Sapientia Global Journal of Arts, Humanities and Development Studies (SGOJAHDS), Vol.7 No.1 March, 2024; p.g. 277 – 294; ISSN: 2695-2319 (Print); ISSN: 2695-2327 (Online)

FINANCIAL INCLUSION AND ECONOMIC GROWTH OF NIGERIA

ONWUKANJO, K.C, ANUMUDU, C. N. AND UGWUANYI, C.U.
Department of Economics
Michael Okpara University of Agriculture, Umudike, Nigeria

ABSTRACT

This paper examined the impact of financial inclusion on the Nigerian economic growth for the period 1980-2019. The paper considered the three objectives during the review period. The main objective of the study is to examine the significant impact of financial inclusion on the Nigerian economic growth. Secondary time series data were used to carry out the empirical analysis. The study specified the model that was used to examine the objectives with the aid of vector error correction model (VECM) approach, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, Co-integration Test and Granger Causality. Based on the above econometric and statistics techniques conducted, it was observed that financial inclusion has significant impact on the Nigerian economic growth during the period of study 1980-2019. The results raveled a bidirectional nature of causality relationship between the variables in the model during the period of the study 1980-2020. These empirical results do support that One percent decrease in the interest rate (IR), inflation rate (FR) and exchange rate (EXCR) at lag (-2) will leads to [31% (IR)-2), 53%(FR)-2), and 8%(EXCR)-2)] increases on the aggregate saving (ASE) quall to investment in Nigeria. One percent increase in the financial inclusion proxy by; deposit from the rural areas (DRA), loan to rural areas (LRA), account owners of any type (AA) and electronic money banking/payment system (EMB) at lag (-2) will leads to [38%(DRA)-2), 92%(LRA)-2), 59%(AA)-2) and 03%(EMB)-2)] increases on Per capita income (PCI) respectively in Nigeria. Based on these findings, the researcher recommends that; Nigerian authorities should increase the number of formal account ownership by removing obstacles such as income and age bracket bias, distance in location and education discrimination in the delivery and use of financial services.

Keywords: Impact, Financial Inclusion, Economic growth, Nigeria.

INTRODUCTION

The availability and equality of opportunities to access financial services, such as banking, loans, equity, and insurance, are referred to as financial inclusion. In this economic state, financial services are provided to all people by a variety of providers, mostly in the private sector. In many nations, especially developing economies, financial inclusion has emerged as a crucial development policy priority. A significant economic challenge in Nigeria has been financial exclusion, with the majority of money staying outside the banking system. Nigeria's financial inclusion history began in 1976, when a 14-member committee looked at how well-suited the country's financial system was for rapid development. Between the 1960s and the 1980s, the average ratio of currency outside of the banking sector to the narrow money supply fell from 61.1% to 44.3% and 40.9%, respectively. Government policies and rising literacy rates were the causes of this decline. Public confidence was damaged by the banking industry crisis in the 1990s, which increased the value of money outside of the banking system. The goal of

government initiatives to strengthen the financial sector was achieved through the bank consolidation program and economic reforms.

However, even after Nigeria has been implementing financial inclusion for almost 40 years, the data that are currently available indicate that performance is not at its best. Comparing Nigeria to other nations in its bracket is uninspiring. For example, 2% of Nigerians have access to credit compared to South Africans 32% (World Bank, 2014). Compared to 46% in South Africa, Nigerians formal payment system is about 22% (Mckinsey, 2014). The financial inclusion index ranks Nigeria 135th out of 176 countries (Cyn-Young and Ragelio, 2015: Okoye et al, 2020).

The surge in financially excluded individuals is attributed to the high poverty rate in Nigeria, underlining the importance of enhancing financial inclusivity to bolster economic sustainability, GDP growth, and overall progress (Sanusi, 2011). Without reaching a significant level of financial inclusion, no economy can achieve financial stability, sustainable growth, and inclusive prosperity. Given Nigeria's economic contraction over consecutive quarters, with sporadic modest growth, the government views it as a vital pillar for economic recovery and expansion (Sanusi, 2011). It has integrated financial inclusion into the national economic development agenda, believing it to be a catalyst for spurring economic growth and advancement.

Furthermore, this point was reiterated during discussions between the visiting UNSGSA and the Governor of the Nigerian Central Bank, Godwin Emefiele. Additionally, a report published by the McKinsey Global Institute highlighted the potential economic benefits of digital financial inclusion for Nigeria. It suggested that it could boost the GDP by up to 12.4% by 2025, generate around USD 36 million in new deposits, create approximately 3 million jobs, reduce annual government leakages by USD 2 billion, and include about 46 million more people in the financial system. Against the backdrop of these assertions, the researcher embarked on investigating the impact of financial inclusion on Nigerian economic growth from 1980 to 2020.

Objectives of the Study

The overall objective of this study is to estimate the impact of Financial Inclusion on the Nigerian Economic growth. Specifically, this work intends to achieve the following objectives:

i examine the significant impact of financial inclusion on the Nigerian economic growth

LITERATURE REVIEW

Financial inclusion concept

Financial inclusion entails granting access to finance and services to various economic actors at an affordable rate, particularly those with lower incomes (Mbutor and Uba, 2013). It can also be defined as delivering financial services at reasonable costs to segments of society that are unbanked or have low incomes. Conversely, financial exclusion occurs when these services are neither accessible nor affordable to certain economic groups, especially those with lower incomes (Umaru, 2014).

According to Nalini and Mariappan (2012), the purpose of financial inclusion is to establish connections between individuals and banks, thereby enabling them to reap consequential

benefits. For inclusive growth to occur, it is essential for the poor to have easy, affordable, and secure access to financial services (Serrao et al., 2013), as poverty is often linked with financial exclusion, where individuals are either directly or indirectly excluded from the formal financial system. Consequently, individuals resort to informal financial providers, which are typically costly, disorganized, and unreliable. However, access to banking services can empower the poor by granting them the opportunity to open bank accounts, save, and invest, thereby aiding in poverty alleviation (Nalini and Mariappan, 2012).

According to the World Bank Global Financial Report (2014), the lack of utilization of financial services does not necessarily indicate a lack of access. Some individuals may have access to finance but refrain from using certain services due to admission barriers, costs, market failures, or cultural and religious beliefs (World Bank, 2014). Instead, innovations within the system should target and address market dissatisfaction and remove non-market barriers to accessing a wide range of financial services (Demirguc-Kunt et al., 2008). Financial inclusion ensures access to financial services for all individuals, including the impoverished, by fostering a robust financial market, which is essential for economic growth.

