

Financial Inclusion and Economic Growth in Nigeria

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Abstract

This study examines the effect of financial inclusion on economic growth in Nigeria. The study used annual times series data from 1991-2022 while the historical data research design was employed for the study. The unit root tests were conducted using the Augmented Dickey Fuller (ADF) and the Phillipps-Perron techniques. The data were analyzed using the Autoregressive Distributed Lag (ARDL) model and diagnostic tests such as Cusum of squares test, Breusch-Godfrey serial correlation LM test, Ramsey Reset test, Correlogram Q-statistic, Histogram Normality test and the Granger Causality test were also conducted. The findings from the long-run analysis indicates that Aggregate of loan-to-deposit ratio positively influence the Gross Domestic Product. Conversely, Loans of rural branches of commercial banks negatively but insignificantly influence the Gross Domestic Product. Furthermore, the Deposit of rural branches of commercial banks has a negative and significant impact on the Gross Domestic Product. Therefore, the study concludes that financial inclusion has significant effect on the Gross Domestic Product in Nigeria. Finally, the study suggests that Deposit Money Banks should establish more rural branches as well as develop less complex financial products that the financially excluded populace can access. This is expected to enhance economic growth if properly harnessed.

Key words: *Economic Growth, Financial Inclusion, Rural Bank Deposit, Rural Bank Loan*

1. Introduction

Recently, there has been clamour for financial inclusion in order to remedy the ills of financial exclusion and thereby spur economic growth and development. Kama & Adigun (2013) opined that the principle of financial inclusion has become paramount in recent times because of its importance as a driver of economic growth. Giving access to the hundreds of millions of men and women (all over the world) who are currently excluded from financial services would give the possibilities for the creation of a large depository of savings, investable funds, investment and therefore global wealth generation. Conversely, access to financial services, that are well suited for low-income earners promote enormous capital accumulation, credit creation and investment boom. In most cases, the low-income earners constitute the largest proportion of the population and so control large quantum of idle cash in the economy.

A financial system that is well-developed acts as a catalyst for the promotion of economic growth by allowing economic agents to diversify their portfolios as well as meet their liquidity requirements. Financial innovations encourages a higher level of savings and capital accumulation, thus, a higher level of economic growth (Levine, 1997; Mishra, 2008).

Financial inclusion provides a means through which the generality of people, most especially the unbanked and the financially excluded access formal financial services. Onaolapo (2015) opined that financial inclusion is a practice that guarantees the ease in accessing and utilization of the formal financial system by people in the economy.

The increasing importance of financial inclusion as a catalyst for economic growth and development has been well documented in the literature. Financial inclusion is today widely considered as a right of all citizens to social inclusion, better quality of life and a tool for strengthening the economic capacity and capabilities of the poor in a nation (Banco Central do Brazil, 2010).

The global financial inclusion average defined as the number of adults with access to financial services is less than 50.0 per cent. The problem is more acute in the developing economies and African countries in particular, such that achieving a higher financial inclusion level has become a global challenge (Ardic, Heimann & Nataliya, 2011; Kama & Adigun, 2013). From the foregoing, it is a known fact that residence of most developing economies do not have access to formal financial services. This could be as a result of unavailability of formal financial infrastructure, illiteracy, difficult bank procedures, high cost of services, etc. This has made most people to patronize informal financial services. This is evidenced in Gbanador (2021) when he opined that traditional financial institutions like Teregbee, family fund, local money lenders, deity savings scheme and the pit banking practice are still functioning alongside the formal financial system. Furthermore, Nwafor & Yomi, (2018) assert that generally, the low and middle income earners constitutes the largest percentage of the people and therefore controls a large proportion of the economy's idle fund; though, held in small quantities in the hands of each of the millions of members of this group thus, harnessing and accruing these financial resources offers a huge basis of cheap long-term investable fund.

The financial market is expected to influence economic growth and development. However, attention of Researchers over the years tilted mostly towards the link between capital market and economic growth (Gbanador, Makwe & Okonma, 2023). Recall, the quest to provide accessible and affordable formal financial services to the financially excluded and the disadvantaged low-income populace of the economy in order to enhance economic growth has taken a centre stage in recent times. Despite this, apart from Nduka & Nwankwo (2023) the available studies regarding the influence of financial inclusion on economic growth applied variables that are either purely financial intermediation in nature (see Nduka & Nwankwo, 2023; Nwafor & Yomi, 2018; Okaro, 2016; Okonkwo & Nwanna, 2021) or financial infrastructure and accessibility variables (Balele, 2019). This created a gap which this study tries to bridge by utilizing both financial intermediation and financial deepening variables in order to give a broad assessment of the subject matter. Thus, the objective of this study is to examine the effect of financial inclusion on economic growth in Nigeria.

