



Effect of Financial Development and Financial inclusion on Poverty Reduction in Nigeria

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Abstract: This study investigated the effect of financial development and financial inclusion on poverty in Nigeria for the period 1981 to 2020. The study utilized causality and autoregressive distributed lag (ARDL) techniques. In the study financial development was proxy by tow indicators – banking sector development and stock market development. The results of the study indicated that banking sector development contributed significantly to poverty reduction in Nigeria while stock market development and financial inclusion had insignificant effect on poverty reduction in Nigeria. The causality results showed unidirectional causality from poverty to banking sector development and financial inclusion. The study concluded that the relationship between financial development and poverty reduction depends on the measurement of financial development. Hence, the study recommends the need for the banking sector to increase the volume of loan to the poor and ease constraints on credit accessibility to the poor. More so, operators of the stock market should develop special financial instruments such as SMEs Bond which will help to raise funds for SMEs and other small business units.

Keywords: Financial development; financial inclusion; poverty; Nigeria

JEL Classification: E44; I32

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1. Introduction

Poverty has been a persistent issue in Nigeria which have defiled various policy strategies of the previous as well as the current political administrations due to its continuous raise over the years. Consequently, in 2018 Nigeria is ranked as the poverty capital of the world overtaking India from the topmost spot (Kharas, Hamel & Hofer, 2018; Uzoho, 2021). The percentage of poverty incidence in Nigeria is put at 47.3% in 2021 which is about 98 million Nigerians living below US\$1.90 per day (Onyeiwu, 2021). The upward trajectory of poverty incidence, have made Nigeria a leading contributor to global poverty increase, thereby making the projection of the World Bank in halving poverty by 2030 a somewhat unrealistic objective.

The need to address the incessant problem of poverty has provoked the implementation of a number of indigenous policy measures such as operation feed the nation (OFN) in 1976, Green revolution in 1980 and the financial liberalization policy in 1986 among other poverty programs. The link between financial sector development and poverty is premised on the notion that financial development directly influences the poor through access to credit and solving the problem of asymmetric information and high transaction cost (Khan, Khan, Ahmad & Siraj, 2011). More so, financial development indirectly influences the poor through its positive impact on economic growth, which in turn leads to more employment opportunities, investment and increased per capita income for the poor (Schumpeter, 1934; McKinnon, 1973). Consequently, the government liberalized the financial sector in 1986 with the removal of restrictions on loans, interest rate and the exchange rate. This is to allow for optimal allocation of scarce resources within the system. More so, in 2005 the government conducted the recapitalization exercise of the banking sector from N2billion to N25billion while similar reform was experienced in the insurance sector. This was aimed at boosting investors' confidence and increase the volume of credit in the economy (Kanu & Isu, 2015).

In addition, the government-initiated policy options (such as the Agricultural Credit Guarantee Scheme Fund (ACGSF) and the Anchors Borrowers Programme (ABP)), and created specified banks to promote credit accessibility to the poor. Such specialized banks include the Peoples Bank of Nigeria in 1990, Community Banks in 1992, which was later transform to Micro-finance banks in 2005. The desire to increase the degree of financial inclusiveness resulted in the expansion of bank branches and the development of various modern financial instruments such as Automated Teller Machine (ATM), Point of Sale terminals (POS), Mobile Banking application as well as internet banking facilities. Consequent to the above financial reforms, the volume of banking credit to the private sector have increased from ₦8.57b in 1981 to ₦33.55b and ₦530.37b in 1990 and 2000 respectively, reaching ₦29, 051.61b in 2020. More so, the number of rural bank branches has increased from 240 in 1981 to 722 in 2000 and further to 5385 branches in 2020 (Central Bank

of Nigeria (CBN), 2020). Similarly, the use of modern banking instruments has grown over the years. For instance, the value of ATM usage increased from ₦548.60b in 2009 to ₦6,512.61b in 2019 while the value of POS increased from ₦11.03b in 2009 to ₦3,204.75b in 2019 (CBN, 2020).