The Double Faces of Financial Inclusion

It has been contended that financial inclusion presents numerous opportunities, including the integration of economically and socially marginalized individuals into the formal economy. This integration enables development and shield themselves from economic shocks (Nalini and Mariappan, 2012), such as the lack of finance for entrepreneurial ventures (Oluyombo, 2013a). However, informal finance providers are often considered a significant obstacle to financial inclusion, as many individuals in developing economies are wary of formal financial institutions. This reluctance is attributed to difficulties in understanding language, various documents, and other terms associated with financial services (Nalini and Mariappan, 2012). Nonetheless, financial inclusion offers benefits to the poor by reducing income inequality (Serrao et al., 2013) and providing opportunities for direct government transfers to individuals' accounts for remittances, wages, social security, and other purposes without intermediaries. However, mobile banking faces challenges such as breakdowns in mobile telecommunication networks, particularly in areas with lower levels of education and access to electricity (Umaru, 2014).

As technology solutions and telecommunications infrastructure improve, banks are expected to increase account openings, payment services, and savings mobilization through mobile channels (Brian, 2014). However, mobile banking may not be accessible to illiterate individuals. Establishing banks in various locations requires law and order, and in areas where banks cannot be established, bank officers can travel to such locations regularly. However, ensuring the security of bank officers and cash becomes a concern, particularly in regions affected by security challenges like the Boko Haram insurgency in Nigeria. The security of the bank personnel must be taken into consideration especially in remote locations.

The Relevance of Financial Inclusion

The global average for financial inclusion, defined as the percentage of adults with access to financial services, stands at less than 50.0%. This issue is particularly pronounced in developing countries, with African nations facing significant challenges. (Ardic et al, 2011). Efforts have been directed towards eliminating barriers such as education, gender, age,

irregular income, regulation, and geographical location, all of which contribute to the widespread lack of access to finance and services among billions of adults worldwide.

Sanusi (2011) identified the challenges of financial exclusion as a contributing factor to the increasing poverty levels in Nigeria. He argued that achieving an optimal level of financial inclusion in Nigeria would involve empowering 70.0% of the population living below the poverty line. This, in turn, would stimulate economic activities, drive national output growth, and ultimately reduce poverty levels. Theoretically, increased access to deposit facilities enhances the capacity of financial intermediaries to gather savings, while improved access to finance fosters economic growth by enabling households to engage in productive investments (Andrianaivo and Kpodar, 2011).

The consequence of financial exclusion is a reduction in the scale of economic activities that can be financed, thereby limiting the potential for higher economic growth. Financial inclusion necessitates attention to human and institutional factors, including access quality, product affordability, provider sustainability, and outreach to the most excluded populations. Financial inclusion ensures improved access for poor individuals to savings, credit, and payment services throughout their lifetime.
In addition to traditional financial intermediation, financial inclusion encompasses:

- Basic banking accounts for payment transactions
- Savings products tailored to the cash flow patterns of low-income households
- Money transfer services
- Insurance coverage (both life and non-life).

Theories of financial inclusion/exclusion
The relationship between finance and real activity has been a topic of debate since the 1776s. Smith and Bagehot argue that financial system activities drive economic growth by facilitating production and specialization increase. Schumpeter (1912) argues that through efficient resource mobilization and allocation of finance sector technological innovation is facilitated. Financial inclusion theories vary, with some suggesting that poor people, women, and the economy are the ultimate beneficiaries, while others believe young people, elderly people, institutionalized and ill people, disabled people, and individuals are also potential beneficiaries. Four theories explain who benefits from financial inclusion.

Public good theory of financial inclusion
This theory ensures that everyone can access basic financial services without paying for them, thereby promoting financial inclusion. It also suggests that financial institutions bear the costs of offering these services as a sunk-cost of doing banking business. This theory requires public funding, as private funding is costly. However, private-sector agents as promoters of financial inclusion are not recognized. The theory has four demerits: real cause of financial exclusion is not explained, may divert funds away from other important public projects, assumes financial inclusion is free-of-charge and has no cost to end-users, and may have little relevance for developing and emerging economies. Financial institutions and banks in these countries are mostly funded on private investments, making it difficult to make financial inclusion a public good.

Dissatisfaction theory of financial inclusion

The dissatisfaction theory suggests that financial inclusion programs should focus on those who left the formal financial sector due to dissatisfaction with rules or bad experiences. This approach is easier to implement than bringing in new employees. The theory addresses voluntary financial exclusion by using persuasion to win back those who left due to dissatisfaction. It also simplifies identifying financially excluded individuals, as financial institutions store personal data. However, the theory has drawbacks, such as not focusing on the entire population, not considering the impoverished in isolated regions, and assuming that consumers' discontent with the formal financial sector's rules leads to financial exclusion. Additionally, the theory may not account for personal and religious reasons for leaving the sector, and if the sector plays an excessive role in societal culture, unhappy individuals may be forced to stay.

RESEARCH METHODOLOGY

Expost-facto research design is adopted in the research.

Model Specification

Economic growth refers to the sustained rise in the economic activities over a given period of time within a country. Economic growth in this study is measured by Gross Domestic Product (GDP); while financial inclusion is measured by loan-to-deposit ratio (LDR) and liquidity ratio (LQR). Financial deepening refers to an increase in financial services to a wider spectrum of a larger society geared towards the development of a nation (Nwagwugwu, 2008). The model assumes a linear relationship between the dependent and independent variables. Based on this background, this study adopts with modification of the model developed by Ozii 2020, Onaolapo, 2015 and Okoye,et al(2020).

Modeling economic growth, and Financial inclusion as;
GDP = (M2, CPS, RLD, LRC, ASE, IR and NCB) .. (1)

Where: GDP is the aggregate worth of an economy, M2 is the ratio of broad money to GDP (M2/GDP), CPS is credit to private sector to GDP (CPS/GDP), RLD is Ratio of loan to deposit, LRC is the liquidity ratio of commercial banks, ASE is aggregate saving in the economy, IR is interest rate, FR is the inflation rate, exchange rate (EXCR) and NCB is number of commercial bank branches in the country.

Vector Error Correction Model (VECM)

According to Granger's representation theorem, if there is cointegration there must exist Granger causality in at least one direction and therefore one can reformulate the VAR into a VECM in which error correction terms are included; using the above variables of interest. Thus, we formulate the VECM to obtain the following system of equations.