2. Literature Review

The theory upon which this study is anchored is the financial intermediation theory. Gurley and Shaw propounded the financial intermediation theory in 1960. The theory emanates due to the asymmetry of information in the financial system. They assert that in order to bridge information asymmetry, there is need to create financial institutions that will act as intermediaries between the Surplus economic units (SEU) and the Deficit economic units (DEU). Deposit Money Banks and other financial institutions are known for granting credit facilities and offering of financial advisory services to their clients, thus, making this theory more appropriate for this research work (Gbanador, Makwe & Okonma, 2023).

In an attempt to examine the nexus between financial inclusion and economic growth, Okonkwo and Nwanna (2021) evaluated the influence of financial inclusion on economic growth in Nigeria from 1992 to 2018. The ex-post facto research design was adopted for the study while the ordinary least square multiple regression was employed for data analysis. Currency outside bank, currency in circulation, microfinance banks' deposits, number of commercial bank branches, commercial banks' credit to private sector, loans and deposits of rural branches of commercial banks were used as proxies for financial inclusion while nominal GDP was used as proxy for economic growth. The outcome of the analysis indicated that currency in circulation has a positive and insignificant relationship with economic growth in Nigeria while loans from rural branches of commercial banks has a positive and significant relationship with economic growth in Nigeria. On the other hand, Deposits of rural branches of commercial banks have causal effect, positive and insignificant relationship with GDP in Nigeria. In a related study, Balele (2019) employed panel data of 25 Sub-Saharan African countries to assess the effect of financial inclusion on economic growth from 2009 to 2014. The study examine whether an increase in the level of financial inclusion, controlling for gross savings and gross primary school enrollment leads to economic growth. The outcome of a two-way random effect estimation indicated that Gross savings influence economic growth, but gross primary school enrollment has a negative effect.

Nwafor & Yomi (2018) investigated the link between financial inclusion and economic growth in Nigeria from 2001 to 2016. The two stage least square regression approach was used for the data

analysis. The outcome of the analysis shows that financial inclusion has significant influence on economic growth in Nigeria. However, financial industry intermediation has no effect on financial inclusion within the period. Thus, they suggested that banks should create financial products targeted at financially excluded regions of the country in order to enhance economic growth.

In an attempt to evaluate the relationship between financial inclusion and economic growth in Nigeria, Otiwu, Okoro, Uzowuru & Ozuzu (2018) focused on Microfinance bank activities from 1992 to 2013. The study employed total deposits mobilized, number of bank branches, investment, total loans and advances as proxies for financial inclusion while the GDP was used as proxy for economic growth. The ordinary least square method and the Johansen cointegration were used for the data analysis. The findings shows total deposits mobilized, number of bank branches and investment have no significant effect on economic growth while total loans and advances exert a significant influence on economic growth in Nigeria.

Okaro (2016) investigated the influence of financial inclusion on the Nigerian economy within the period of 1990 to 2015. The Ordinary least squares regression Method was adopted for the data analysis. The findings reveals that Deposit Money Bank's financial intermediation activities, financial deepening, financial accessibility, and institutional infrastructures all have positive and significant influence on economy growth while there is significant relationship between financial inclusion and poverty eradication in Nigeria.

Bigirimana and Hongyi (2018) examined the relationship between financial inclusion and economic growth of Rwanda using annual data from 2004 to 2016. The study used the Autoregressive Distributive Lag model and its outcome revealed that there is a long-run relationship between financial inclusion and economic growth. They recommended that government set policies that ease loan access for more people to take loans.

Saruna, Yusuf, Gambo & Maitala (2024) assessed the influence of financial inclusion on economic growth in Nigeria using time series data from 2001-2021. The ex-post facto research design was adopted for the study while the ordinary least square (OLS) multiple regression method was used for the data analysis. Credit to the private sector (CPS) and Automated teller machine (ATM) transaction were used as proxy for the independent variables while Gross domestic product (GDP) was adopted as proxy for the dependent variable. The findings indicates that credit to the private sector has a positive and significant effect on economic growth. Conversely, ATM transaction has a positive but insignificant impact on economic growth in Nigeria Therefore, the study recommends that monetary authorities should put in measures to increase credit to the private sector.