Despite the impressive developments witnessed in the financial sector, the rate of poverty incidence has worsened. The paradoxical evidence between indicators of financial development and poverty incidence in Nigeria, has created doubt with serious concern on the anticipated potential impact of financial development and financial inclusion on poverty reduction in Nigeria. More disturbing is the fact that empirical literature on financial development and poverty have produced mixed findings. While some studies found that financial development contributed to poverty reduction (He, Yang & Li, 2022; Chaouachi & Chaouach, 2021; Appiah, Frowne & Tetteh, 2020), others observed that financial development increased poverty (Onwuka & Nwadiubu, 2019; Chinweze, 2017). More so, some results showed that financial development has insignificant impact poverty reduction (Olohunlana & Duada, 2019; Dandume, 2014). The failure of consensus among empirical studies on the link between financial development and poverty reduction provided justification on the need to re-examine this issue.

Theoretical and empirical literature have largely agreed that financial development and financial inclusion are vital tools for poverty reduction. Thus, over the years in Nigeria, various financial sector reforms have been initiated while financial inclusion drive has been amplified by the government. However, the level of poverty has continued to soared creating serious concern on the poverty alleviation impact of financial development and financial inclusion in Nigeria. This is the research problem this study intends to address. Consequent to the above, the following research questions were raised. (i) Does financial development and financial inclusion affect poverty reduction in Nigeria; (2) What is the direction of causation between financial development and poverty reduction. The main objectives of this study is to investigate the effect of financial development and financial inclusion on poverty reduction in Nigeria.

The rest of the work is structured as follows: the literature review is discussed in section two while the methodology is presented in section three. The data presentation and discussion of results is discussed in section four while the conclusions, summary and policy inferences are discussed in section five.

2. Literature Review

The combing of previous studies showed that little or no research study exists on financial inclusion and poverty reduction in Nigeria, while no indigenous study has analyzed the effect of financial development and financial inclusion on poverty reduction in a single study. In addition, there exist dichotomy on the issue of causality between financial development and poverty reduction. Using data from 2005 to 2019, He, Yang and Li (2022) conducted a comparative study on the effect of financial development on poverty reduction on developed and developing countries. The study used five developed countries (France, Germany, Italy, Spain and Switzerland) and five developing countries (China, Indonesia, Russian Thailand and Turkey) in the study. The study used panel fixed effect technique and the findings of the study showed that financial development contributed significantly to poverty reduction in both the developed and the developing countries. Furthermore, the results showed that the impact of financial development on poverty alleviation in the developing countries is greater than that of the developed countries. While this study made vital findings, the policy reference from the study may be inappropriate for a specific country like Nigeria due to differences in economic fundamentals and policy direction of the individual countries in the panel study.

Chaouachi and Chaouach (2021) explored the relationship between financial development and poverty reduction for a panel of six ECOWAS countries (Benin, Gambia The, Ghana, Ivory Coast and Senegal). The study covered the period 1996 to 2015 and used panel estimation technique. The results of the study showed that financial development contributed significantly to reduction of poverty among ECOWAS countries. This study is weak by only focusing on financial development without consideration of financial inclusion. More so, the outcome of the panel study maybe inappropriate for the Nigerian economy due to differences in economic fundamentals.

For a panel of 53 developing countries, Ouechtati (2020) analyzed the effect of financial inclusion on poverty alleviation and income inequality for the period 2004 to 2017. The study used system GMM, difference GMM and bias-corrected fixed effects estimation techniques. The findings of the study showed that financial inclusion contributed strongly to poverty reduction and decline in income inequality. This study only focused on financial inclusion without taking into cognizance the impact of financial development on poverty. More so, the outcome of the panel study maybe inappropriate for the Nigerian economy due to differences in economic fundamentals.