Specification of Models by Objectives

Objective One

$$\mathbf{InGDP_t = \alpha + \beta_1 InM2_t + \beta_2 InCPS_t + \beta_3 InRLD_t + \beta_4 InLRC_t + \beta_5 InASE + \beta_6 InIR_t + \beta_7 InFR_t + \mu_t} \quad \text{...(1)}$$

VECM for Equestrian **…. (1)**

$$\Delta GDP_t = \sum \lambda_k \nu_{kt-1} + \Sigma\alpha_{1,s} \Delta GDP_{t-s} + \Sigma \alpha_{2,s}\Delta M2_{t-s} + \Sigma \alpha_{3,s} \Delta CPS_{t-s} + \Sigma\alpha_{4,s}\Delta RLD_{t-s} + \Sigma\alpha_{5,}$$

$$s\Delta LRC_{t-s} + \Sigma\alpha_{6,s}\Delta ASE_t + \Sigma\alpha_{7,s}\Delta IR_t + \Sigma\alpha_{8,s}\Delta FR_t + \zeta_{1,t}$$

$$\Delta M2_t = \Sigma\lambda_k v_{kt-1} + \Sigma\beta_{1,s}\Delta GDP_{t-s} + \Sigma\beta_{2,s}\Delta M2_{t-s} + \Sigma\beta_{3,s}\Delta CPS_{t-s} + \Sigma\beta_{4,s}\Delta RLD_{t-s} + \Sigma\beta_{5,s}\Delta LRC_{t-s} + \Sigma\lambda_{6,s}\Delta ASE_t + \Sigma\lambda_{6,s}\Delta IR_t + \Sigma\lambda_{6,s}\Delta FR_t\zeta_{2,t}$$

$$\Delta CPS_t = \Sigma\lambda_k v_{kt-1} + \Sigma\delta_{1,s}\Delta GDP_{t-s} + \Sigma\delta_{2,s}\Delta M2_{t-s} + \Sigma\delta_{3,s}\Delta CPS_{t-s} + \Sigma\delta_{4,s}\Delta RLD_{t-s} + \Sigma\delta_{5,s}\Delta LRC_{t-s} + \Sigma\delta_{6,s}\Delta ASE_t + \Sigma\delta_{6,s}\Delta IR_t + \Sigma\delta_{6,s}\Delta FR_t + \zeta_{3,t}$$

$$\Delta RLD_t = \Sigma\lambda_k v_{kt-1} + \Sigma d_{1,s}\Delta GDP_{t-s} + \Sigma d_{2,s}\Delta M2_{t-s} + \Sigma d_{3,s}\Delta CPS_{t-s} + \Sigma d_{4,s}\Delta RLD_{t-s} + \Sigma d_{5,s}\Delta LRC_{t-s} + \Sigma d_{6,s}\Delta ASE_t + \Sigma\delta_{6,s}\Delta IR_t + \Sigma\delta_{6,s}\Delta FR_t + \zeta_{4,t}$$

$$\Delta LRC_t = \Sigma\lambda_k v_{kt-1} + \Sigma\delta_{1,s}\Delta GDP_{t-s} + \Sigma\delta_{2,s}\Delta M2_{t-s} + \Sigma\delta_{3,s}\Delta CPS_{t-s} + \Sigma\delta_{4,s}\Delta RLD_{t-s} + \Sigma\delta_{5,s}\Delta LRC_{t-s} + \Sigma\delta_{6,s}\Delta ASE_t + \Sigma\delta_{6,s}\Delta IR_t + \Sigma\delta_{6,s}\Delta FR_t + \zeta_{5,t}$$

Where p is the lag length, $\zeta_{1,t}$ are the uncorrelated white noise error terms often called impulses, or innovations or shocks α_{ji}, β_{ij}, δ_{ij} are dynamic parameters of the model.

A Priori Expectation

Theoretically, the research expects that financial inclusion in relationship with gross domestic product investment and poverty reduction would have positive relationship with these variables [M2, CPS, RLD, LRC, IR, AA, DRA, CC, DC, EMB, BF, and NCB] while inflation rate will be expecting to be negative. The patterns of the a priori expectation behavior of the variables in relation to the parameters of the equation are, (1-0, 92 <, 3-0, 94).

Estimation Procedures

Standard econometric approaches will be used in the research to examine the effect of financial inclusion on economic growth in Nigeria; these econometric approaches include the unit root test through the application of the Augmented Dickey-Fuller (ADF) stationarity test, and, Impulse response analysis in VAR models, Co-integration Test and Granger Causality Test. The estimation of the econometric approaches follows the estimation procedures below.

Unit Root Test

The unit root test will be utilized to examine the rank of integration of the time series by applying the approach of the Augmented Dickey-Fuller (ADF) unit root test. The ADF test focuses on rejecting a null hypothesis of non-stationary and accepting the alternative hypotheses of stationarity, if the ADF statistic is greater than 5% chosen critical value. The test would be

$$\Delta yt = \alpha_0 + \alpha_1 y_{t-1} + \sum_{n=1}^{n} \alpha 1 \Delta y; + \varepsilon_t \qquad 12$$

$$\Delta yt = \alpha_0 + \alpha_1 y_{t-1} + \sum_{n=1}^{n} \alpha 1 \Delta y; + \delta_t + \varepsilon_t \qquad 13$$

Where; Y is a time series, t = linear time trend, Δ = first difference operator in a manner that Δyt-1= Δyt – yt-1, α_0 = constant term, n = is the optimum number of lags, and ε_t is the stochastic term. ADF test fails to reject the test at all levels and first differences but rejects the test at second differences, it implies that the series contain two unit roots and it is of integrated of order

Impulse response analysis in VAR models with near unit roots indentified by long-run restrictions.

Impulse response analysis in VAR models with near unit roots identified by long-run restrictions. This case is best illustrated in the context of the Blanchard and Quah (1989) model for which:

$Y_t = (\Delta Y_t ; U_t)$.

Where Y_t is the gross domestic product (log real GDP) and U_t is the fall in aggregate saving in the economy, A(GDP) = λ(ASE) $^{-1}$ (PCI $_2$ γ IR) per capital income and interest rate

and β_0 = $$1 \begin{bmatrix} - b_{12}^{(0)} \\ -b_{12}^{(0)} \quad 1 \end{bmatrix}$$

The structural shocks $\varepsilon_t = \beta_0 e_t$ can be interpreted as gross domestic product, aggregate saving in the economy, per capital income and interest rate (ε^s_t, ε^d_t). The long-run identifying restriction that the demand shocks ε^d_t have no long-run effect on output imposes a lower triangular structure on the moving average matrix $A(1)^{-1}B_0^{-1}$. Hence, under this identifying restriction, the matrix of long-run multipliers in the structural model, $B(1) = B_0A(1)$; is also lower triangular.

