

FINANCIAL INCLUSION AND ECONOMIC GROWTH IN NIGERIA

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Abstract

The presence of shadow money which has weakened the effectiveness of the monetary policy has been widely attributed to financial exclusion. As a result, the Central Bank of Nigeria since 2010 adopted financial inclusion as one of its goals for subsequent years. Explicitly, the rationale behind this is to guarantee financial access for all which can alleviate poverty, enhance employment creation and improve credit creation. Thus, the target is to absorb the unbanked population largely in the informal sector into the formal financial system. Therefore, the study assessed the impact of financial inclusion on economic growth in Nigeria. The Auto Regressive Distributed Lag (ARDL) and Causality techniques were used to analyse data for variables viz; Gross Domestic Product, Loans to Rural Areas, Deposits from Rural Areas, Number of Bank Branches and Interest Rate for the period 1986 -2018. The study discovered that financial inclusion has significant positive effect on economic growth while interest rate has a significant negative impact on economic growth. Meanwhile, the causality test revealed a unidirectional causality from economic growth to financial inclusion mainly through the channel of loans to rural areas. Thus, due to the credence given to financial inclusion by the empirical results in the study as well as the role of economic growth in driving inclusion, it is recommended that loans extended to rural areas should be granted at lower and affordable rates with less bureaucratic demands as this factor is a major inclusion variable that guarantees growth according to the empirical findings.

Keywords: Financial access, financial inclusion, financial intermediation, financial

INTRODUCTION

Financial inclusion despite being a contemporary issue has gained global attention in extant literature especially in the field of development finance due to its ability to drive and sustain economic growth and development. The presence of financial exclusion which is evidenced with the presence of several unbanked millions globally has led to a myriad of consequences on the development of every economy. Such consequences which cannot be undermined include the loss of several deposits, savings and investible funds needed to be channelled into credit creation for development and productive purposes in the economy. It is widely known that every economic system thrives on its access to funds to finance its activities, as such, financial inclusion has proved to be a veritable tool to provide several rural communities and emerging economies with enough resources for economic development. Sanusi (2011) identified financial exclusion as the major reason behind the high rate of poverty bedeviling the

society; this is because economic independence for all can only be achieved when all are exposed to the veracity of the financial system.

In Nigeria, where agriculture that is one of the major sectors of the economy sits in the rural areas, it is highly probable that the exclusion of such areas would have led to the existence of the bulk of revenue and funds as “shadow money”, that is, money outside the sphere of the formally regulated financial system. Consequent on this, rural areas in the country have remained rural while urban areas within the sphere of the financial system have evolved to become more developed. In response to this, the Central Bank of Nigeria in the pursuit of eradicating financial exclusion developed certain goals and strategies to induce inclusion. Prominent among them include the proposed increase in adult Nigerians accessible to payment services from 21.6 percent to 70 percent in the year 2020 with the increase in ATM per units, bank branches per adults as well as increase in mobile money agents (CBN, 2016). Also, in 2019, the CBN established the NIRSAL microfinance bank to further strengthen the course of financial inclusion in the country. However, despite such activities by the CBN, Nigeria as at 2015 still ranked 135 among 176 countries on the financial inclusion index (Cyn-Young & Rogelio, 2015) while the aggregate financial inclusion rate for the country was estimated at 63.2 percent in 2019 (CBN, 2019). This implies that Nigeria still performs below expectations as regards financial inclusion and as such, an evidence of a largely unbanked population mostly in the rural areas.

In extant literature, there exist certain contributions about the subject matter in Nigeria with the absence of consensus on the subject matter as some studies such as Harley-Tega, Adetoso and Adegbola (2017), Ezenwakwelu (2018) and Enueshike and Okpebru (2020) discovered no relationship between financial inclusion and economic growth while Okoye, Adetiloye, Erin and Modebe (2017), Jiakponna (2017) and Onaolapo (2015) among others revealed otherwise. However, such divergence in result may be attributed to the different measures used to capture financial inclusion in the various studies. Thus, this study focuses on the foremost inclusion variables made available by the monetary authorities in the nation. These variables, which include number of bank branches, loans to and deposits from rural areas, were considered in the study as they capture the accessibility of rural and poor people to financial services in bank branches as well as loans and deposit financial systems. Furthermore, previous studies failed to determine the causal relationship between growth and inclusion as to whether inclusion drives growth or the other way round. Therefore, this study seeks to contribute to extant literature on the influence of financial inclusion on economic growth in Nigeria while as a step beyond previous studies; it seeks to examine the causal relationship between financial inclusion and economic growth premised on the paucity of contributions in this regard as it seeks to answer the question: does financial inclusion drive economic growth?