Nduka & Nwankwo (2023) examined the effect of financial inclusion on economic development in Nigeria from 1987 to 2018. The research design employed for the study was the ex-post facto design while the Ordinary Least Square and other econometric techniques like the Augmented Dickey Fuller tests were used for the data analysis. Deposit from rural areas, loan to rural areas, loans to deposit ratio and loan to small scale enterprises were used as proxies for financial inclusion while per capita income was used as proxy for economic development in Nigeria. The findings indicate that deposit from rural areas, loans to rural areas, loans to deposit ratio and loan to small

scale enterprises have positive influence on per capita income. Based on the findings, the study concludes that financial inclusion have positive effect on economic development in Nigeria.

Wakdok (2018) investigates the impact of financial inclusion on economic growth in Nigeria using time series data from 1990 to 2014. The secondary data design was used for the study while the ordinary least square multiple regression and the error correction model were used to analyze the data. Based on the outcome of the analysis, the study concluded that Financial Inclusion has a positive and significant effect on economic growth in Nigeria. Thus, the study recommend that Regulators should ensure that the financial inclusion variables are tailored towards enhancing economic activities for the promotion of economic growth.

3.0 Methodology

The Researchers employed the historical data research design for this study. The historical data research design was adopted for the study due to the nature and source of data used for the study. An annual time series data spanning through the period of 1991 to 2022 were sourced from the CBN Statistical Bulletin. The Gross Domestic Product was used as proxy for economic growth while Loans of rural branches of commercial banks, Deposit of rural branches of commercial banks and Aggregate of loan-to-deposit ratio were used as proxies for financial inclusion variables.

3.1 Model Specification

The functional specification of the model is given as:

$$\text{GDP} = f(\text{RBL}, \text{RBD}, \text{LDR}) \quad (1)$$

Where;

GDP = Gross Domestic Product

RBL = Loans of rural branches of commercial banks

RBD = Deposit of rural branches of commercial banks

LDR = Aggregate of loan-to-deposit ratio

The econometric specification of this model is therefore stated as follows:

$$\text{GDP} = \beta_0 + \beta_1\text{RBL} + \beta_2\text{RBD} + \beta_3\text{LDR} + \mu_t \quad (2)$$

GDP, RBL, RBD and LDR are as defined in equation (1) while;

β_0 = Regression Constant

$\beta_1, \beta_2, \beta_3$ = Regression coefficient

μ_t = Stochastic Error Term

If equation (2) is tested in its logarithmic form (Log-linear) it becomes:

$$\text{LGDP} = \beta_0 + \beta_1\text{LRBL} + \beta_2\text{LRBD} + \beta_3\text{LLDR} + \mu_t \quad (3)$$

$\beta_1, \beta_2, \beta_3 > 0$,

Where:

L = Logarithmic Form

4.0 Results and Data Analysis

Several tools of analysis were employed for the data analysis. The various tests and their outcomes are hereby presented in this subsection.

Table 1: Descriptive Analysis

	LGDP	LRBL	LRBD	LLDR
Mean	9.967280	2.316753	3.293361	4.144288
Median	10.38759	2.794859	2.900747	4.140989
Maximum	12.44103	6.256162	6.896278	4.572854
Minimum	6.380224	-3.925959	0.471378	3.625940
Std. Dev.	1.708568	2.896072	1.583493	0.219975
Skewness	-0.474857	-0.941331	0.622224	-0.394655
Kurtosis	2.087957	3.350014	2.922527	2.871888
Jarque-Bera Probability	2.311705 0.314789	4.889239 0.086759	2.072869 0.354717	0.852564 0.652932
Sum	318.9530	74.13610	105.3875	132.6172
Sum Sq. Dev.	90.49531	260.0041	77.73093	1.500063
Observations	32	32	32	32

Source: Researcher's computation using Eviews 12

The descriptive statistic is presented in Table 1. This enables the Researcher to take visual inspections of the nature and type of data that were used for the study. The Jarque-Bera probability was employed to examine whether the variables were normally distributed or not. The outcome indicates that all the variables are normally distributed as all their JB Prob. > 0.05.