Co-integration Test

The co-integration property requires all variable to converge in the long run. To carry out the co-integration test, we employ Johansen co-integration method. Using this method, the null hypothesis of no co-integration is rejected if the calculated value is greater than the tabular value (at a chosen relevant significance level), or otherwiseJohansen, S., & Juselius, K. (1990).

Granger Causality Test

To determine the causal elements in our analysis, we specify the model for granger causality test. This is carried out based on the following equationsGranger, C.W.J. (1986):

($GDP_t \rightarrow PCI_t, \ldots ASE_t$)

$$GDP_t = \Sigma^n_{i=i} \beta_i GDP_{t-i} + \Sigma^n_{j=i} \lambda_i CPI_{t-j} \ldots. + \Sigma^n_{u=i} \lambda ASE_t + U_{1t} \qquad 4$$

($PCI_t, \ldots ASE \leftarrow GDP$)

$$PCI_t = \Sigma^n_{i=i} \beta_i PCI_{t-i} + \Sigma^n_{i=i} \lambda_i ASE_{t-j} + \ldots. \Sigma^n \lambda_i GDP_{t-j} + U_{2t} \qquad 5$$

aggregate saving in the economy, per capital income and interest rate

Equation (4) states that current gross domestic product, value is depends on its pat value of aggregate saving in the economy, per capital income and interest rate and other variables.

Equation (5) postulates that per capital income, aggregate saving in the economy and interest rate and other variables past value is granger causing impact on the current values (GDP) The decision rule for granger causality test is that if F-statistic value is greater than P-value, we accept Ho, or otherwise.

Sources of Data

Time series data will be utilized in this investigation to achieve empirical results on the influence of bank credits on private domestic investment in Nigeria from 1980 to 2019. Data on the variables will be obtained from the Central Bank of Nigeria (CBN) statistical bulletin publications and2017 Annual Report National Financial Inclusion Strategy Implementationand E-views 10 is be used for this study.

RESULTS

Unit Root Test

The results of the Augmented Dickey Fuller (ADF) test is presented in table 4.1a below. A variable is said to be stationary if the computed ADF is greater than the critical ADF at 5 % chosen level of significance.

Table 1a Unit root test for variables in levels

Variables	Computed ADF	Critical ADF at 5%	Remarks
RGDP	-2.036461	3.552973	Non-Stationary
CPS	-0.790302	3.552973	Non -Stationary
ASE	1.766219	3.552973	Non-Stationary
M2	4.422346	3.552973	Non-Stationary
RLD	-2.949417	3.552973	Non-Stationary
LRC	-3.492398	3.552973	Non-Stationary
IR	-2.686948	3.552973	,, ,, ,, ,, ,,
NCB	-1.577417	3.552973	,, ,, ,, ,, ,,
PCI	-2.640334	3.552973	,, ,, ,, ,, ,,
DRA	2.303006	3.552973	,, ,, ,, ,, ,,
LRA	3.662285	3.552973	,, ,, ,, ,, ,,
AA	-1.503867	3.552973	,, ,, ,, ,, ,,
EXCR	-0.993138	3.552973	,, ,, ,, ,, ,,
FR	-2.386962	3.552973	,, ,, ,, ,, ,,
EMB	1.388866	3.552973	,, ,, ,, ,, ,,

Source: *Researcher's Estimate from Eview 9.0 (2021).*

From the results, [RGDP,CPS, ASE, M2, RLD, LRC, IR, NCB, PCI, DRA, LRA, AA, EXCR, FR and EMB] were Non stationary in levels since their ADF t-statistic value were less than the 5 percent critical value [3.552973] respectively. The variables were therefore, subjected to unit root test in first order difference. The result is shown below:

Table 1b Unit root test for variables in the first-order difference

Variables	Computed ADF	Critical ADF at 5%	Remarks
DRGDP	-9.715827	3.552973	Stationary
DCPS	-4.126641	3.552973	,, ,, ,, ,, ,,
DASE	-5.832017	3.552973	,, ,, ,, ,, ,,
DM2	-7.887983	3.552973	,, ,, ,, ,, ,,
RLD	-9.026944	3.552973	,, ,, ,, ,, ,,
LRC	-5.611023	3.552973	,, ,, ,, ,, ,,
IR	-6.047790	3.552973	,, ,, ,, ,, ,,
NCB	-4.937027	3.552973	,, ,, ,, ,, ,,
PCI	-7.361919	3.552973	,, ,, ,, ,, ,,
DRA	-6.654528	3.552973	,, ,, ,, ,, ,,
LRA	-7.898048	3.552973	,, ,, ,, ,, ,,
AA	-4.960196	3.552973	,, ,, ,, ,, ,,
EXCR	-5.365536	3.552973	,, ,, ,, ,, ,,

FR	-5.111984	3.552973	,, ,, ,, ,, ,,
EMB	-9.209486	3.552973	,, ,, ,, ,, ,,

Source: *Researcher's Estimate from Eview 9.0 (2021).*

The results show that all the variables were stationary in first order difference since their ADF t- statistic value were greater than the 5% critical value [3.552973]. This means that [RGDP, CPS, ASE, M2, RLD, LRC, IR, NCB, PCI, DRA, LRA, AA, EXCR, FR and EMB] are integrated of order one I(1).

Table 2a: Johansen Co-integration Test Model One

Trend assumption: Linear deterministic trend
Series: D(RGDP,2) D(M2,2) D(CPS,2) D(RLD,2) D(LRC,2) D(ASE,2) D(IR,2) D(NCB,2)
Lags interval (in first differences): 1 to 1
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.984775	439.9578	159.5297	0.0000
At most 1 *	0.940827	306.0447	125.6154	0.0000
At most 2 *	0.905032	215.5714	95.75366	0.0000
At most 3 *	0.842591	140.2366	69.81889	0.0000
At most 4 *	0.605341	81.07154	47.85613	0.0000
At most 5 *	0.555070	51.32007	29.79707	0.0001
At most 6 *	0.465195	25.40525	15.49471	0.0012
At most 7 *	0.154698	5.377955	3.841466	0.0204

