Financial Inclusion Policy and Credit to Private Sector: A Time Series Study from Nigeria

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Abstract

This study investigated the effect of financial inclusion policy on credit to private sector in Nigeria from 1981 to 2019. This is in reaction to the reservations being expressed in some quarters as to whether access to financial services has influenced access to credits by private sector investors given the disequilibrium in the poor outing of the private sector over the years and the increasing access to financial services. The study sourced its data from the Central Bank of Nigeria Statistical Bulletin and the World Bank Development Indicators. The Auto Regression Distributive Lag (ARDL) method was employed to develop the econometric model; ARDL Bounds Test confirmed the long-run equilibrium relationship, while the techniques of Phillips-Perron Unit Root, Johansen Co-integration and Granger Causality tests were employed respectively to determine the properties of the data sets. Commercial banks' credit to private sector was the proxies for commercial bank intermediation while the rural commercial banks loan, rural commercial banks deposits, microfinance bank total assets, number of micro-finance bank branches and commercial bank loan to small and medium scale enterprises are the explanatory variables. The study revealed that rural commercial bank loans, rural commercial bank deposits, microfinance bank total assets, commercial bank loans to small and medium scale enterprises, and one period lagged variables of: rural commercial bank loan, rural commercial bank deposits, and commercial bank loan to small and medium scale enterprises are significantly related to broad money supply (size of the financial sector). It was also found in the study that rural commercial bank deposits, microfinance bank total assets, commercial bank loan to small and medium scale enterprises and one period lagged variables of rural commercial bank loans have strong relationship with credit to private sector. The study therefore recommends that financial players should build inclusive financial system that will facilitate financial access and use, expand the portfolio of financial services available in the mainstream beyond banking and payments and incorporate informal financial institutions into the financial services ecosystem, as a boost to private sector access to credits and investments respectively.

Keywords: *Financial Inclusion Policy, Credit to Private Sector, Time Series Study, Nigeria*

Introduction

The provision of adequate financial resources is a prerequisite for economic transformation, and the velocity of this transformation is affected by the degree of financial services prevalent in the economy (Ogbuagu & Ewubare, 2017). Credit mobilization to the private sector is an objective of financial inclusion which includes: political, economic and social inclusion (Nalini & Mariappan, 2017). The idea of financial inclusion was first introduced by the governor of Bank of India during their financial summit in 2005; the concept was later adopted by many within and outside India, and the world over (World Bank Financial Report, 2012). The global target of financial inclusion policy is to remove the barriers of education, gender, age, irregular income, regulatory and geographical location constraints that have all together hindered access to financial services by billions of adults all over the world (IMF Spring Meeting Report, 2013).

Nigeria's Central Bank adopted the National Financial Inclusion Strategy (NFIS) in 2012, but the strategy was not fully established and implemented until 2014 and this slowed the momentum in the execution and realization of the policy goal (CBN, 2016). The policy was introduced to mitigate the problem of exclusion, and aims at increasing and improving financial services and products, and the ability of individuals and private firms / enterprises to access such services at a low cost. As a major tool for intermediation, financial inclusion policy has made significant progress in the area of provision of broad financial services to large number of Nigeria's population, `but ` greater percentage of adults still remain financially excluded. The findings of Ardic et al (2011) revealed that about 56% of adults in the world do not have access to financial services, and the problem is more acute in less developed countries including Nigeria. The NFIS 2018 Monitoring Committee Report shows that a total of 40.1million adult Nigerians (41.6 percent of adult population) were financially excluded in 2016. Further analysis by the committee suggests that 55.9 percent of the excluded population were within the ages of 18 and 35years. 80 percent of the excluded resided in the rural areas.

Access to appropriate financial products and services at a low cost influences positively consumption, savings and investment pattern of individuals and firms. This smoothens intermediation process and translates to credit creation, investment, savings, capital formation, increased economic activities and growth at the macroeconomic level (Imegi & Osuagwu, 2019, Agu et al, 2014). Responsible inclusion is therefore regarded as an effective tool for intermediation in developing economies including Nigeria. Records show that access to broad range of financial services in rural areas has greatly improved in the six geographical zones in Nigeria. This is in line with the global financial system objective of inclusive growth. A recent survey carried out in this regard shows that the percentage of the financially excluded population in Nigeria has declined from 46 percent in 2010 to 36 percent in 2018 (NFIS, 2018).