Table 2: Unit Root (Stationarity) Test

Variables	Augmented Dickey-Fuller (ADF) Test Statistic	Mackinnon's Critical Values at 1%, 5% and 10% respectively			Order of Integration	Prob.
LGDP	-4.036412	-3.661661	-2.960411	-2.619160	I(0)	0.0039
LRBL	-4.173339	-3.670170	-2.963972	-2.621007	I(1)	0.0029
LRBD	-6.339765	-3.679322	-2.967767	-2.622989	I(1)	0.0000
LLDR	-4.458412	-3.689194	-2.971853	-2.625121	I(0)	0.0015

Source: Researcher's computation using Eviews 12

The study employed the Augmented Dickey-Fuller (ADF) to test for unit root as shown in Table 2 and the results indicates a mixed order. LRBL and LRBD are stationary at order (1) while LGDP and LLDR are stationary at level. This outcome satisfies the condition for using the Autoregressive Distributed Lag approach for the data analysis.

Table 3: Unit Root (Stationarity) Test

Variables	Phillips-Perron (PP) Test Statistic	Mackinnon's Critical Values at 1%, 5% and 10% respectively			Order of Integration	Prob.
LGDP	-3.667205	-3.661661	-2.960411	-2.619160	I(0)	0.0099
LRBL	-4.206406	-3.670170	-2.963972	-2.621007	I(1)	0.0026
LRBD	-15.98494	-3.670170	-2.963972	-2.621007	I(1)	0.0000
LLDR	-5.006776	-3.670170	-2.963972	-2.621007	I(1)	0.0003

Source: Researcher's computation using Eviews 12

Phillips-Perron (PP) was also used to conduct the unit root test as depicted in Table 3. The outcome indicates that LRBL, LRBD and LLDR are stationary at order (1) while LGDP is stationary at level. This result further confirm the need for the adoption of Autoregressive Distributed Lag approach for the analysis.

Table 4: ARDL Bounds Test for Cointegration

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	5.125852	10%	3.47	4.45
k	3	5%	4.01	5.07
		2.5%	4.52	5.62
		1%	5.17	6.36

Source: Researcher's computation using Eviews 12

The Autoregressive Distributed Lag bound cointegration test was employed to assess the possibility of a long run equilibrium link between the dependent and independent variables using the F-statistic as a means of comparison between the lower and upper bound of the cointegration output. From Table 4, the F-statistic of 5.125852 is higher than the lower bound of 4.01 and higher bound of 5.07 at 5% level of significance. Therefore, indicating that there is a long run equilibrium relationship between the dependent and independent variables.

Table 5: ARDL Short run Error Correction Model

ARDL Error Correction Regression
Dependent Variable: D(LGDP)
Selected Model: ARDL(4, 0, 4, 3)
Case 5: Unrestricted Constant and Unrestricted Trend
Date: 10/13/24 Time: 17:49
Sample: 1991 2022
Included observations: 28

ECM Regression Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.609601	0.471400	5.535855	0.0001
@TREND	0.118049	0.024376	4.842775	0.0004
D(LGDP(-1))	0.040693	0.174315	0.233448	0.8193
D(LGDP(-2))	-0.373319	0.175701	-2.124737	0.0551
D(LGDP(-3))	-0.480912	0.183130	-2.626072	0.0221
D(LRBD)	-0.013940	0.016481	-0.845798	0.4142
D(LRBD(-1))	0.208108	0.050436	4.126167	0.0014
D(LRBD(-2))	0.137325	0.033751	4.068764	0.0016

D(LRBD(-3))	0.047550	0.021022	2.261859	0.0431
D(LLDR)	0.391309	0.101729	3.846568	0.0023
D(LLDR(-1))	0.253016	0.081024	3.122710	0.0088
D(LLDR(-2))	0.103551	0.077997	1.327629	0.2090
CointEq(-1)*	-0.481264	0.095064	-5.062535	0.0003
R-squared	0.799861	Mean dependent var	0.177249	
Adjusted R-squared	0.639749	S.D. dependent var	0.114181	
S.E. of regression	0.068532	Akaike info criterion	-2.218604	
Sum squared resid	0.070450	Schwarz criterion	-1.600081	
Log likelihood	44.06046	Hannan-Quinn criter.	-2.029515	
F-statistic	4.995652	Durbin-Watson stat	2.258757	
Prob(F-statistic)	0.002227			

* p-value incompatible with t-Bounds distribution.