Using data on five emerging African countries, Appiah, Frowne and Tetteh (2020) re-analyzed the link between financial development and poverty reduction for the period 1995 – 2015. Utilizing the Fully Modified Ordinary Least Squares (FMOLS), the study observed that financial development (measured by the percentage of liquid

liability to GDP and percentage of bank domestic credit to GDP) significantly reduced poverty rate. More so, the study observed that economic growth, inflation rate and government expenditure had insignificant impact on poverty reduction. This study is weak by only focusing on financial development without the consideration of financial inclusion. More so, the outcome of the panel study maybe inappropriate for the Nigerian economy due to differences in economic fundamentals.

Onwuka and Nwadiubu (2019) analyzed the relationship between financial sector development and poverty alleviation in Nigeria using data from 1986 to 2018. Using the auto-regressive distributed lag (ARDL) technique, the results showed that increase in financial development (measured by credit to the private sector as a ratio of GDP and broad money as a ratio of GDP) led to significant increase in poverty rate in Nigeria. This study weak by only focusing on the banking segment of financial development without consideration of the stock market. More so the study only covers 32 data points while this study covers a wider data point of 40 (that is, 1981 to 2020). This is expected to provide a better outcome on the impact of financial development and financial inclusion on poverty in Nigeria. More so, this study also failed to address the issue of causality among the variables.

In Nigeria, Olohunlana and Duada (2019) analyzed the impact of financial development on poverty and income inequality using data from 1996 – 2017. In the study, financial development was measured by four proxies: private credit to GDP, bank liquidity reserve to bank asset ratio, net interest margin and commercial bank per 100000 adults. The autoregressive distributed lag method was employed and the findings of the study revealed that financial development had insignificant but positive impact on poverty and income inequality in Nigeria both in the long run and in the short run. This study is weak by only focusing on the banking segment of financial development without the consideration of the stock market. More so the study failed to address the issue of causality among the variables.

In Egypt, Kheir (2018) investigated the direction of causality between financial development and poverty reduction for the period 1980 – 2015. The study used the auto-regressive distributed lag (ARDL) technique and results showed a two-way causality between financial development and poverty reduction. More so, the study showed bi-directional causal nexus between poverty reduction and economic growth. The focus of the study is not on Nigeria; hence the policy inferences may not be suitable for Nigeria. More so, the study neglected the issue of financial inclusion.

Using the human development index as a measure of poverty reduction, Chinweze (2017) explored the beneficial effect of financial deepening on poverty reduction in Nigeria. The study utilized data spanning 1981 to 2015 and used the error correction modeling method. The results of the study showed that in the short run, financial deepening (measured by ratio of credit to the private sector to GDP) contributed

significantly to reduction in poverty while financial deepening (measured by ratio of broad money to GDP) significantly worsened poverty situation in Nigeria. The above study is weak by focusing only on the banking segment of financial development without considering stock market development. More so, the study failed to address the issues of financial inclusion and causality among the variables.

Focusing on emerging market economies, Bayer (2017) examined the impact of financial development and poverty reduction for the period 1993 to 2012. The study used the panel co-integration coefficient with common correlated mean group effects (CCMGE) method and the results showed that financial development (measured by banking sector development and stock market development) contributed significantly to poverty reduction in the emerging economies. The focus of the study is not on Nigeria; hence the policy inferences may not be suitable for Nigeria. More so, the study neglected the issue of financial inclusion and failed to address the issue of causality among the variables.

In Bangladesh, Abdin (2016) analyzed the impacts of financial development and financial stability on poverty reduction. The study used data for the period 1974 – 2013 and the study utilized both the ordinary least square and the generalized method of moment methods of data analysis. The results of the study showed that financial development directly reduced poverty and indirectly through economic growth. However, the results of the study showed that financial instability worsen poverty rate in Bangladesh. While the above study made important findings, the focus of this study is not on Nigeria; hence the policy inferences may not be suitable for Nigeria. More so, the study neglected the issue of financial inclusion and failed to address the issue of causality among the variables.