Policy makers and regulatory bodies are faced with a lot of challenges which have not allowed for a successful implementation of financial inclusion policy and its subsequent goal attainment (NFIS, 2016). Such challenges range from the supply side barriers which are expected to be mitigated by banks to demand side barriers which are meant to be overcome by the financially excluded and to the regulatory barriers being controlled by government and regulatory authority. In terms of vision, leadership and ability to understand and meet the needs of the poor and low income earners, there is limited institutional capacity as limited incentive to innovation is experienced. On the other hand, problem of low income and inability to raise capital, illiteracy and socio – cultural barriers on the side of the financially excluded population constitute another major impediment to the attainment of financial inclusion goal (Kim, 2006). It is therefore worrisome to note that the poor and low income earners with viable business models are limited by lack of trust in the available financial products / services, and in the providers of such products. The limited access to finances and the resultant inadequate lending to the real sector of the economy have raised doubt about the effectiveness of financial institutions in meeting their intermediation responsibility. However, the Central Bank of Nigeria in its plan for inclusive growth has set a target to increase the size of the financially included to 80 and 100 percent by 2020 and 2024 respectively. In the same vain, Nigerian government has set financial inclusion policy as a key pillar of the financial system strategy 2020, to make Nigeria one of the world's major global economies by 2020 (NFIS 2018). While the effect of financial inclusion on economic growth has well been established in literature, the effect of financial inclusion policy on financial intermediation is lacking, therefore this study examined the effect of financial intermediation on credit to private sector in Nigeria.

Literature Review

Theoretical Foundation - The Classical Theory

The classical economic theory concentrates on economic agents and places the state in secondary role. The primary economic agents are firms and consumers whose behaviours are assumed to be rationally self-interested, well-informed and competitive. With these assumptions, it concludes that financial inclusion is the result of consumer choice and/or mistaken government policy. Bagehot (1873) theorized that banks could actively spur innovation and financial system development through innovation and the identification as well as funding of productive investments. Schumpeter (1912) added that bankers are essentially producers (and not middlemen) of financial services therefore the increase in their customers base, by virtue of financial inclusion is their primary responsibility as customers base and financial inclusion are functions of the quality of banking products and technology. As far as consumer choice is concerned, it is possible when they opt to use informal financial services instead of mainstream markets due to economic costs which lead to access limitations. It is also possible that government policy for example, a usury ceiling creates distortions in credit markets that further hamper inclusion of disfavoured segment. For instance, the proliferation and incessancy of bank charges, arbitrary inexplicable deductions, poor service quality, and epileptic technological backbone that culminates in frequent "network problem" can result in financial exclusion.

The Keynesian Theory

Keynes (1930) in his treatise on money suggested that bank credit is the pavement along which production travels, consequently bankers should provide an avenue for harnessing and deploying the productive capacity of the community can be employed at their full capacity. In the same spirit Robinson (1952) argued that financial development follows growth, and articulated this causality argument by suggesting that where enterprise leads finance follows. Both, however, recognized this as a function of current institutional structure, which is not necessarily given, Keynesian economic relies on government spending to jumpstart a nation economic growth

during sluggish economic downturns. Similar to classical economists, Keynesians believe the nation economy is made up of consumer spending, business investment and government spending. In the contemporary financial system, it is apparent that government investment and spending drives financial system development as a drift by firms from urban centres to rural areas for instance will engender the inclusion of rural dwellers in the financial system. In the Keynesian theory, financial inclusion occurs due to an expansion in government expenditure. In order to reach full employment; the government should inject money into the economy by increasing government expenditure.

The New Keynesian Theory

New-Keynesian analysis emphasizes on the market distortions embedded in the macro economy, for instance information asymmetries. In relation to financial inclusion, it relates to the notion of credit constraints. Stiglitz & Weiss (1981) provide a compelling explanation on this issue by shedding lights on the effect of imperfect information about borrowers on credit inclusion, whereby creditors tend to depress interest rates and restrict credit in order to avoid risky borrowers. This alarming problem further reinforces income and asset inequality i.e., credit markets are no longer unified (if they ever were), but instead are fragmented and diverse; and financial inclusion is stiffled as do the wealth/income and security/insecurity divides (Dymski, 2005).

Financial inclusion occurs due to an expansion in government expenditure. An increase in government expenditure increases aggregate demand and income, thereby raising demand for money. This disequilibrium is resolved by reducing private investments resulting from higher interest rates. Since higher interest rates lower private investment, an increase in government expenditure promotes investments and reduces private investment concurrently (Dornbusch and Fischer 1978). It is necessary to design government policies that are attentive to the various imperfections and inefficiencies of the markets. Financial Inclusion seeks to overcome the frictions that hinder the functioning of the market mechanism to operate in favour of the poor and underprivileged.