Source: Researcher's computation using Eviews 12

Table 5 indicates the Autoregressive Distributed Lag Short run Error Correction Model output. The result of the analysis shows that Deposit to rural branches of commercial banks (RBD) at current level with a prob. value of 0.4142 and a coefficient of -0.013940 has a negative and insignificant effect on the GDP. RBD lagged 1 period with a prob. value of .0014 and a coefficient of 0.208108 has a positive and significant impact on the GDP. The coefficient value shows that a 1% increase in the value of RBD will necessitate a 20.81% increase in the value of GDP. RBD lagged 2 periods has a positive and significant influence on the GDP. The coefficient of 0.137325 indicates that a 1% increase in the value of RBD will increase GDP by 13.73%. However, RBD lagged 3 periods has a positive and significant effect on the GDP. Secondly, aggregate of loan-to-deposit ratio (LDR) at current level with a prob. value of 0.0090 and a coefficient of 0.391309 has a positive and significant effect on the GDP. Thus, the coefficient reveals that a 1% rise in the value of LDR will necessitate a 39.13% rise in GDP. LDR lagged 1 period has a positive and significant influence on the GDP. The coefficient of 0.253016 shows that a 1% increase in the value of LDR will necessitate a 25.30% increase in GDP. LDR lagged 2 periods shows a positive and insignificant effect on the GDP.

The ARDL-ECM result as shown in Table 5 indicates an error correction term or the speed of adjustment coefficient of -0.481264 and a p-value of 0.0003. This implies that there is 48.13% speed of adjustment if there is any disequilibrium in this model from the short run back to the long run annually. The R^2 result of 79.99% represent the combined correlation of the independent variables while the adj. R^2 indicates that 63.97% of the variations in the Gross Domestic Product can be explained by the variation the independent variables (RBL, RBD and LDR).

Table 6: ARDL Long run Results

Levels Equation				
Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LRBL	-0.037042	0.017254	-2.146823	0.0529
LRBD	-0.635971	0.241507	-2.633340	0.0218
LLDR	0.808901	0.267449	3.024501	0.0106

$EC = LGDP - (-0.0370*LRBL - 0.6360*LRBD + 0.8089*LLDR)$

Source: Researcher’s computation using Eviews 12

Table 6 shows the long run result of the ARDL Model. Based on the result, Loans of rural branches of commercial banks (RBL) with a P-value of 0.0529 and coefficient of -0.037042 is negatively insignificant to the Gross Domestic Product at 5% level of significance. Thus, every 1 unit increase in the value of RBL will lead to a 3.70% fall in the value of the GDP. The Deposit of rural branches of commercial banks (RBD) with a P-value of 0.0218 has an inverse and significant influence on the GDP while its coefficient of -0.635971 indicates that every 1 unit increase in the value of the RBD will lead to a 63.60% decrease in the value of GDP. LDR with a P-value of 0.0106 and a coefficient of 0.808901 is positively significant to the GDP. Thus, indicating that a rise in LDR will increase GDP by 80.89%.