Source: *Researcher's Estimate from Eview 9.0 (2021).*

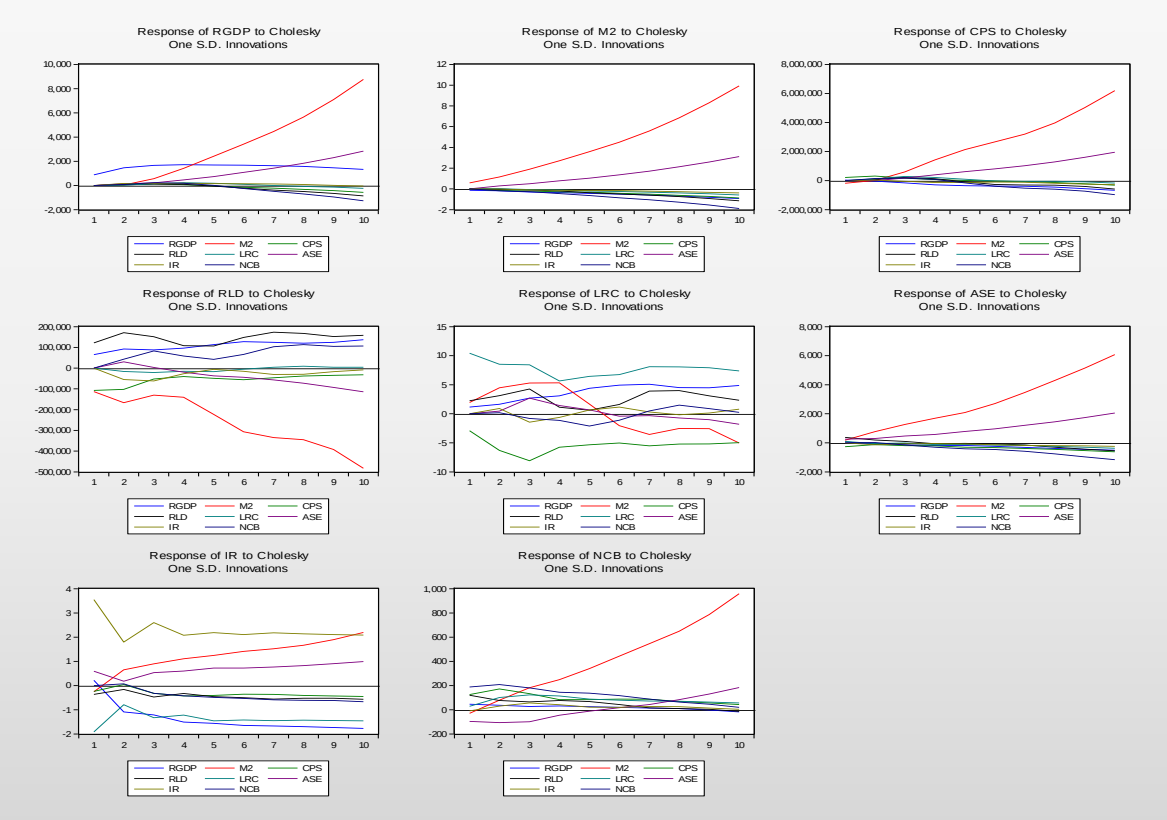
Judging by the trace - statistics and its corresponding probability value, there are at least eight co-integrating equations in table 4.2a above. This means that the variables are co-integrated and it can be concluded that a long-run equilibrium relationship exists among the variables since their individual trace statistic were greater than that of 5 percent critical and probability value indicated statistically significant which addressed model one of the study.

Impulse Response Functions Result for financial inclusion variables shock impacts on the Nigerian economic Growth

Having confirmed the existence of unit root and co-integration in the series and following the debates about advantages and drawbacks of different VEC specifications, we then proceed to estimate an unrestricted VEC system in first differences with one lag of each variables in the equations. The study demonstrated the advantages of unrestricted VEC by examining impulse response functions in cointegrated systems. Other researchers have shown the strengths of an unrestricted VEC are superior in terms of forecast variance. An intuitive way to interpret the variables in the VEC model is to compute an impulse response function (IRF) and Variance Decomposition measures. The impulse response function (IRF) traces out how the changes in one variable impact on current and future values of the endogenous variables in the model. The impulse response functions can be used to produce the time path of the dependent variables in the VEC, to shocks from all the explanatory variables. If the system of

equations is stable, any shock should decline to zero. This also means that short-run values of the variable in question converge to the long-run equilibrium values. An unstable system would produce an explosive time path. In that sense, short-run values of the variable will diverge from its equilibrium values.

.



Source: *Researcher's Estimate from Eview 9.0 (2021)*

Figure 1: Impulse response analysis in VEC models with near unit roots indentified by long-run restrictions

Figure 1 displays the impulse response functions of the log of first differences of the variables; [M2, CPS, NCB, RLD, RLC, IR and ASE] to one standard deviation structural shocks. The combined graphs are based on the output of the unrestricted VEC with analytic response standard error over 10 periods and Cholesky degrees of freedom adjusted, which show the response to Chelosky one standard deviation innovation. Each graph as shown in plots in Figure 1 includes a point estimation of impulse response functions as well as lower and upper bounds for a 95% confidence interval. As usual, the solid lines depict the variable percent change in response to a standard deviation of one in the respective employed variable whereas the dotted lines represent the 95% error bands.

The graph M2, CPS, NCB, ASE and Real Gross Domestic Product (RGDP) are consistent and positive which implies that the equations are stable since [M2, CPS, NCB and ASE] response on RGDP sloes all decline to zero. While these variables; [RLD, RLC and IR] response on RGDP sloes deed decline beyond the zero of the 95% confidence interval. This also means that shock and short-run values of the variables in question converge to the long-run equilibrium values. It shows also a persistent over the time horizons, since it lies within the bounds line of the 95% confidence interval. The [M2, CPS and ASE] response graphs lines took

similar direction. [M2, CPS, NCB and ASE] all starts first by causing the deviation between the short-run equilibrium values of Real Gross Domestic Product (RGDP) to rise, but after an unanticipated decreases in [M2, CPS, NCB and ASE] declined to zero and remains within the bounds line of the 95% confidence interval. While these variables; [RLD, RLC and IR] all starts first by causing the deviation between the short-run equilibrium values of Real Gross Domestic Product (RGDP) to rise, but after did not decreases in [RLD, RLC and IR] want up above to zero and remains out off the bounds line of the 95% confidence interval.

From the results we have observed that impulse response functions we employed produce the time path of the dependent variables in the VEC, shocks from all the explanatory variables, proved that the system of equations is stable, while the shocks from these explanatory variables [M2, CPS, NCB and ASE] declined to zero. We then conclude that the short-run values of the variables in question converge to the long-run equilibrium values.