Concepts of Executive Compensation

Concept of Financial Inclusion

Financial inclusion is said to be achieved when all the adult population of a country have unhindered access to a broad range of financial services capable of meeting their needs at affordable costs (National Financial Inclusion Strategy 2012). Financial inclusion or inclusive financing encourages direct intermediation services through mobilization of deposits/from the surplus units to the deficit units of the economy for investments (Sturt & Anjan, 2007). In the recent time, experts and financial analysts have invested much on financial inclusion, given its felt importance as an economic growth catalyst. Financial inclusion as a process begins with access to transaction account as the first step towards broader banking and financial services. Chong and Chon (2010) expressed that financial inclusion has the ability to connect people to bank there by integrating the financially excluded into financial and economic activities for the expansion of the financial sector and the economy at large.

Morgan & Pontines (2016) identified the fact that financial inclusion is much easier to define in terms of financial stability but there still remains certain definitional issues as it generally tends to range from implying the “banked” population (IMF, 2016) to the population captured in the financial system (CBN, 2018). This, no doubt implies that among the varieties, there are clear broad and narrow categories regarding financial inclusion. Gadanecz & Tissot (2016) agreed with this position by asserting that there is neither a widespread nor generally agreed definition of the concept, thus 20 percent of central banks rely on their definitions for measurement. Sequel to this, Khan (2011) considered it as the provision of access to affordable bank accounts and credit and payment system. Financial inclusion aims at drawing the financially excluded or the “unbanked" population into the formal financial system with the consequential benefit of having the opportunity to access financial services ranging from savings, payments, and transfers to credit and insurance (Hannig and Jansen 2010). Various central banks have many angles from which they view the workings of financial inclusion, but it is most commonly thought of in terms of access to credit from a formal financial institution, while the concept has more dimensions. Official accounts involve both loans and deposits, and can be considered from the point of view of their frequency of use, mode of access, and the purposes of the accounts. Mobile money via mobile telephones constitutes alternatives to former accounts. Demirguc-Kunt and Klapper (2012) identified insurance as another main financial service besides banking especially when the need for agriculture comes and health. Financial inclusion therefore refers to easy access by enterprises and households to reasonably priced and appropriate financial services that meet their needs.

Empirical Review

Onafowokan (2014) investigated the extent to which adults in Nigeria participate in financial inclusion measures focusing on access to and use of bank accounts, mobile money and insurance services. The benefits and barriers to the use of these services were also identified. Through the use of ratios and questionnaire, the study revealed that though access to bank accounts is high, majority of the respondents operate savings accounts. However, bank account ownership penetration ratio is very low. The most popular non-cash payment methods are ATM/debit card and wire transfer/on-line payment. The highest self-reported barrier to the use of bank account is the lack of necessary documents.

Nwafor and Yomi (2018) using the two-stage least square regression method studied to know the influence of financial sector intermediation on inclusion within some periods. The study discovered that financial intermediation has not influenced inclusion policy within the period under review.

Babajide et al (2015) conducted and empirical study of the determinants of financial inclusion and its impact on economic growth in Nigeria. The paper sourced its data from world development indicators, while the ordinary least square regression model was employed to analyze the data. The result showed that financial inclusion is a significant determinant of the total factor of production, as well as capital per worker, which invariably determines the final level of output in the economy.

Xiuhua and Jian (2016) measured the level of financial inclusion across countries using the index of financial inclusion and the world Bank Global Index Database. The results revealed a geographical spatial aggregation distribution in which developed European and North American countries enjoy higher levels of financial inclusion than the less developed countries of Africa and most of Asia. The results also showed that an individual's income, education and use of communication equipment are important factors that explain the level of financial inclusion, while financial debt and banking health status are the main determinants of financial inclusion.

Aina and Oluyombo (2014) waded into financial inclusion in Nigeria, investigating empirically the extent to which adults in Nigeria participate in financial inclusion measures. The study discovered that the percentage of adults that make use of financial inclusion products/services is high. Saving behaviour of account holders is high while loan behavior is very low. The use of mobile money and insurance services is very insignificant. Only 21 percent adults do not save.

George, Ntayi and Munene (2017) examined the mediating role of social networks in the relationship between financial intermediation and financial inclusion of poor households in rural Uganda. The paper used SPSS (statistical package for social scientist and applied Med Graph Program to test for the mediating role of social networks in the relationship. Quantitative data were collected from a total sample of 400 poor households living in rural Uganda who were randomly selected for this study. The findings revealed that social networks partially mediate in the relationship between financial intermediation and financial inclusion of poor households in rural Uganga. Besides, social networks and financial intermediation have significant and positive impacts on financial inclusion of poor households in rural Uganda.