LITERATURE REVIEW

Financial inclusion has been defined differently by various people, however, all the definitions seem to convey the same meaning. Muraari and Didwania (2010) defined financial inclusion as the provision of financial services to different categories of the

poor, low-income and disadvantaged groups in the society. Also, Sarman and Pais (2011) described financial inclusion as the process of making the required and necessary financial services available at the right place, form, time and fair price to all the populace of a society without any form of discrimination. According to the Central Bank of Nigeria (2012), it was conceptualized as the situation whereby adults have easy access to financial services at affordable costs in response to their needs. The presence of intermediaries in a society has been argued in literature to spur economic growth through the provision of credit for developmental purposes as well as savings mobilization for investment purposes (Ozurumba & Onyeiwu, 2019). As such, financial inclusion provides a platform for such intermediaries to integrate the unbanked sector of the world's population into the global economy and boost productivity.

On the other hand, economic growth has been defined as the increase in the national productivity of the nation (Eton, Uwonda, Mwosi, Barigye, & Owel, 2019). In a nation like Nigeria where one of the major productive sectors is Agriculture which mostly lies in the rural areas of the country, improving productivity in such areas will definitely require financial inclusion. This is premised on the fact that inadequate credit facilities have been identified as the major constraint to productivity in the rural areas owing largely to the exclusion of such areas from the financial system. However, ensuring a broad access to financial services without price or non-price barriers will assist the rural and poor people to lift themselves out of poverty, improve their productivity and consequently spur economic growth (Eton *et al.*, 2019). Therefore, until the financial system is made mobile and moved to the very doors of the financially excluded rural communities who have most of their resources and contributions outside the financial system, productivity and economic growth may continue to increase at a slow rate. This is because these rural people are the very bedrock of the agricultural sector, which forms one of the pillars upholding the nation.

Theory of Financial Intermediation

This theory as advanced by the contributions of Schumpeter (1934), Goldsmith (1969) and Shaw (1973) assumes that financial institutions including the money and capital markets (referred to as intermediaries) play a major role in the economy by ensuring that funds are mobilized from surplus units to deficit units; such intermediation without which no development can take place in the economy. McKinnon (1973) affirmed the theory by providing evidence that shows that demand for money has a direct relationship with physical accumulation of capital. That is, physical accumulation of capital and investment within the economy can only thrive when money is available within the economy; which is the rationale behind the existence of financial intermediaries. This is because intermediation results to mobilization of savings which can be channelled into investment for physical capital accumulation or other productive endeavours (Shaw, 1973). Substantially, the industrial revolution in the Great Britain which is a major example of economic development was only made possible because banks were available to extend credit to the economy (Schumpeter, 1934). Apart from the major role in economic development, Greenwood and Jovanovich (1990) submitted

that the presence of intermediaries have reduced information asymmetries, strengthened resource allocation and improved liquidity within the economy.

Stage of Development Hypothesis

In the furtherance of the financial intermediation theory, Patrick (1966) propounded the supply leading and the demand following hypotheses jointly known as the stage of development hypothesis. The theory assumes that the finance-growth link is expressed in both hypotheses at various stages of development of the economy. Patrick (1966) assumed that at the early stage of development, the finance-growth link follows a “supply leading” pattern while it follows a “demand following” pattern at the later stage of development. The supply leading hypothesis assumes that the development of a nation’s financial system will lead to economic growth while the demand following hypothesis assumes that as the nation develops, financial development follows real development because an increase in real development will increase the demand for financial services. However, certain arguments abound in theory in favour of the demand following hypothesis such as that of Robinson (1952) and Levine (1997) who argued that finance follows the existence of enterprise within the real economy.

One major assumption of both theories is the importance attached to the financial system in driving economic development through its channels such as its financial intermediaries. Thus, financial intermediaries are vital channels for reaching the largely unbanked population of the economy in a bid to drive an all-inclusive growth.