Financial Inclusion and Investment Growth Equation 3

Table 3 Vector Error Correction Estimates

Date: 06/07/21 Time: 13:12
Sample (adjusted): 1983 2019
Included observations: 37 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
ASE(-1)	1.000000
IR(-1)	-17.89830 (31.8954) [-0.56116]
FR(-1)	- 37.38613 (11.9154) [-3.13763]
CPS(-1)	0.000698 (9.2E-05) [7.57064]
AA(-1)	0.001426 (0.00023) [6.12566]
EXCR(-1)	-40.75962 (7.41456) [-5.49724]
C	-6338.568

Error Correction:	D(ASE)	D(IR)	D(FR)	D(CPS)	D(AA)	D(EXCR)

CointEq1	-0.362983	0.000216	0.000928	326.3230	79.23880	-0.004296
	(0.11543)	(0.00069)	(0.00295)	(73.8161)	(250.673)	(0.00314)
	[-3.14452]	[0.31331]	[0.31469]	[4.42075]	[0.31610]	[-1.37008]
D(ASE(-1))	-0.153704	4.47E-05	0.002430	604.7821	5.094155	-0.004589
	(0.18106)	(0.00108)	(0.00462)	(115.781)	(393.182)	(0.00492)
	[-0.84892]	[0.04128]	[0.52552]	[5.22350]	[0.01296]	[-0.93314]
D(ASE(-2))	-0.115714	0.000268	0.002579	1136.917	12.75040	0.018481
	(0.22430)	(0.00134)	(0.00573)	(143.435)	(487.092)	(0.00609)
	[-0.51588]	[0.19958]	[0.45025]	[7.92635]	[0.02618]	[3.03323]
D(IR(-1))	-16.70289	0.417875	1.055229	-20099.87	-44994.97	-0.470154
	(34.6140)	(0.20701)	(0.88392)	(22134.6)	(75167.0)	(0.94021)
	[-0.48255]	[2.01859]	[1.19381]	[-0.90808]	[-0.59860]	[-0.50005]
D(IR(-2))	-13.84884	0.031064	1.797205	-32450.89	-5235.107	-0.184129
	(31.8007)	(0.19019)	(0.81208)	(20335.6)	(69057.7)	(0.86380)
	[-0.43549]	[0.16333]	[2.21310]	[-1.59577]	[-0.07581]	[-0.21316]
D(FR(-1))	11.40845	0.103659	-0.059974	-11443.83	-5432.896	0.060097
	(8.24253)	(0.04930)	(0.21048)	(5270.84)	(17899.3)	(0.22389)
	[1.38410]	[2.10282]	[-0.28493]	[-2.17116]	[-0.30353]	[0.26842]
D(FR(-2))	12.02217	-0.044643	-0.535056	-9768.286	691.6014	-0.081497
	(8.33282)	(0.04984)	(0.21279)	(5328.57)	(18095.3)	(0.22634)
	[1.44275]	[-0.89580]	[-2.51447]	[-1.83319]	[0.03822]	[-0.36006]
D(CPS(-1))	3.19E-05	-5.35E-07	-1.51E-06	0.415402	-2.060985	-7.99E-06
	(0.00016)	(9.5E-07)	(4.0E-06)	(0.10136)	(0.34423)	(4.3E-06)
	[0.20127]	[-0.56436]	[-0.37222]	[4.09809]	[-5.98731]	[-1.85560]
D(CPS(-2))	-0.000460	4.79E-07	4.44E-06	0.244101	2.270414	-1.06E-05
	(0.00030)	(1.8E-06)	(7.5E-06)	(0.18899)	(0.64179)	(8.0E-06)
	[-1.55588]	[0.27108]	[0.58875]	[1.29162]	[3.53765]	[-1.31557]
D(AA(-1))	-0.000238	3.83E-07	1.94E-06	0.247347	1.790359	-6.30E-06
	(0.00019)	(1.1E-06)	(4.8E-06)	(0.12125)	(0.41174)	(5.2E-06)
	[-1.25681]	[0.33808]	[0.40072]	[2.04005]	[4.34828]	[-1.22297]
D(AA(-2))	-0.000405	6.87E-08	-2.87E-06	0.063924	0.322728	5.35E-07
	(0.00012)	(6.9E-07)	(3.0E-06)	(0.07421)	(0.25201)	(3.2E-06)
	[-3.49011]	[0.09893]	[-0.96840]	[0.86140]	[1.28063]	[0.16987]
D(EXCR(-1))	-4.180666	0.033607	0.040078	-544.5091	-1368.942	-0.268321
	(5.32491)	(0.03185)	(0.13598)	(3405.11)	(11563.4)	(0.14464)

	[-0.78512]	[1.05528]	[0.29474]	[-0.15991]	[-0.11839]	[-1.85511]
D(EXCR(-2))	8.337808	-0.027128	0.001605	15623.72	28006.50	-0.083019
	(5.41869)	(0.03241)	(0.13837)	(3465.08)	(11767.1)	(0.14719)
	[1.53871]	[-0.83709]	[0.01160]	[4.50890]	[2.38007]	[-0.56404]
C	-1325.274	-0.244250	-4.811119	-1016967.	-545688.5	16.78002
	(390.682)	(2.33652)	(9.97662)	(249829.)	(848395.)	(10.6120)
	[-3.39221]	[-0.10454]	[-0.48224]	[-4.07066]	[-0.64320]	[1.58123]
R-squared	0.718368	0.484382	0.356739	0.861129	0.947459	0.647704
Adj. R-squared	0.559184	0.192946	-0.006844	0.782637	0.917762	0.448580
Sum sq. resids	8858563.	316.8505	5776.751	3.62E+12	4.18E+13	6536.005
S.E. equation	620.6085	3.711618	15.84812	396859.4	1347698.	16.85747
F-statistic	4.512825	1.662051	0.981176	10.97091	31.90411	3.252771
Log likelihood	-281.6413	-92.22970	-145.9383	-520.6849	-565.9200	-148.2228
Akaike AIC	15.98061	5.742146	8.645313	28.90189	31.34703	8.768797
Schwarz SC	16.59015	6.351682	9.254849	29.51142	31.95656	9.378334
Mean dependent	558.0506	0.202398	-0.118308	417259.2	1614251.	9.763551
S.D. dependent	934.7361	4.131539	15.79417	851224.9	4699549.	22.70132

Determinant resid covariance (dof adj.)	2.63E+34
Determinant resid covariance	1.52E+33
Log likelihood	-1728.472
Akaike information criterion	98.29577
Schwarz criterion	102.2142

Source: *Researcher's Estimate from Eview 9.0 (2021)*

The above table 3 presented the variables; aggregate saving in the economy (ASE), interest rate (IR), inflation rate (FR) and exchange rate, credit to private sector (CPS), account owners of any type (AA) and exchange rate, exchange rate (EXCR). The table is divided into two; the upper side of the table represents the short run estimate equation without error correction value while the lower parts of the table represent the long run estimate equation with error correction estimation value.