Oba (2014**)** studied to examine the role of financial intermediaries and to find out whether financial intermediaries impact on economic growth in Nigeria. The study adopts the Harrod-Domar growth model and employed the use of secondary data for the period 1981-2011. Loans credit and advances from banks were used as proxy for the independent variables, while GDP was proxied for economic growth. Using the technique of correlation analysis, the study reveals a relatively high positive correlation between financial intermediaries and economic growth in Nigeria.

Imegi & Osuagwu (2019) examined the effects of financial intermediation on the profitability of deposit money banks in Nigeria. Using time series data spanning 1985-2017, and adopting causal research design with regression models, the study modeled return on assets and net profit margin as a function of deposit mobilization, credit allocation, prime lending rate, maximum lending rate and long term saving rate. The study found out that prime lending rate, long term savings rate, banking sector credit and deposits have negative long run effect on net profit margin while maximum lending rate has positive effect on net profit margin.

Methodology

Research Design

The study adopted the causal research design, which aims at explaining the existence or non-existence of a cause and effect relationship. The variables studied in this research are financial inclusion measures being the (explanatory variables/cause) and bank intermediation parameters which are the dependent variables/effect. The causal research determines the extent to which financial inclusion activities explain or predict the variations in the size of the dependent variable.

Population of the Study

The population of a study is also known as a well-defined collection of individuals or objects known to have similar characteristics (Tochim, 2006). Following this assertion, the population of this study comprises banks and non-bank financial institutions that are involved in financial inclusion in Nigerian financial system and the intermediation effects of commercial banks in Nigeria.

Sample Size and Sampling procedure

A sample size is the number of people or objects in a selected sample (Manheim and Rich, 1999). This study is narrowed down to some selected financial institutions as the sample size. They include commercial banks and microfinance banks that translate financial inclusion policy in the Nigerian financial system while their intermediation parameters include rural commercial bank loans, rural commercial bank deposits, micro- finance bank total assets, number of micro-finance banks and commercial banks loan to small and medium scale enterprises.

Method of Data Collection

The study made use of documented data on financial inclusion and bank intermediation. The sources include Statistical Bulletin of the Central Bank of Nigeria and World Bank Development Indicators. The data spread from 1981 to 2019 covering 39years.

Method of Data Analysis

Data Characteristic Test

i. Stationarity of Time Series Data

Unit root is conducted mainly to determine whether or not variables are stationary at zero order I(0), first order I(1) or second order I(2). If a variable is stationary in its raw state, it is said to be stationary at levels, I(0); at first differencing, it is said to be stationary at first order I(1); at second differencing, it is said to be stationary at second order I(2). The unit root test techniques adopted in this study is Philip-Perron (Phillips and Perron, 1988).

Decision Rule

H0: = 0: there is presence of unit root in the time series data.
HI: (0): there is absence of unit root in the time series data.
The decision rule is that Phillip-Perron (PP) test statistics must be greater than Mackinnon Critical Value at 1 or 5% and in absolute term, i.e. ignoring the negative value of both the PP test statistics and Mackinnon critical values, we accept Ho and conclude that there is presence of unit root. Otherwise we reject the Ho and conclude that the variable is stationary or integrated at zero order I(0). Failure to accept the alternative hypothesis leads to conducting further test by differencing the time series data in first or second order until stationarity is attained.

Co-integration Test

The concept of co- integration is the statistical implication of the existence of a long-run equilibrium relationship between variables. There are two methods of examining co integration relationship; Engle and Granger two-step procedure (1987) and Johansen and Juselius (1990) based on Vector Auto Regression (VAR). The Johansen

procedure to test for cointegration among the variables was adopted in this study. Two likelihood ratio tests (trace and maximum eigenvalue) were used to test the hypotheses regarding the number of cointegrating vectors.
H0: r = 0: there is no cointegration in the series
H1: r > 0: there is cointegration in the series
The statistic test the null hypothesis that the number of co integrating vectors is r against the specific alternative of r+1 co-integrating vectors. The condition for a long-run co-integrating vector is that the trace statistics (likelihood ratio) must be greater than 5% critical value.