Empirical Review

Achugamonu, Adetiloye, Adegbite, Babajide, and Akintola (2020) studied the implication of financial inclusion on growth of 27 Sub Saharan African Countries between 2007 and 2017. The study which centred on the financial exclusion of bankable adults made use of ECM and GMM techniques for analysis revealing that financial inclusion has a significant effect on economic growth. In Nigeria, Enueshike and Okpebru (2020) examined the effects of financial inclusion on economic growth between 2000 and 2018. Adopting the ARDL technique, it was discovered that financial inclusion as proxied by rural deposits and loans to SMEs exert negative effect on economic growth. In the ASEAN region, Suidarma (2019) examined the relationship between financial inclusion and economic growth between 2008 and 2015. The study used the Panel Vector Error Correction modelling technique for analysis revealing that financial inclusion has a positive effect on economic growth.

In Uganda, Eton, Uwonda, Mwonsi, Barigye, and Ogwel (2019) studied the relationship between financial inclusion and economic growth. The questionnaire based analysis administered on 194 respondents used descriptive and regression techniques for analysis revealing that financial inclusion has a significant effect on economic growth. Ozurumba and Onyeiwu (2019) in their study of the impact of financial innovation on economic growth in Nigeria between 2012 and 2018 used the Ordinary Least Square technique. The study revealed that financial innovation has a positive impact on economic growth. In West Africa, Senou, Outtara and Houensou (2019) examined the

role of digital technology in fostering financial inclusion between 2006 and 2017. The study adopted the GMM technique revealing that the use of digital technology such as the mobile phone and the internet were essential to the enhancement of financial inclusion.

In Sub-Saharan Africa, Tah (2019) assessed the link between remittances and access to financial services between 2004 and 2015. The study used the GMM technique revealing that remittances have a positive impact on access to financial services in the region. In Nigeria, Bakari, Donga, Hedima, Babayo and Ibrahim (2019) examined the impact of financial inclusion on poverty alleviation in the sub-Saharan region between 1980 and 2017. The study used the panel regression analysis revealing that financial inclusion has a positive effect on poverty reduction in the region. Chinoda and Kwenda (2019) examined the determinants of financial inclusion in 49 African countries between 2004 and 2016. The study used the S-VAR technique revealing that bank competition, economic growth, mobile phones and bank stability largely determines financial inclusion in the region. Ezenwakwelu (2018) studied the effect of financial inclusion on selected macroeconomic variables in Nigeria between 2007 and 2015. The study used the Ordinary Least Squares technique revealing that financial inclusion has no effect on economic growth as proxied by Gross Domestic Product.

In Rwanda, Bigirimana, and Xu (2018) studied the relationship between financial inclusion and economic growth between 2004 and 2016. The study used the ARDL and Granger causality techniques for analysis divulging that financial inclusion has a positive effect on and also causes economic growth. Okoye, Adetiloye, Erin and Modebe (2017) studied the effect of financial inclusion on enhanced economic growth and development in Nigeria between 1986 and 2015. Adopting the classical Ordinary Least Square technique, it was discovered that financial inclusion has improved poverty alleviation in the country. Contrary to the above, Harley-Tega, Adetoso and Adegbola (2017) examined the influence of financial inclusion on economic growth and poverty alleviation between 2006 and 2015 in Nigeria. Using the classical OLS technique, they discovered that financial inclusion has no significant effect on economic growth in Nigeria. Saab (2017) assessed the importance of financial inclusion to economic growth with special inclination to the Middle East and North African (MENA) region between 1999 and 2014. The study used the Vector Auto Regressive Distributed Lag modelling technique for analysis revealing that financial inclusion stimulates economic growth. In Ethiopia, Rani and Yeshaneh (2017) studied the nexus between financial inclusion and economic development between 2004 and 2016. The study used the regression and causality techniques for analysis revealing that financial inclusion has a positive effect and also causes economic growth. Jiakponna (2017) studied the impact of financial inclusion on economic growth in Nigeria between 1987 and 2015. The study adopted the regression test statistic technique revealing that financial inclusion has a positive effect on poverty reduction.