Uddin, Shahbaz, Arouri and Teulon (2014) analyzed the causal nexus between financial development and poverty reduction in Bangladesh. The study spanned from 1975 to 2011, and employed the auto-regressive distributed lag (ARDL) technique. The causality estimate showed bi-directional causality between financial development and poverty reduction both in the long term and in the short term. Hence, the study found that financial development contributed significantly in reducing poverty in Bangladesh. This study is weak by only focusing on the banking segment of financial development without consideration of the stock market, thereby limiting its policy recommendations. More so, the study neglected the issue of financial inclusion.

Utilizing the Toda and Yamamoto causality and the Autoregressive distributed lad (ARDL) techniques, Dandume (2014) examined the link among financial sector development, economic growth and poverty reduction in Nigeria. Evidences from the study showed an insignificant impact of financial development on poverty in Nigeria while the causality estimate showed the absence of causation among financial development, economic growth and poverty reduction in Nigeria. This

study neglected the issue of financial inclusion, and more so focused only on the banking segment of financial development without taking into cognizance stock market development, thereby limiting its policy recommendations.

Khan, Khan, Ahmad and Siraj (2011) explored the relationship between financial sector development and poverty reduction for a panel of selected countries. Using the pooled ordinary least squares technique, the study observed that financial development (proxied by central bank access to GDP, stock market turnover ratio and private bond market capitalization to GDP) had negative and significant impact on poverty reduction. This suggests that financial development strongly contributed to poverty reduction in the studied countries. This study neglected the issue of financial inclusion which this study considered. More so, the outcome of the panel study maybe inappropriate for the Nigerian economy due differences in economic fundamentals.

The review of literature showed controversial evidence on the relationship between financial development and poverty reduction. Furthermore, the review showed that most studies measured financial development with credit to the private sector as a ratio of GDP only (Onwuka & Nwadiubu, 2019; Olohunlana & Duada, 2019; Chinweze, 2017) while a few that included stock market development only employed stock market capitalization as a proxy for stock market development. Market capitalization only measures market size and not liquidity of the market. Thus, in this study financial development is measured by two indicators: credit to the private sector as a ratio of GDP and turnover ratio. The turnover ratio is a better indicator of stock market development because it measures the liquidity. More so, the literature review showed that little or no indigenous studies exist on the impact of financial inclusion on poverty reduction in Nigeria. Furthermore, the review showed that there is dearth of indigenous studies on the causal nexus between financial inclusion and poverty. Indigenous studies have only focused on the nexus between financial development and poverty (see Dandume, 2014). These identified gaps constitute the original contributions of this study to knowledge.

3. Methodology

This study utilized the ex post factor research design. This research design is grounded on the systematic investigation of the relationship between the dependent and independent variables using existing data. This enable researcher to investigate the possible cause and effect relationship between the variables of interest. Consequently, this study utilized the autoregressive distributed lag (ARDL) with respect to objective one while the vector autoregressive (VAR) granger causality technique is utilized for objective two.

3.1. Model Specification

In analyzing the impact of financial development and financial inclusion on poverty reduction in Nigeria, the model below is specified.

$$POV_t = f(FD, FI) \quad 3.1$$

From equation (3.1) poverty reduction (*POV*) is the dependent variable while financial development (*FD*) and financial inclusion (*FI*) are independent variables. In line with the objectives of this study, financial development is divided into banking sector development (*FDB*) and stock market development (*FDS*). More so, variables such as Economic Growth (*EG*), and inflation rate (*IFR*) have been identified as important control variables that influences the impact of financial development and financial inclusion on poverty reduction (see Quechtati, 2020; Abdin, 2016). Thus, incorporating the above variables into equation (3.1) becomes:

$$POV_t = f(FDB, FDS, FI, EG, IFR) \quad 3.2$$

Where *POV* = Poverty Reduction;