Granger Causality Test
Causality test is employed to know the causal relationship between liberalized financial services and intermediation efficiency indicators in Nigeria. The underlying principle for carrying out this test is that it enables us to know whether the independent variables can cause variations in the dependent variable and vice versa. Given variables X and Y;
H0: X does not granger cause Y
H1: X does not granger cause Y
If the probabilityvalue of F-statistic is less than0.05, we reject Ho and conclude that X granger cause Y, a unidirectional and short-run effect occurs if X granger cause Y but Y does not granger cause X. a feedback, bi-directional or long-run relationship exist if X granger cause Y and Y granger cause X respectively. However, independent causation is reached when X does not granger cause Y and Y does not granger cause X.

Regression Model Test
T-Statistic Test The *t-statistic* tests whether any of the coefficients of the explanatory variables might be equal to zero. The t-statistic is calculated simply as $t_{\alpha/2}$.If the errors follow a normal distribution, t follows a Student-t distribution. On the other hand, when it is negative, it entails that there is an inverse relationship between the exogenous and the endogenous variable (Nworuh, 2004).

Decision Rule
There are two method of making decision in this test. First if the t_{tab} is greater than t_{cal} ($t_{tab}>t_{cal}$) at 5% level of significance, it means that the variable has no significant relationship on the financial inclusion policy of Nigeria. This will necessitate the acceptance of the null hypothesis. On the other hand, if the probability value of the t-statistic is less than the critical probability of 0.05, it require the acceptance of null hypothesis and conclude that there is no significant of relationship between the dependent and independent variable.

F- Statistic Test (F-Test)
F-statistics is used to the overall significance of all the explanatory variables and the dependent variable in a bid to investigate the overall interactions of the parameters. In this study, F-statistics is used to test significance of the financial inclusion indices on the intermediation function of commercial banks.

Decision Rule
To make decision in F-test, we either compare the F-calculated simple put F_{cal} and F-tabulated simple put F_{tab}. The decision rule therefore state that if F_{tab} is greater than the F_{cal} at 1% or 5%, (i.e. $F_{tab}>F_{cal}$ at 0.01 or 0.05), we accept the null hypothesis and conclude that there is no statistical significant among the overall parameter, otherwise we invalidate the decision.

Coefficient of Determination (R^2)

This statistic is used to determine how reliable and fit a model is. In order words, it is the extent in percentage form that the past variations of the explanatory variable can explain the dependent variable. its value ranges from 0 to 1. An R^2 of close to 1 is an indication of a reliable and fit model while that closer to 0 means a weak model. The R^2 statistic can be positive or negative. When it is positive, it means that the dependent and the independent variable are positively associated but if negatively signed, it means a negative association between both variables.

Adjusted R^2

The adjusted R^2 statistic is a close of R^2 but with slight difference in measurement. It is most time lower in value than R^2 and also a better statistic. The difference is due to degree of freedom adjustment. It explains the degree of change or variation in dependent variable that is accounted for the dependent variable and other unexplained factors due to unexplained interferences outside the scope of the study.

Model Specification

MODEL I (Credit to the Private Sector, CPS)

Intrinsic linearity is used for the relationship between the dependent and independent variables. Following the work of Bashar and Khan (2007), the empirical model is specified as follows:

Thus, the equation can be expressed in a functional model as:

CPS = f(FIPt, et1) 1

Where: FIP = RCBL, RCBD, MFBTA, NMFB, CBLSE

In its econometric form, the equation (3.2) above is represented thus:

$CPSt = \beta 01+\beta 1RCBLt + \beta 2RCBDt + \beta 3MFBTAt + \beta 4NMFBt +\beta 5CBLSEt + et$ 2

To remove the problem of time-invariant characteristics inherent in time series data, we take the natural logarithms equivalent of each variable in the model, thus:

$InCPSt = \beta 0_1+\beta_1 lnRCBLt+\beta_2 lnRCBDt+\beta_3 lnMFBTAt+\beta_4 lnNMFBt+\beta_5 lnCBLSEt + et1$ 3

ARDL for Model I (Credit to the Private Sector, CPS):

$lnCPS_t=\beta_{01}+\beta_1 lnRCBL_{t-1}+\beta_2 lnRCBD_{t-1}+\beta_3 lnMFBTA_{t-1}+\beta_4 lnNMFB_{t-1}+\beta_5 CBLSE_{t-1}+e_{t1}$ 4

$\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6>1$ 5

Auto Regressive Distributive Lag (ARDL) Model

Auto Regressive Distributive Lag Model plays a vital role when comes the need to analyze an economic scenario. the effect of economic decision taken by a country in a year may have influence on the economic growth of the country in the time t along with future periods such as t+1, t+2, … t+n. Thus the long and short-run behavioral consequences of a variable on other variable bring the role of distributed lag model in the scenario (Gujarati, Porter and Gunasekar, 2017).The below function represents the lag effect of a variable on the variables and its own lags as well.