In Uganda, Bongomin, Ntayi, Munene, and Akol (2017) examined the link between financial intermediation and inclusion with special inclination to the roles of social networks in rural areas. The study was based on data gathered from questionnaires administered to 400 poor and rural households. Analysis through the use

of the regression techniques revealed that intermediation through social networks deepens financial inclusion. Omojolaibi (2017) investigated the relationship between financial inclusion, governance and economic progress in Nigeria between 1980 and 2014. The study made use of the Generalized Methods of Moments for analysis providing evidence in support of a positive relationship between financial inclusion and economic progress in Nigeria. In Uganda, Bongomin, Munene, Mpeera and Akol (2017) examined the role of social capital and generational values in stimulating financial inclusion in rural areas. The study which adopted the questionnaire based analysis using the OLS and ANOVA techniques for analysis revealed that social capital and generational values positively affect financial inclusion. In South Asia, Lenka and Bairwa (2016) examined the effect of financial inclusion on monetary policy between 2004 and 2013. The study used the Generalised Least Squares for analysis revealing that financial inclusion significantly reduces the rate of inflation in a country. In Nigeria, Onaolapo (2015) examined the effect of financial inclusion on economic growth between 1982 and 2012. The study employed the ordinary least square technique for analysis revealing that financial inclusion has a positive effect on economic growth.

RESEARCH METHODS

This study is a time series analysis covering a 32-year period from 1986 to 2018. The period was picked because it marked the era where intermediation became liberalized for an all-inclusive participation in the country. Descriptive statistics and the Auto Regressive Distributed Lag (ARDL) and Granger Causality techniques will be used beginning from the test for unit roots.

Model Specification

The model adapted for this study was that of Onaolapo (2015) which was modified to accommodate more variables in line with the objectives of the study.

Onaolapo's model: $PCI = f(BBRANCH, LRA, DRA, ACGSF)$

Where PCI = Per Capita Income

BBRANCH = Bank Branches

LRA = Loan to Rural areas

DRA = Deposits from Rural Areas

ACGSF = Agricultural Credit Guarantee Scheme Fund

However, modifications were made to fit into the purpose of the study as we replaced the dependent variable with GDP and introduced interest rate in place of the ACGSF. This is because GDP captures growth more than PCI which captures development while interest rate is a monetary policy index that drives the availability of credit in the economy even to rural areas. This is because not all rural activities are centred on agriculture, as such the ACGSF is replaced with interest rate. The model for the study is stated hereunder:

$$GDP = f(LRA, DRA, BNBR, INTR) \dots \dots \dots (Equ.1)$$

The equation 1 can further be stated explicitly hereunder as:

$$GDP_t = B_0 + B_1LRA_t + B_2DRA_t + B_3BNBR_t + B_4INTR_t + \mu_t \dots \dots \dots (Equ. 2)$$

Table 1: Variables and their expected signs

Dependent Variable	Independent Variables	Expected Relationship
Gross Domestic Product (GDP)	Loans to Rural Areas (LRA)	+
	Deposit from Rural Areas (DRA)	+
	Number of Bank Branches (BNBR)	+
	Interest Rate (INTR)	-

Source: Author’s Design (2020)

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Estimation Techniques

The Unit Root test was first conducted due to the nature of time series data, regressing non-stationary data will yield spurious results (Dickey & Fuller, 1981). Thus, in order to prevent spurious results, the Unit Root Test was introduced to determine the stationarity of data. Although, the Ordinary Least Square technique was used for the short run analysis, the ARDL bounds testing approach to co-integration was used to determine the presence of long run equilibrium relationship between the variables as it had been preferred to the Johansen co-integration due to its low power problems and viability even in the presence of mixed order of integration (Shrestha & Chowdhury, 2007). However, diagnostics tests such as the CUSUM, Autocorrelation and Heteroskedasticity tests will be conducted to test for the validity of the ARDL results. Thereafter, the Causality technique was employed to determine the direction of causality between financial inclusion and economic growth.