FDB = Financial Development measured by Banking Sector Development;

FDS = Financial Development measured by Stock Market Development;

FI = Financial Inclusion;

EG = Economic Growth;

IFR = Inflation Rate;

Expressing equation (3.2) in estimation form and including the constant term and the stochastic error term, equation (3.2) becomes.

$$POV_t = \delta_0 + \delta_1 FDB_t + \delta_2 FDS_t + \delta_3 FI_t + \delta_4 EG_t + \delta_5 IFR_t + \mu_t \quad 3.3$$

Equation (3.3) is the baseline estimating model for this study and is analyzed to achieve objective one. Equation (3.3) is estimated using the auto-regressive distributed lag (ARDL) technique. The ARDL is utilized because it can combine variables of mixed integration order. That is, it combines variables of integration order zero and one in the estimation process without yielding bias or spurious estimates (Narayan & Narayan, 2003). More so, the long-run and short-run results on the relationship between financial development and poverty is estimated simultaneously, thereby eliminating problems associated with omitted variables and autocorrelations (Narayan & Narayan, 2003). Thus, in line with the ARDL technique, equation (3.3) is used to analyze the impact of financial development and financial inclusion on economic growth in the long run, while the short estimation equation is specified thus:

$$\begin{aligned} \Delta POV_t = & \delta_0 + \delta_1 \sum_{i=1}^q \Delta POV_{t-1} + \delta_2 \sum_{i=1}^q \Delta FDB_{t-1} + \delta_3 \sum_{i=1}^q \Delta FDS_{t-1} + \delta_4 \sum_{i=1}^q \Delta FI_{t-1} \\ & + \delta_5 \sum_{i=1}^q \Delta EG_{t-1} + \delta_6 \sum_{i=1}^q IFR_{t-1} + \psi ECT_{t-1} + \varepsilon_t \end{aligned} \quad 3.4$$

The ECT_{t-1} is the short run error correction term which indicates the speed of adjustment from short run disequilibrium to long run equilibrium.

With respect to objective two which is determine the direction of causality between financial development / financial inclusion and poverty reduction, the causality model below is specified:

$$POV_t = \alpha_{01} + \sum_{k=1}^m \alpha_{11} POV_{t-k} + \sum_{i=1}^n \alpha_{12} FD_{t-k} + \varepsilon_{1t} \quad 3.5$$

$$FD_t = \alpha_{02} + \sum_{k=1}^m \alpha_{21} FD_{t-k} + \sum_{i=1}^n \alpha_{22} POV_{t-k} + \varepsilon_{2t} \quad 3.6$$

Equations (3.5) and (3.6) are used to achieve the causality objectives, that is, objective two.

From the estimating model in equation (4.3), it is expected theoretically that increase in financial development variables (FDB and FDS), financial inclusion and economic growth will have negative impact on poverty reduction while inflation rate and household consumption expenditure is expected to have positive impact on poverty reduction.

3.2. Data and Sources

Poverty (POV) is measured by poverty incidence and financial development is measured by credit to the private sector as a ratio of RGDP (measuring banking sector development) and turnover ratio (measuring stock market development). Turnover ratio is calculated as the value of share traded divided by stock market capitalization. Financial inclusion is measured by the number of bank branches per 100,000 adults. This is in line with previous studies such as Abdin (2016), and Lahura and Vargas (2021). More so, data on number of bank branches per 100,000 adults exist for the study period (1981-2020) while data of other measures of financial inclusion such as number of ATM, POS and mobile pay usages among others only existed for the period 2009 to 2020. In addition, economic growth is measured by real gross domestic product while inflation rate is measured by the annual inflation rate.

On the sources of data, the data on credit to the private sector as a ratio of RGDP, turnover ratio, financial inclusion, real gross domestic product, and inflation rate are sourced from the central bank of Nigeria statistical bulletin 2020 edition while data on poverty incidence is sourced from the Nigeria Bureau of statistics.