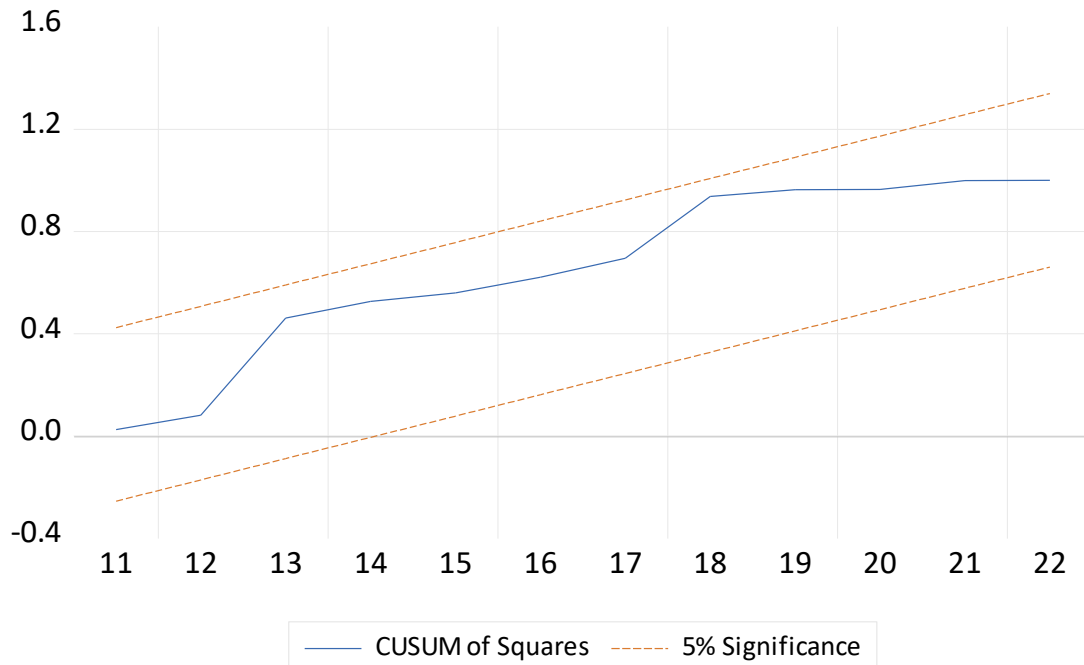


Figure 1. CUSUM Test of Stability

Source: Researcher’s computation from Eviews 12

The CUSUM of squares test was conducted to examine the stability of the model. The result of the CUSUM of squares test indicates that the model is well specified.

Table 7: Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.703756	Prob. F(2,10)	0.5177
Obs*R-squared	3.454769	Prob. Chi-Square(2)	0.1777

Source: Researcher’s computation from Eviews 12

The Breusch-Godfrey Serial Correlation LM test was used to re-examine the presence of serial correlation. The result also confirmed the absence of serial correlation amongst the variables as the p-value of 0.5177 is higher than 0.05.

Table 8: Heteroskedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	1.220482	Prob. F(15,12)	0.3688
Obs*R-squared	16.91354	Prob. Chi-Square(15)	0.3241
Scaled explained SS	2.517388	Prob. Chi-Square(15)	0.9999

Source: Researcher’s computation from Eviews 12

Breusch-Pagan-Godfrey test was conducted to check the presence of Heteroskedasticity using its F-statistic and the Observed R-Squared. The outcome of the test indicates that the model is Homoskedastic as their values are both higher than the P-value of 0.05. This indicates that there is no issue of heteroskedasticity in the outcome.

Table 9: Ramsey RESET Test

Ramsey RESET Test

Equation: UNTITLED

Omitted Variables: Squares of fitted values

Specification: LGDP LGDP(-1) LGDP(-2) LGDP(-3) LGDP(-4)

LRBL LRBD

LRBD(-1) LRBD(-2) LRBD(-3) LRBD(-4) LLDR LLDR(-1)

LLDR(-2)

LLDR(-3) C @TREND

	Value	df	Probability
t-statistic	0.955216	11	0.3600
F-statistic	0.912437	(1, 11)	0.3600
Likelihood ratio	2.231256	1	0.1352

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.005396	1	0.005396
Restricted SSR	0.070450	12	0.005871
Unrestricted SSR	0.065054	11	0.005914

LR test summary:

	Value
Restricted LogL	44.06046
Unrestricted LogL	45.17609

Source: Researcher's computation from Eviews 12

The outcome of the Ramsey Reset test indicates that the model is properly specified and stable.

Table 10: Correloram Q-statistic

Date: 10/13/24 Time: 16:23

Sample (adjusted): 1995 2022

Q-statistic probabilities adjusted for 4 dynamic regressors

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*	
. * .	. * .	1	-0.173	-0.173	0.9288	0.335
. * .	. * .	2	-0.116	-0.150	1.3642	0.506
. .	. * .	3	-0.057	-0.111	1.4719	0.689
. .	. .	4	-0.002	-0.057	1.4720	0.832
. .	. .	5	0.006	-0.031	1.4733	0.916
. .	. .	6	0.047	0.030	1.5574	0.956
. * .	. * .	7	-0.121	-0.119	2.1404	0.952
. * .	. ** .	8	-0.204	-0.265	3.8847	0.867
. .	. * .	9	-0.019	-0.181	3.9012	0.918
. * .	. .	10	0.163	0.024	5.1359	0.882
. .	. * .	11	-0.027	-0.066	5.1710	0.923
. .	. .	12	0.050	0.025	5.3000	0.947

*Probabilities may not be valid for this equation specification.