Data Analysis and Discussion of Findings

Observing the trend in Figure 1, it was discovered that although macroeconomic variables such as Gross Domestic Product was rising steadily and interest rate moving at a relatively stable rate over time, financial inclusion indices such as loans to and deposit from rural areas experienced a lot of shocks and volatility with severally repeated sharp rise and fall. The most prominent in the observable trend was the sharp decline in rural deposits from 3,296 million naira in 2009 to 20.79 million naira, which continued at that

pace till another sudden rise in 2015 to 90,374 million naira. The sharp decline in 2010 could be attributed to the global economic recession that rocked the world since 2008 spanning till some year. The global meltdown had spill over effects across the globe causing a dis-saving syndrome and as such reduced deposits from rural areas. However, the sharp and sudden increase in 2015 can be attributed to the aggressive inclusion strategy adopted by the government in 2013 and 2014 which marked the years with the highest rural loans in the nation's history. In both years, the government extended 739 and 988 million naira as loans to rural dwellers to cushion the effect of the global recession and to revive the economic system in the rural areas. The strategy worked out as rural deposits with banks jacked up spiked significantly the year after. Meanwhile, after 2015, rural areas were discovered to have become more financially liberated having more deposits than loans with rural deposits standing at 233 million naira as against rural loans of 61 million naira as at 2018.

Trend Analysis

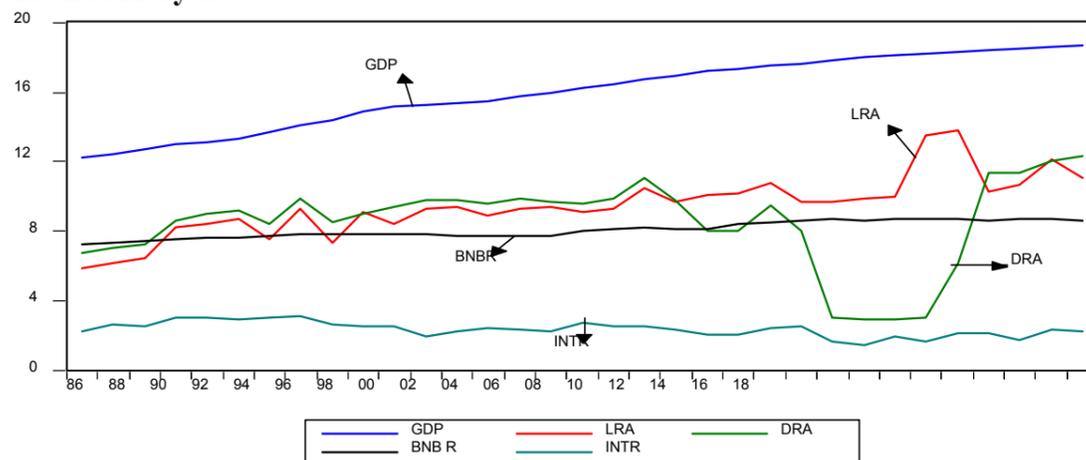


Fig. 1: Trend Analysis of Inclusion Indices in relation to Economic Growth
Source: Author's Design (2020)

Evidence from Table 2 which reports the descriptive statistics revealed that economic growth outpaces financial inclusion indices on the average as indicated by the mean with median measuring the level of discrepancy showing that deposit from rural areas has the highest deviation. Also, skewness revealed that all the variables except number of bank branches and loans to rural areas were negatively skewed, that is, the values of distribution for the three variables viz, economic growth, deposit from rural areas and interest rate were concentrated on the right tail side of the distribution graph because the left tail was longer. The positive skewness implies that the mean values for loan to rural areas and number of bank branches were higher than their respective median distribution while the negative skewness for the three variables implies that their mean values were lower than their median distribution.

Meanwhile, Kurtosis which measures the flatness or peakedness of data distribution revealed that inclusion indices; Loans to and deposits from rural areas are both leptokurtic as their values were found to be greater than 3 while other distributions

were found to be normal and platykurtic. The Jarque-Bera statistics and its probability value which measures normality in data distribution confirmed this as it revealed that data for all variables except deposits from rural areas were normally distributed. The abnormal distribution in deposits from rural areas could be attributed to the sharp fluctuation in its distribution in 2010 due to spill-over effect of the global recession of 2008 as earlier explained in the trend analysis.