4. Result and Discussion

4.1. Descriptive Statistics and Correlation Matrix

The descriptive statistics on Table 1, showed that the average values for banking sector development (FDB), poverty (POV), and stock market development (FDS)) are 11.29, 53.17 percent, and 0.06 respectively while the mean values of financial inclusion (FI), economic growth (EG), and inflation rate (IFR) are 0.033, 36843.4 and 19.58 percent respectively. The median values for banking sector development (FDB), poverty (POV), and stock market development (FDS)) are 8.090, 53.50 and 0.06 respectively while the median values of financial inclusion (FI), economic growth (EG), and inflation rate (IFR) are 0.02, 25914.1 and 12.9 percent respectively. The standard deviation showed that economic growth (EG) had the highest variation while financial inclusion (FI) varied the least. From the skewness test, all the variables were positively skewed, while the kurtosis test showed that the distributions of poverty (POV), stock market development (FDS) and inflation rate (IFR) are high while the distributions of banking sector development (FDB), financial inclusion (FI) and inflation rate (IFR) are flat. More so, the Jarque-Bera test revealed that banking sector development (FDB), stock market development (FDS) and inflation rate (IFR) were normally distributed while the remaining variables (poverty, financial inclusion and economic growth) were not normally distributed, because their probability values were insignificant.

Table 1. Descriptive Statistics

Stat./ Variables	FDB	POV	FDS	FI	EG	IFR
Mean	11.294	53.174	0.060	0.033	36843.4	19.576
Median	8.090	53.500	0.055	0.024	25914.1	12.9
Std. Dev.	5.477	10.609	0.034	0.017	19785.1	17.856
Skewness	0.7669	0.6251	0.9406	0.3243	0.6318	1.7240
Kurtosis	1.8491	3.6109	4.7007	1.5376	1.7944	5.0644
Farque-Bera	6.1286	3.2265	10.7188	4.2656	5.0837	26.9173
Probability	0.0467	0.1992	0.0047	0.1185	0.0787	0.0000
Observations	40	40	40	40	40	40

Source: Author's computation from E-views 9, 2023.

Results from the correlation matrix showed the poverty is positively associated with banking sector development (FDB), stock market development (FDS) and financial inclusion (FI). However, the correlation coefficient is weak with financial inclusion

having the highest coefficient of 0.219. Furthermore, economic growth (EG) has a positive correlation with poverty while inflation rate exhibited a negative correlation with poverty rate. The preliminary result of the correlation matrix shall be corroborated using the auto-regressive distributive lag (ARDL) regression estimate.

Table 2. Correlation Matrix

Variables	POV	FDB	FDS	FI	EG	IFR
POV	1.0000					
FDB	0.0760	1.0000				
FDS	0.0469	0.3198	1.0000			
FI	0.2190	0.9128	0.3119	1.0000		
EG	0.1347	0.8999	0.2438	0.9620	1.0000	
IFR	-0.2062	-0.2501	-0.3129	-0.2931	-0.3472	1.0000

Source: Author's computation from E-views 9, 2023.

4.2. Unit Root and Co-Integration Tests

The unit root estimate otherwise known as the stationarity test was conducted using Phillip-Perron (PP) test. The results of the unit root test revealed that poverty (POV), banking sector development (FDB) stock market development (FDS), financial inclusion (FI) and economic growth (EG) were integrated of order one after first difference while inflation rate (IF) was integrated at order zero. The mixture of the order of integration by the variables in the unit root test, suggest that the ARDL Bound co-integration method is appropriate for estimating the co-integration test.

Table 3. Stationarity Estimate

Phillips-Perron (PP) Test			
Variables	Level	Difference	Status
POV	-2.3990	-4.8232*	I(1)
FDB	-0.9150	-6.5780*	I(1)
FDS	-2.6854	-10.8082*	I(1)
FI	-0.7583	-4.4994*	I(1)
LEG	0.4525	-3.7731*	I(1)
IFR	-3.2221**	-	I(0)
LHCX	-0.1173	-7.5940*	I(1)

Note: LEG and LHCX are logs of economic growth and household consumption expenditure respectively.

