Omar, M.A. & Inaba, K. (2020). Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis. Journal of Economic Structures, 9(37).
[28]. Omojolaibi. J.A. (2017). Financial Inclusion, Governance and Economic Progress in Nigeria: What happens to the welfare of the poor? Arabian Journal of Business and Management Review (Oman Chapter), 6 (7).
[29]. OXFAM (2017). Inequality in Nigeria. Exploring the drivers. OXFAM International.
[30]. Ozusca, E.A. (2019). Does financial inclusion affect poverty and inequality? Evidence from emerging and developing countries. Journal of financial Economics, 85(1), 234-266
[31]. Park, C-Y. & Mercado, R. (2015). Financial inclusion, poverty and income inequality in developing Asia. ADB Economics Working Paper Series, No. 426.
[32]. Pradhan. P. (2019). Antagonists to meeting the 2030 Agenda. Nat sustain 2, 171-172.
[33]. Sarma, M. 2008. Index of Financial Inclusion. Indian Council for Research on International Economic Relations Working Paper No. 215
[34]. SDG Index and Dashboard report (2019). The sustainable development goals centre for Africa.
[35]. SDG Center for Africa and Sustainable Development Solutions Network.
[36]. Sethi. D. & Acharya. D. (2019). Financial Inclusion and economic growth linkage: Some cross- country evidence. Journal of financial economic policy, 10 (3), 369-385.
[37]. Sharma. D. (2016). Nexus between financial inclusion and economic growth: Evidence from emerging Indian economy. Journal of financial economic policy 8 (1).
[38]. Sims. C. A. (1980), "Macroeconomics and reality", Econometrica, (48)1, 1-48
[39]. Solomon. O. F. (2014). Financial Inclusion, Tool for Poverty Alleviation and Income Redistribution in Developing Countries: Evidences from Nigeria. Academic Research International, 5 (3), 137- 146
[40]. Tita. A.F. & Aziakpono. M.J. (2017). The relationship between financial inclusion and income inequality in sub-Saharan Africa: Evidence from disaggregated data. African Review of Economics and Finance, 9 (2).
[41]. Uddin, G. S., Shahbaz, M., Arouri, M., Teulon, F. (2014) Financial development and poverty reduction nexus: A co-integration and causality analysis in Bangladesh. Economic Modelling, 36, 405-412.
[42]. Umaru. H. & Imo. C. (2018). The effects of financial inclusion on poverty reduction: The moderating effects of microfinance. International Journal of Multidisciplinary Research and Development, 5 (12), 188-198.
[43]. UNDP (2015). Financing for development. Third International Conference for Development, Addis Ababa, Ethiopia.
[44]. Uruakpa. N.I., Kalu. U.E. & Ufomadu. O.A. (2019). Impact of financial inclusion on economic growth of Nigeria. International Journal of sustainable development, 12 (2), 46-58.
[45]. WDI. 2016. World Development Indicators. World Bank. http://data.worldbank.org/indicator
[46]. Zhang, Q. & Chen, R. (2016), Financial development and income inequality in China: An application of SVAR approach. Procedia Computer Science, 55, 774-781. https://orcid.org/0000-0002-3994-8523