Table 2: Descriptive Statistics

Mean	GDP	LRA	DRA	BNBR	INTR
Medi an	15.96303	9.465758	8.543636	8.047576	2.423333
Maxi mum	16.24000	9.380000	9.270000	8.010000	2.390000
Mini mum	18.67000	13.80000	12.36000	8.670000	3.180000
Std. Dev.	12.22000	5.920000	2.980000	7.220000	1.550000
Skewness	2.046768	1.733533	2.517528	0.465135	0.417527
Kurtosis	-0.364204	0.303746	-1.034595	0.049826	-0.080139
Jarque-Bera	1.845585	3.823953	3.509023	1.620033	2.486288
Probabi lity	2.561971	1.440923	6.243396	2.632079	0.398185
Sum	0.277763	0.486528	0.044082	0.268195	0.819474
Sum Sq. Dev.	526.7800	312.3700	281.9400	265.5700	79.97000
Observations	134.0563	96.16441	202.8144	6.923206	5.578533
	33	33	33	33	33

Source: Author's Computation (2020)

The result of the URT as reported in Table 3 revealed that there exists a mixed order of integration in the analysis as economic growth was found to be stationary at level while other variables were found to be stationary at first difference. Thus, the mixed order of integration forms the premise for the use of the ARDL modelling approach for co-integration and long run form.

Table 3: Pre-Estimation Tests: URT and Lag Length Selection Criteria

Variables	Cri ti cal Values @ 5%	ADF T-Stat.	Prob. Value	Integrati on Order
GDP	-3.6537	-3.6806	0.0094	I(0)
LRA	-2.9640	-5.8628	0.0000	I(1)
DRA	-2.9604	-4.2394	0.0023	I(1)
BNBR	-2.9604	-4.0630	0.0037	I(1)
INTR	-2.9640	-5.4774	0.0001	I(1)

Source: Author's Computation (2020)

The use of the ARDL technique necessitates the test for the optimal lag length suitable for the ARDL model, thus, the need to test for the optimal lag length as suggested by the various criteria. Thus, the Akaike Information Criterion (AIC) which was employed in the study selected 3 as the optimal number of lag appropriate for the study. This selection was duly considered in the course of the ARDL analysis .

Table 4: Optimal Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-146.9344	NA	0.017244	10.12896	10.36249	10.20367
1	-6.363106	224.9141*	7.99e-06	2.424207	3.825404*	2.872462
2	19.88155	33.24323	8.55e-06	2.341230	4.910092	3.163031
3	55.36699	33.11975	6.57e-06*	1.642200*	5.378727	2.837547*

Note: * signifies the appropriate lag length according to each criterion.

Source: Author's Computation (2020)

The ARDL bounds testing approach to co-integration which tests for the presence of a long run equilibrium relationship in the model clearly indicates that there is a long run relationship between the variables as the F-Statistics approximately valued at 7.01 was found to be greater than the upper bound at all levels of significance.

Table 5: ARDL Bounds Test (Co-Integration Test)

Model	F-Statistics	No. of Regressors (k)
GDP = f(LRA, DRA, BNBR, INTR)	7.013875	4
Critical Value Bounds		
	Lower Bound I(0)	Upper Bound I(1)
Level of Significance	2.45	3.52
10%	2.86	4.01
5%	3.25	4.49
2.5%	3.74	5.06
1%		

Source: Author's Computation (2020)

Table 6a presents the OLS short run results revealed that all variables conform to theoretical expectations. The results revealed that financial inclusion indices exert significant positive effect on economic growth in the short run while interest rate has a significant negative effect on economic growth in the short run. Specifically, it was discovered that loan to rural areas, deposits from rural areas and number of bank branches are positively signed to the approximate tune of 0.188, 0.16 and 3.02 respectively. This implies that a unit increase in loans to rural areas, deposits from rural areas and number of bank branches will increase gross domestic products by 0.188, 0.16 and 3.02 respectively in the short run. On the other hand, interest rate as expected was found to be negatively signed to the approximate tune of 1.313 units which denotes that a unit increase in interest rate will reduce Gross Domestic Product by 1.313 units.