$Y_t = f(X_t, X_{t-1}, X_{t-2}, \dots X_{t-n})$, where t-I represents the number of lags.

An ARDL is parsimonious infinite lag distributed model. The term autoregressive shows that along with getting explained by the X_t, Y_t also get explained by its own lag also.

$Y_t = \beta_0 + \beta_1 Y_{t-1} + \dots + \beta PY_{t-m} + \alpha_0 X_t + \alpha_1 X_{t-1} + \alpha_2 X_{t-2} + \dots + \alpha_q X_{t-n} + \varepsilon_t$

Where m and n are number of years for lag, ε_τ is the disturbance term and β_is are coefficient for short-run and X_is are coefficients for long-run relationship.

Condition for ARDL Model to Hold

i.The model requires that the errors should have no autocorrelation with each other.

ii. There should not occur any heteroscedasticity in the data i.e. the mean and variance should remain constant throughout the model.
iii. The data should follow normal distribution.
iv. Data should have stationary either on I(0) or I(1) or both. If any of the variable in the data has stationary at I(2), ARDL model cannot run.

Dependent Variables (Intermediation measures):

i. Credit to Private Sector (CPS): Credit to private sector is the total of credit given to the private sector often referred as the banks' intermediation effectiveness. It has been used in several studies as a proxy for financial intermediation. Examples of such studies include: Acha (2014), Gezer (2018), Onye and Andabai (2014) among others. It is important to note that Schumpeter's pioneering work in 1912 and Mackinnon-Shaw's hypotheses of 1973, all agree that "creation of credit by banks is essential for economic development, and they also made the assumption that only the entrepreneur needs credit.

Measurement of Independent Variables (Financial Inclusion measures)

i. Rural Commercial Bank Loans: This is the total credit to the small and medium scale enterprises from all the commercial banks located in the rural areas in Nigeria.
ii. Rural Commercial Bank Deposits: This is the demand deposit in all the commercial banks located in the rural areas in Nigeria.
iii Microfinance Bank Total Assets: This is the total worth or capitalization of all the Micro Finance Banks in Nigeria. It represents their capacity and effectiveness to mobilize credits to small and medium scale enterprises.
iv. Number of Micro- Finance Banks: This is the total number of Micro Finance Bank in Nigeria. It represents the spread of Micro Finance Banks across the country.
v. **Credit to Private Sector (CPS):** Credit to private sector is the total of credit given to the private sector often referred as the banks' intermediation effectiveness. It has been used in several studies as a proxy for financial inclusion.

A- Priori expectations

By the rule of thumb, and assuming every other thing remains constant, since Nigerian financial sector is going through a lot of transformations and with increasing level of financial education, it is expected that rural commercial bank loans, rural commercial bank deposits, microfinance bank total assets, number of micro-finance banks and commercial bank loan to small and medium scale enterprises will positively contribute to the size, depth and efficiency of bank intermediation function in Nigeria. Thus, the above listed parameters of financial inclusion policy will positively and significantly relate with: credit to the private sector, money creation, money supply, monetary policy function, facilitation of flow of funds and capital formation in Nigeria. Hence, this can be expressed in the equation below:

RESULTS AND DISCUSSION OF FINDINGS

Time series graph plot of movement of variables from 1981-2019

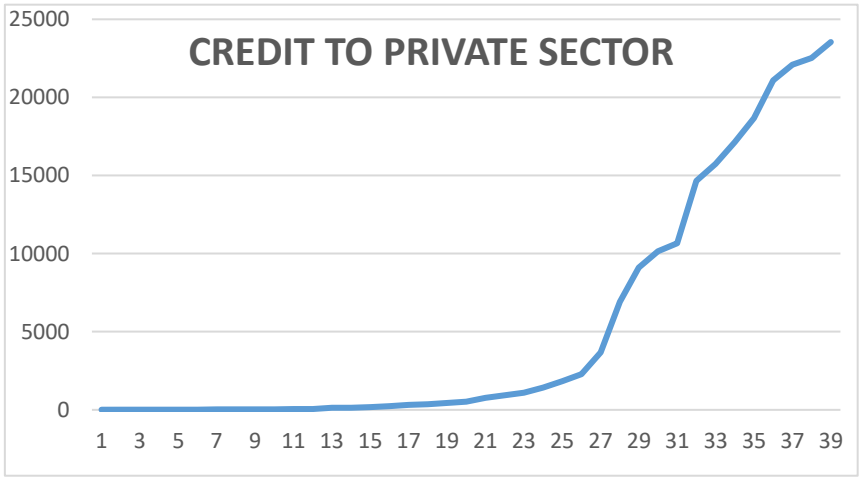

Figure 1: Line Graph of Credit to Private Sector from 1981 to 2019

Source: E-Views output based on Research Data

The line graph in Figure 1 showed that credit to private sector had a sluggish growth from 1981 till 1998. However, from 1999, the variable witnessed a gradual but steady growth till 2006. From 2006 thence, credit to private sector had a sharp and steady growth, though slightly steeped in 2011. The variable continued with its growth trend till 2019. This is an indication that the intermediation function of the banking sector is on course, hence the availability of adequate credit to the financial sector is guaranteed.