The short run result of the Victor Error Correction Mechanism (VECM) regression in table 3, shows that coefficient of interest rate (IR), inflation rate (FR) and exchange rate had a negative impact relationship with aggregate saving in the economy (ASE) which is quall to investment. This implies that decrease in value, rate of interest rate (IR), inflation rate (FR) and exchange rate, it will increase financial inclusion which in turn lead to increase on the aggregate saving in the economy (ASE) which is quall to investment in the Nigerian economy in the short run. Thus, the rate at by which financial inclusion impacts on aggregate saving in the economy (ASE) which is quall to investment through rate of interest rate (IR), inflation rate (FR) and exchange rate are; [- 37.38613FR, -17.89830IR and -40.75962EXCR] at 5% level of significance respectively, during the periods of the study.

The short run coefficients of credit to private sector (CPS) and account owners of any type (AA) were positive relationship with aggregate saving in the economy (ASE) which is quall to investment in the Nigerian economy. This implies that increase in volumes and number of these two financial inclusion variables will lead increase on aggregate saving in the economy (ASE) which is quall to investment in the Nigerian economy at short run by [0.000698CPS, and 0.001426AA] at 5% level of significance respectively, during the periods of the study.

Moreover, the result further shows that the sign of the coefficient of aggregate saving in the economy (ASE) which is quall to investment in the Nigerian economy the constant is negative [6338.568]. It implies that if all other variables being held constant, the dependent variable will stood at 63 percent in the short run. The sign borne by the short run parameter estimates of [IR, FR, EXCR, AA and CPS], are all in conformity with the economic a priori expectation at the short run (i.e. (-1)) estimate.

Meanwhile, the long run estimate equation shows that the coefficients of interest rate (IR), account owners of any type (AA) and credit to private sector (CPS) at their lag 1and 2, had a positive impact relationship with aggregate saving in the economy (ASE) which is quall to investment in the Nigerian economy. This implies that increase in value, volumes and number of these variables representing financial inclusion, will lead to increase on aggregate saving in the economy (ASE) which is quall to investment in the Nigerian economy in their long run equation. Thus, the rate at by which financial inclusion impacts on aggregate saving in the economy (ASE) which is quall to investment through interest rate (IR), account owners of any type (AA) and credit to private sector (CPS) are; [0.417875D(IR)(-1), 0.031064D(IR)-2),0.415402D(CPS)-1), 0.244101D(CPS)-2), 1.790359D(AA)-1), 0.322728D(AA)-2)] respectively.

Whereas inflation rate (FR) and exchange rate in their relationship with aggregate saving in the economy (ASE) which is quall to investment in the Nigerian economy shows negative impact. This means the a decrease in inflation rate (FR) and exchange rate will increase financial inclusion which in turn will impacts increase on aggregate saving (ASE) which is quall to investment in the Nigerian economy. their values of the impacts at their both lag 1 and 2 are; [0.059974D(FR)-1),-0.535056D(FR)-2) and -0.268321D(EXCR)-1), -0.083019D(EXCR)-2)] during the period of the study 1980 to 2019.

The result further revealed that the sign of coefficient of the Error Correction Mechanism (ECM) was negative and statistically significant. On the other hand, the value of ECM [1325.274] being negative and statistically significant is an indication of power of adjustment to the equilibrium in the existing relationship between financial inclusion and aggregate saving (ASE) which is quall to investment in the Nigerian economy. The result of the error correction transmission indicates that it will take the about 13 years for the model to adjust back to the equilibrium after a shock in the short run.
The result further disclosed as thus: 41%, 24%, and 2%, 32%

- One percent increases in the financial inclusion variables such as account owners of any type (AA) and credit to private sector (CPS) at lag (-1) and (-2), will leads to [41%(CPS)-1), 42%(CPS)-2) and 2%(AA)-1), 32%(AA)-2) increases on aggregate saving (ASE) which is quall to investment in the Nigerian economy respectively in their long run, during the periods of the study.

- One percent increases in the interest rate (IR) at lag one (-1) and (-2) will leads to 41(IR)(-1), and 31(IR)-2) increase on the aggregate saving (ASE) which is quall to investment in the Nigerian economy respectively, in the long run during the periods of the study.

Whereas one percent decrease in the inflation rate (FR) and exchange rate at lag (-1) and (-2) will leads to 5%(FR)-1), 53%(FR)-2) and 26%(EXCR)-1), 8%(EXCR)-2) increase on the aggregate saving (ASE) which is quall to investment in the Nigerian economy respectively, in the long run during the periods of the study.

Pairwise Granger Causality Tests

Table 4:**Causality Tests for model one**

Sample: 1980 2019

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
M2 does not Granger Cause RGDP	38	0.40896	0.6677
RGDP does not Granger Cause M2		3.81362	0.0324
CPS does not Granger Cause RGDP	38	1.52022	0.2336
RGDP does not Granger Cause CPS		12.5004	9.E-05
RLD does not Granger Cause RGDP	38	8.33901	0.0012
RGDP does not Granger Cause RLD		4.82380	0.0145
LRC does not Granger Cause RGDP	35	0.01585	0.9843
RGDP does not Granger Cause LRC		0.65193	0.5283
ASE does not Granger Cause RGDP	38	3.31867	0.0486
RGDP does not Granger Cause ASE		2.24179	0.1222
IR does not Granger Cause RGDP	38	1.14055	0.3319
RGDP does not Granger Cause IR		0.54223	0.5865
NCB does not Granger Cause RGDP	38	1.72930	0.1931
RGDP does not Granger Cause NCB		4.52255	0.0184

Source: *Researcher's Estimate from Eview 9.0 (2021).*

In the Table 4 above, we used the Granger test to find out the Nature of causality between [RGDP, CPS, RLD, LRC, ASE and NCB] using two lags value. The table shows the direction of the null hypothesis, suggesting that the variable in the left side does not Granger causes the variable in the right side.