Also, Table 6b which depicts the ARDL long run oriented results showed that all variables equally conform to the *A-Priori* expectations just like the short run results. The result revealed that financial inclusion indices have significant positive effect on economic growth while interest rate has significant negative effect on economic growth in the long run. Explicitly, loan to rural areas, deposits from rural areas and number of bank branches were positively related to Gross Domestic Product to the approximate tune of 0.374, 0.217 and 1.304 units respectively which connotes that an increase in loan to rural areas, deposits from rural areas and number of bank branches will increase Gross Domestic Products by 0.374, 0.217 and 1.304 units respectively. Conversely,

Interest rate as expected was found to be negatively related to Gross Domestic Product by 4.394 units which imply that an increase in interest rate will reduce Gross Domestic Product by 4.394 units.

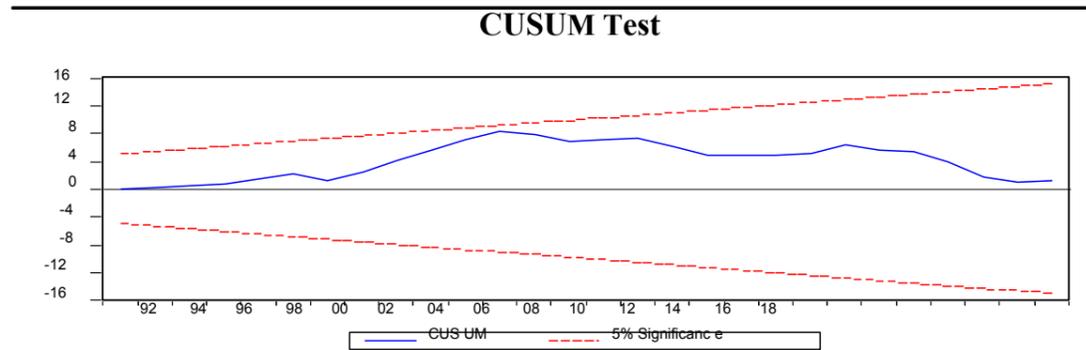
Table 6: OLS (Short Run) and ARDL (Long Run) Relationship Results
Dependent Variable: GDP

	Coefficient	T-Statistics	Prob.
(a)	OLS Short Run Relationship		
LRA	p	2.384765	0.0241
DRA	0.188216	4.367858	0.0002
BNBR	0.156289	9.442952	0.0000
INTR	3.020926	-4.949776	0.0000
C	-1.312779	-3.390379	0.0021
D*W Stat	-8.283684		
F-Statistics	1.0554		0.0000
	162.7343		
(b)	ARDL Long Run Relationship		
LRA	0.374061	3.088773	0.0070
DRA	0.216490	5.904754	0.0000
BNBR	1.303589	2.724820	0.0150
INTR	-4.394409	-6.441293	0.0000
C	9.102387	2.111631	0.0508

Source: Author's Computation (2020)

Table 7 which presents the post estimation tests underlying the viability and reliability of the ARDL analysis revealed that for the five tests, the model could be adjudged as viable. The serial correlation, heteroskedasticity, normality and Ramsey Reset tests revealed that autocorrelation, heteroskedasticity, abnormal distribution and instability were absent in the data analysis. Moreover, the CUSUM test which had its CUSUM statistics line in between the bounds line (two red lines) showed that the model is stable.

Statistics	Values	Probability
	Serial Correlation test	
F-Statistics	1.2234	0.3406
	Heteroskedasticity test	
F-Statistics	1.0070	0.4875
	Normality Test	
JarqueBera Statistics	1.9184	0.3832
	Ramsey Reset Test	
F-Statistics	0.9117	0.3548



Source: Author’s Computation (2020)

Table 8 which presents the causality result for the study provided weak evidence in support of the demand following hypothesis with economic growth causing financial inclusion in terms of loans to rural areas. This implies that a change in the behaviour of gross domestic growth will lead to a change in the behaviour of loans to rural areas. Meanwhile, a bi-directional causality was found to exist between interest rate and economic growth which implies that a change in the behaviour of both interest rate as well as Gross Domestic Product will cause an equal and opposite reaction in both variables. In précis, it was discovered that financial inclusion does not drive economic growth, rather, it is the other way round. These results are with several implications which will be considered in the subsequent section.