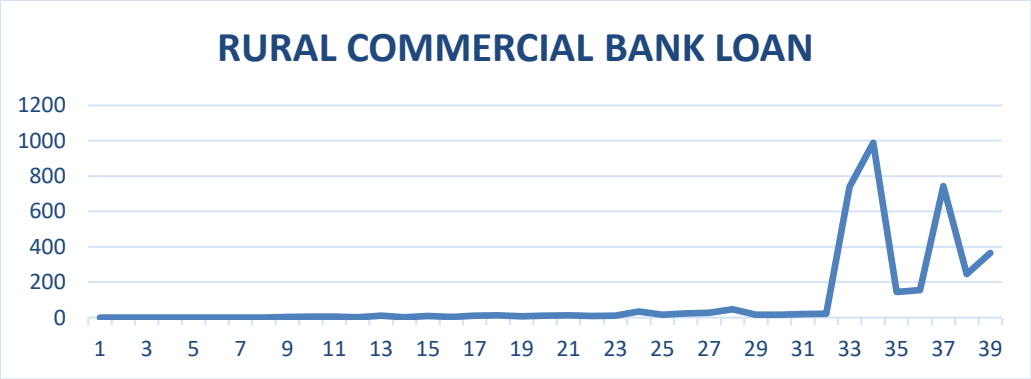

Figure 2: Line Graph of Rural Commercial Bank Loan from 1981 to 2019

Source: E-Views output based on Research Data

The line graph in figure 2 revealed that rural commercial bank loan had a stable and none significant upward movement from 1981 to 2012. From 2012 to 2014, the variable made an unprecedented upward movement but later descended sharply in 2015 and later rose up again in 2017. This unstable graphical movement indicates that rural commercial bank loan in Nigeria have not received the required attention. The import of this is that monetary authorities have not paid any attention on aiding rural dwellers to access the necessary credits for their investments.

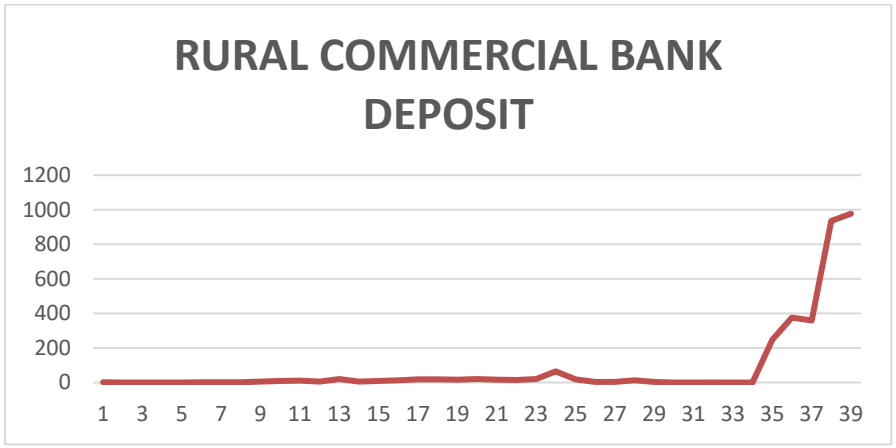

Figure 3: Line Graph of Rural Commercial Bank Deposit from 1981 to 2019

Source: E-Views output based on Research Data

The Line Graph in Figure 3 represents the movement of rural commercial bank loan in Nigeria from 1981 to 2019. The movement of the graph indicates a similar scenario in the graph of rural commercial bank loan in Figure 3. Accordingly, there was insignificant and almost none upward movement from 1981 to 2014. Thereafter, the variable made a sharp and continuous upward movement till it terminated in 2019. This graphical movement signifies that rural dwellers have almost none access to commercial bank services in Nigeria except from 2014 till date.