Meanwhile, we compare the computed F^x – value with reference to the Prob -ratio at 5 percent level of significance for final decision. These results in table 4 reveal that we should reject the null hypothesis that said; CPS does not Granger Cause RGDP, RLD does not Granger Cause

RGDP, ASE does not Granger Cause RGDP, RGDP does not Granger Cause M2 and RGDP does not Granger Cause NCB, are rejected. Reason is that their computed F^x – values [1.52022CPS and 12.5004RGDP], [8.33901RLD and 4.82380RGDP], [3.31867ASE and 2.24179RGDP] respectively are significant since their p-values stood at [0.2336, 0.E-05, 0.0012, 0.0145, 0.0486, 0.1222, 0.0184 and 0.0324] respectively at 5% level. In other words, the past value of [CPS, RLD and ASE] does in any way granger causes the present value of Gross Domestic Product (GDP). Thus, at the same time Gross Domestic Product (GDP) does only granger causes the present value of [CPS, RLD, ASE, M2 and NCB] during the period of the study. This implies bidirectional nature of causality relationship in the model. Whereas, the past values of [M2 and NCB] does not any way granger causes the present value of Gross Domestic Product (GDP) with the computed f- value and p-value; [(0.40896)M2, 0.6677p and (1.72930)NCB 0.1931p] show statistically insignificant. This implies directional nature of causality relationship in the model one.

Conclusion

Given the plethora of financial inclusion plans central Bank of Nigeria (CBN) put in place at different time and by different regimes in Nigeria to boost the economy and promote economic growth and welfare, this paper sought to examine the impact of Financial Inclusion on the Nigerian Economic growth 1980 to 2019. There is the expectation that financial inclusion in Nigeria will contribute to economic growth by possible positive in greater savings, broad money, credit to private sector, Ratio of loan to deposit interest rate, inflation rate, exchange rate and NCB is number of commercial bank branches in the country, loan to rural areas and number of account owners of any type.

We analyzed the state of financial inclusion in Nigeria based on the following objectives; examine the significant impact of financial inclusion on the Nigerian economic growth. Consequently, based on the results obtained and interpreted in chapter four, the null hypotheses that stated, "Financial inclusion has no significant impact on the Nigerian economic growth" were rejected. Thus, given the prevailing policy environment in Nigeria, these explanatory variables, has significantly impacted and did improve the growth of the Nigerian economy. Savings behaviour is average showing 51%, number of account owners of any type having 59%, and Electronic money banking/payment system showing 26% influences to economic growth in Nigeria. Finally, the econometric estimation shows that borrowings and loans from financial institutions are having 88% and 92% significantly contributed to economic growth. This implies that borrowing and savings through outside financial institutions(using family, friends or saving clubs) have reduce its influences to people in the Nigerian economy.

From the foregoing, therefore, we conclude that level of financial inclusion in Nigeria is high which significant affected positively on the Nigerian economic growth during the period of this study.

Policy Recommendations

The findings have some policy implications

1 The use of financial institutions to save in Nigeria remains 51%, average, which might be a result of lack of trust in financial institutions in Nigeria. Nigerian authorities should increase the number of formal account ownership by removing obstacles such

as income and age bracket bias, distance in location and education discrimination in the delivery and use of financial services.

2 Nigerian policymakers should implement policy measures to expand the use of formal bank accounts for savings and borrowings by ordinary people.

Due to Nigeria's geographical and cultural diversity, the financial inclusion agenda will differ. This can be seen in the implementation of the cashless policy of the Central Bank, which started with major commercial cities before it was spread to a few other states using different parameters. To make banking services more accessible, banks may consider having their forms in some locations in the officially recognised local language of the people in different regions because financial inclusion is not about ability to speak English language but access to and use of banking services.

REFERENCES

Andrianaivo, M & Kpodar, K (2011): "ICT, Financial Inclusion, and Growth: Evidence from African Countries" *IMF Working Paper WP/11/73.*

Ardic, O. P, Heimann, M & Nataliya, M (2011): "Access to Financial Services and the Financial Inclusion Agenda around the world: *A Cross- Country Analysis with a New Data Set".*

Brian, K. (2014) Increasing Financial Inclusion to the Unbanked in Africa. *International Banker on-line. Accessed April 18, 2014*

Cyn-Young, P. & Rogelio, V. (2015), 'Financial Inclusion, Poverty, and Income Inequality in Developing Asia,' Asian Development Bank Economics *Working Paper Series CGAP, World Bank, (2010): "Financial Access 2010: The State of Financial Inclusion through the Crisis".http://www.microrate.com/financialacces*

Demirguc-Kunt, A., Klapper, L., & Singer, D. (2013b). *Financial inclusion and legal discrimination against women: evidence* from *developing countries*. The World Bank.

Mbutor, M. O., & Uba, I. A. (2013). The impact of financial inclusion on monetary policy in Nigeria. *Journal of Economics and International Finance, 5(8), 318-326.*

McKinsey Global Institute (2014), 'Nigeria's Renewal: Delivering Inclusive Growth in Africa's largest Economy,' *Retrieved July 23, 2016, http://www.mckinsey.com/mgi,*

Nalini, G. S. & Mariappan, K. M. (2012) Role of Banks in Financial Inclusion. *Research Journal of Commerce & Behavioural Science. Vol. 1 (4). Pp. 33-36*

Okoye, Lawrence, Uchenna., Adetiloye, Kehinde A., Erin, Olayinka & Modebe, Nwanneka J. (2020). Financial inclusion: A panacea for balanced economic development. 28th IBIMA Conference: Theme -Vision 2020: *International Journal of Innovation Management, Development Sustainability, and Competitive Economic Growth.*

Oluyombo, O. O. (2013a) Impact of Cooperative Finance on Household Income Generation. DLSU *Business and Economic Review. Vol. 23, No. 1, pp. 53-65*

Onaolapo, A. & Odetayo, T. (2012), 'Financial Inclusion and Micro Finance Banks in Nigeria,' *American Journal of Business and Management, 1(4), 241-247.*

Ozili, Peterson. K. (2020). Financial inclusion in Nigeria: determinants, challenges and achievements; Central Bank of Nigeria. *International Journal of Munich Personal RePEc Archive (MPRA). 3(8). PP 2-9.*

Sanusi L. (2011), 'Financial Inclusion for Accelerated Micro, Small and Medium Enterprises Development: The Nigerian Perspective,' *Paper presented at the 2011 Annual Microfinance and Entrepreneurship Awards*

Schumpeter, J.A. (1912), *The Theory of Economic Development*, Harvard University Press, Cambridge, MA

Serrao, M. V., Sequeira, A. H.,& Varambally, K. V. M. (2013) Conceptual Framework to Investigate the Accessibility and Impact of Financial Inclusion. *Indian Journal of Research. Vol. 2 (9). Pp. 47-49*

Umaru, I. (2014) Promoting Financial Inclusion with Mobile Banking in Nigeria. *Daily Trust Newspaper, March 21.*

World Bank (2014), *Global Financial Development Report 2014*: Financial Inclusion. Washington, DC.