Source: Researcher's computation from Eviews 12

Table 10 reveals the result of the Correloram Q-statistic test. The outcome reveals the absence of serial correlation amongst the variables.

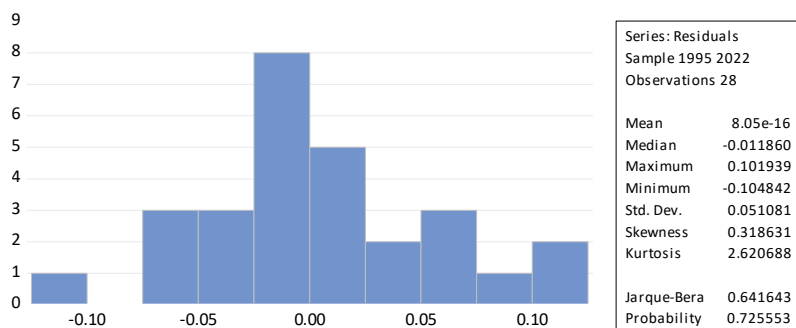


Figure 2. Histogram Normality Test

Source: Researcher's computation using Eviews 12

The Histogram normality test was carried out to examine whether the residuals are normally distributed or not. The result shows that the residuals are normally distributed as the Jarque-Bera Prob. > 0.05 as shown in Figure 2.

Table 11: Pairwise Granger causality test result

Pairwise Granger Causality Tests

Date: 10/13/24 Time: 17:58

Sample: 1991 2022

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LRBL does not Granger Cause LGDP	30	1.42726	0.2589
LGDP does not Granger Cause LRBL		0.18254	0.8343
LRBD does not Granger Cause LGDP	30	0.58934	0.5622
LGDP does not Granger Cause LRBD		6.00912	0.0074
LLDR does not Granger Cause LGDP	30	0.70478	0.5038
LGDP does not Granger Cause LLDR		0.08117	0.9223
LRBD does not Granger Cause LRBL	30	1.50995	0.2404
LRBL does not Granger Cause LRBD		1.40363	0.2644
LLDR does not Granger Cause LRBL	30	2.04669	0.1503
LRBL does not Granger Cause LLDR		1.21854	0.3126
LLDR does not Granger Cause LRBD	30	0.75269	0.4815
LRBD does not Granger Cause LLDR		0.40242	0.6730

Source: Researcher's computation using Eviews 12

Table 11 shows the pairwise Granger causality test result. The pairwise granger causality test indicates the cause-and-effect relationship between the dependent and independent variables. This does not necessarily implies a relationship between the variables. Based on the result, there is a bi-directional causalities between the GDP and RBD. Conversely, there is unidirectional causality between GDP, LDR and RBL over the study period.

5. Discussion of the Findings

This study examined the effect of financial inclusion on economic growth in Nigeria. The result from the ARDL-ECM regression analysis shows a speed of adjustment coefficient of -0.481264 and a p-value of 0.0003. The implication of this outcome is that there is a 48.13% speed of adjustment if there is any disequilibrium in this model from the short run back to the long run annually. The result of the adj. R^2 indicates that 63.97% of the variations in the Gross Domestic Product can be explained by the variation the independent variables (RBL, RBD and LDR). Taking the outcome of the long-run analysis into perspective, we observed that LDR positively influence the GDP. Conversely, Loans of rural branches of commercial banks (RBL) negatively but insignificantly influence the Gross Domestic Product at 5% level of significant. Furthermore, the Deposit of rural branches of commercial banks (RBL) has negative and significant impact on the GDP. These outcome tallied with Nduka & Nwankwo (2023) and Okonkwo & Nwanna (2021) who found out that financial inclusion influence economic growth in Nigeria.

6. Conclusion and Recommendation

Based on the findings, the study concludes that financial inclusion has significant effect on the Gross Domestic Product in Nigeria. Therefore, the study suggest the following policy recommendations.

- 1) Deposit money banks should establish more rural branches as well as develop less complex financial products that the financially excluded populace can access. This is expected to enhance economic growth if properly harnessed.
- 2) The Government and Deposit money banks should conduct financial literacy programmes to sensitize the rural dwellers and other financially excluded citizens regarding the benefit of modern financial system.
- 3) Rural bank branches should reduce or waive certain criteria that serves as impediments to the financially excluded regarding account opening, deposits and credit facilities. By so doing, the financially excluded would be able to access modern financial services, thus, contribute to economic growth.

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