Table 8: Pairwise Causality Test

Direction of Causality	Obs	F-Statistics	Prob.	Direction
Runs from LRA to GDP	31	0.790	0.465	GDP → LRA
Runs from GDP to LRA	31	6.309	0.006	
Runs from DRA to GDP	31	1.383	0.269	GDP → DRA
Runs from GDP to DRA	31	0.053	0.949	
Runs from BNBR to GDP	31	0.077	0.927	GDP → BNBR
Runs from GDP to BNBR	31	1.501	0.242	
Runs from INTR to GDP	31	3.413	0.048	GDP ↔ INTR
Runs from GDP to INTR	31	4.307	0.024	

Source: Author’s Computation (2020)

The ARDL long run oriented result revealed that financial inclusion has a significantly positive effect on economic growth. This strongly supports the contributions of Suidama (2019), Bakari *et al.* (2019), Eton *et al.* (2019), Bigirimana and Xu (2018), Okoye *et al.* (2017), Saab (2017), Omojolaibi (2017), and Onaolapo (2015) while it equally conforms to the theory of financial intermediation. This result implies that financial inclusion expands the frontiers of the financial system and widens its horizons, as such; more funds and participation are brought into the economic system of the country which in turn encourages rural investment, savings mobilization and as such induces growth in the economy. However, the result was discovered to the contrary to the findings of Enueshike and Okpebru (2020), Ezenwakwelu (2018) and

Harley-Tega *et al.* (2017). However, the result was found to be consistent with theoretical expectation as previously declared in the study.

Specifically, loan to rural areas was found to the economy positively, this implies that an increase in loans to rural areas will stimulate the economy. This is because rural loans are mostly channelled into productive purposes in the economy especially in the Agricultural sector, as such, the nation's productivity (GDP) is improved as exports is enhanced. Similarly, rural deposits was positively signed which connotes that when rural dwellers deposit into the financial system, such previously unbanked funds are now mobilized for investment, credit creation and productive purposes within the country, as such, credit to the private sector is even increased due to increase in funds mobilization. In the same vein, number of bank branches was found to stimulate economic growth, just in line with the fiancé led hypothesis, the existence of a solid financial system drives growth, the increase in bank branches brings the global economic system closer to the people which significantly reduces the inconvenience potential customers may go through in participating in the system. For instance, in some rural areas, many unconventional ways of keeping money have been mitigated because rural dwellers no longer have to travel all the way to urban centres to get their transactions done, an increase in bank branches have secured the participation of a wide number of people in the financial system. These results are consistent with the findings of Okoye *et al.* (2017). On the contrary, although in line with the theoretical expectations, down the growth rate of the economy.

Meanwhile, the causality test revealed that economic growth causes financial inclusion especially through the channel of loans to rural areas. This implies that the state of the economy drives the availability or scarcity of funds allocated as loans to the rural areas. This is in line with the Demand-Following Hypothesis by Patrick (1966). The implication of this is that Nigeria has left the early stage of development where development is driven by the financial sector, as such, the financial sector must now respond to the needs of the real sector even in rural areas. A major example of the unidirectional causality running from economic growth to loans to rural areas is the case of the 2008 global economic recession which led to a deliberate increase in loans to rural areas by the government in subsequent years.

Conclusion and Recommendations

This study examined the effect of financial inclusion on economic growth in Nigeria. The study which began its empirical analysis with the descriptive statistics to ascertain the normality of data distribution as well as deviations which was succeeded with the trend analysis of financial inclusion variables in line with economic growth in Nigeria for the period under consideration, 1986 to 2018. The stationarity of data was tested using the Augmented Dickey Fuller test which preceded the optimal lag length selection criteria for the suitable lag needed for the ARDL analysis. Thereafter, the ARDL analysis with its bounds test and post estimation diagnostics were carried out and succeeded by the causality test. As a result, the result revealed that financial inclusion indices have a positive effect on economic growth while interest rate was also found to

exert a negative effect on economic growth. Meanwhile, economic growth was found to cause financial inclusion index measured by loans to rural areas while absence of causal relationship was found between other variables and economic growth.

For policy, due to the credence given to financial inclusion by the empirical results in the study as well as the role of economic growth in driving inclusion, it is recommended that policy makers should make efforts to provide loans to rural areas at affordable rates and less bureaucratic tendencies as that has more causal relationship economic growth while strategies must be adopted to capture deposits from the rural areas due to the significant effect it has on growth. In summary, this study concludes that financial inclusion has positive effect on economic growth.

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