Source: Author's from E-views 9. * and ** implies 1% and 5% significant levels.

The results from the ARDL bound co-integration estimate showed that the value of the F-statistics is 4.01. This value is significant at five (5) percent critical value and the value of the F-statistics is higher than the value of the upper bound (3.79). Thus, the co-integration results showed the presence of long run relationship among the variables in the estimating equations.

Table 4. ARDL Co-integration Estimate

Test	Value	
F-statistic	4.01	
Critical Value	I(0)/Lower Bound	I(1)/Upper Bound
10%	2.26	3.35
5%	2.62	3.79
1%	3.41	4.68

Source: Author's from E-views 9, 2022

4.3. Regression and Causality Estimates

The long run estimates showed that stock market development (FDS), financial inclusion (FI) and economic growth (EG) did not exhibit the expected theoretical or a priori relationship with poverty in Nigeria while banking sector development (FDB) and inflation rate (IFR) exhibited the anticipated a priori relationship with poverty. Furthermore, the results from the long run estimate revealed that financial development (proxy by banking sector development FDB) had negative and significant impact on poverty, showing that an increase in the volume of bank credit to the private sector reduced poverty by about 2.3 percent in the long run. More so, it was observed that economic growth and inflation rate had positive and significant impact on poverty rate in Nigeria. This indicates that the increase in economic growth and inflation rate worsen poverty condition in Nigeria. However, financial development (proxy by stock market development (FDS)) and financial inclusion (FI) were insignificant in influencing poverty in the long run.

Table 5. Regression Results

Independent Variables	Estimated Co-efficient	Standard Error	t-Statistics	Prob.
Long Run Regression Estimate				
FDB	-0.02315	0.01067	-2.16948	0.0402
FDS	0.89028	0.85253	1.04428	0.3068
FI	2.11462	8.40200	0.25168	0.8034
LEG	1.25554	0.22974	5.46505	0.0000*
IFR	1.77739	0.81664	2.17647	0.0396**
C	-3.02484	2.16837	-1.39498	0.1758
Short Run Regression Estimate				
Δ (FDB)	-0.01896	0.01000	-1.89602	0.0701
Δ (FDS)	0.72894	0.83931	0.86850	0.3937
Δ (FI)	15.24112	9.02417	1.68892	0.1042
Δ (LEG)	2.07392	0.68210	3.04050	0.0056*
Δ (LEG(-1))	1.38326	0.50051	2.76369	0.0108**
CointEq(-1)	-0.81878	0.26643	-3.07318	0.0052*
R² = 0.9832			F-stat. (Prob.) = 117.30 (p < 0.05)	
Adjusted R² = 0.9749			Durbin-Watson = 2.068	

Source: Authors' from E-views 9, 2023. * and ** signify 1% and 5% significant level.

The short run results revealed that current value of economic growth (ΔLEG) and the first lagged value of economic growth ($\Delta\text{LEG}(-1)$) strongly contributed positively to the increase in poverty in the short run. However, the results from the short run estimate showed that financial development (proxy by banking sector development (ΔFDB), stock market development (ΔFDS) and financial inclusion (ΔFI) had insignificant influence on poverty. The error correction term from the short run results showed the anticipated negative signs. The value of the error correction term is -0.8188, which connotes that the short-run disequilibrium is adjusted by 81.88 percent towards the long-run equilibrium. In addition, the Durbin-Watson estimate of 2.068, suggests that the estimates are from serial correlation problem. The Durbin-Watson result is corroborated by the Breusch-Pagan-Gidfrey Heteroskedasticity and serial correlation LM estimates in Table 7.

From causality results, a one-way causality was observed from poverty to financial development (proxy by banking sector development (FDB) while no feedback was observed from banking sector development to poverty. More so, there was the absence of causality between poverty and stock market development while a unidirectional causality was witnessed from poverty to financial inclusion with no feedback from financial inclusion to poverty. The import from the above showed that poverty influences banking sector development and financial inclusion in Nigeria.

Table 6. Causality Estimate

H₀	F-Statistics	Probability
POV does not Granger Cause FDB	4.89963	0.0137
FDB does not Granger Cause POV	0.00187	0.9981
POV does not Granger Cause FDS	1.40955	0.2586
FDS does not Granger Cause POV	0.46735	0.6307
POV does not Granger Cause FI	3.36829	0.0466
FI does not Granger Cause POV	0.38099	0.6861

Source: Author's from E-views 9, 2023.

4.4. Discussion of Results

With regard to objective one, which is to examine the impact of financial development and financial inclusion on poverty in Nigeria. It was observed that while banking sector development contributed to poverty reduction while stock market development and financial inclusion were insignificant in influencing poverty in Nigeria. The negative impact of banking sector development on poverty reduction may be attributed to pro-poor credit facilities targeted at poor and low-income earnings over the years. This finding is in line with He *et al.* (2022) and Appiah *et al.* (2020). The insignificant impact of stock market development on poverty can be attributed to the fact the stock market does not accommodate Small

scale enterprise on the trading platform, hence its insignificant impact on poverty. This finding is in contrast to Bayer (2017).

The insignificant impact of financial inclusion on poverty reduction can be attributed to the prevailing high financial transaction cost which has prevented the poor and low-income earners from dealing with the formal financial institution. This finding is in contrast to Quechtati (2020) which observed a positive impact of financial inclusion on poverty alleviation. More so, the positive impact of economic growth and inflation rate can be attributed to the fact gains of economic growth in Nigeria has not trickle down to the poor in terms of improve living standards while the increase in inflation rate have increased the expenditure of poor households, reducing their livings standards and driving more poor people into the poverty net.

With respective to the causality objective, it was observed that the rising level of poverty in the country is responsible for agitations of more financial development and financial inclusion in Nigeria. The result on causality is in contrast to the findings of Kheir (2018) and Uddin *et al.* (2014) which observed bidirectional causality between financial development and poverty reduction.

Table 7. Diagnostic Tests

Estimates	F-Statistics	Obs*R-squared	Prob. F(2, 24)	Prob. Chi-Square(2)	Chi-Square(5)
Serial Correlation LM	1.04322	3.20503	0.3691	0.2014	
Breusch-Pagan-Godfrey Heteroskedasticity Test	1.565896	16.24785	0.1688	0.1801	

Source: Author's computation from E-views 9, 2023.

5. Conclusion and Policy References

This study explored the effect of financial development and financial inclusion on poverty in Nigeria for the period 1981 to 2020. The study employed the causality and autoregressive distributed lag (ARDL) techniques. The results of the study indicated that financial development proxy by banking sector development (ratio of credit to the private sector to GDP) contributed strongly to poverty reduction in Nigeria while financial development (proxy by stock market development) and financial inclusion were insignificant in influencing poverty reduction in Nigeria. The causality results showed unidirectional causality from poverty to financial development (proxy by banking sector development). More so, unidirectional causality was noted from poverty to financial inclusion in Nigeria. From the above, the study concludes that the relationship between financial development and poverty reduction depends on the measurement of financial development. More so, the study concludes that financial inclusion is not a significant driver of poverty reduction in Nigeria. Thus, the study recommends the need for the banking sector to increase the

volume of loan to the poor and ease constraints on credit accessibility to the poor. More so, the financial inclusion drive of the monetary authority should be improved upon. This may include regulations such as mandatory use of the banking system for financial transactions greater than ten thousand Naira (₦10,000). Finally, operators of the stock market should development special financial instruments such as SMEs Bond which will help to raise funds for SMEs and other small business units.

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