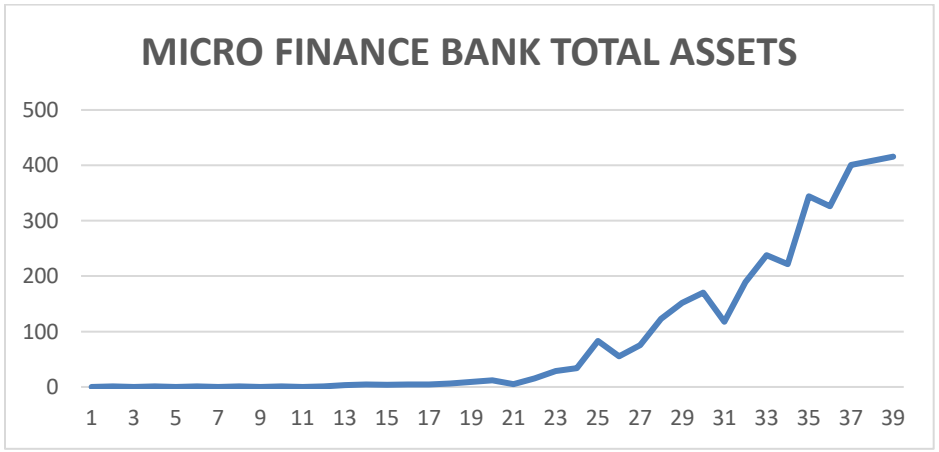

Figure 4: Line Graph of Micro Finance Bank Total Assets from 1981 to 2019

Source: E-Views output based on Research Data

The line Graph in Figure 4, revealed a steady rise in the total asset of microfinance bank in Nigeria from 1981 to 2019. Notably, the noticeable upward movement of the graph started from 2011 and continued till 2019. This steady graphical movement implies that the capital base of microfinance bank in Nigeria have continued to be on the rise. It therefore depicts that the Nigerian microfinance banks are gaining strength daily in meeting up the required task of financing small and medium scale enterprises.

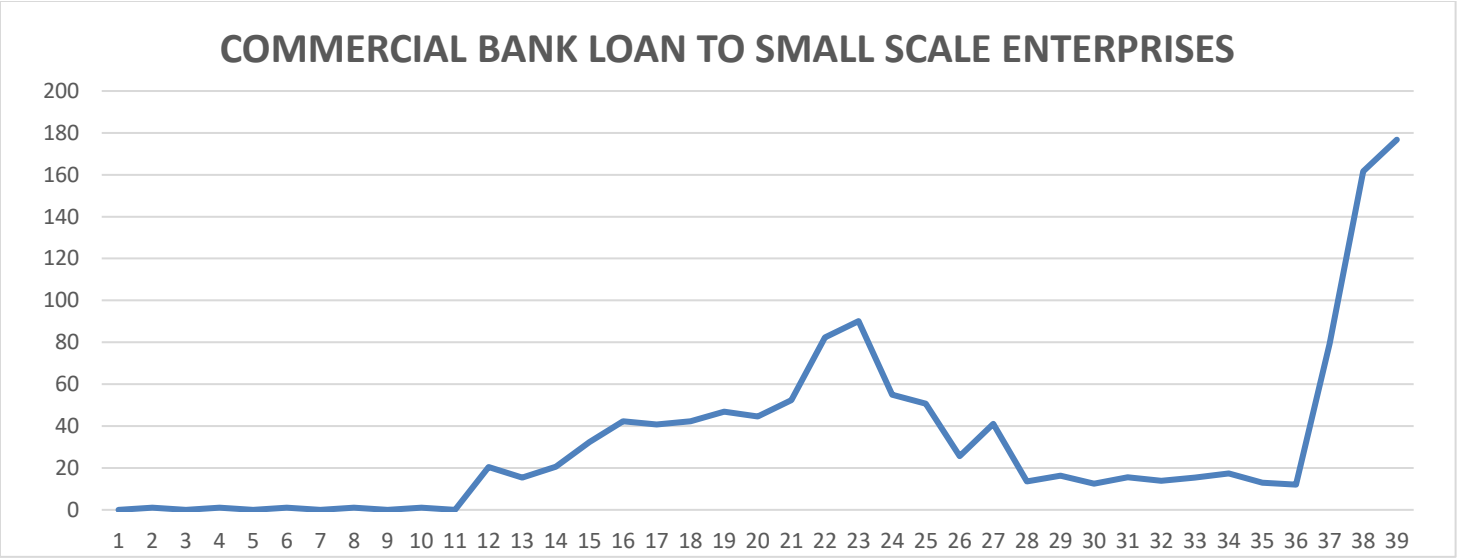

Figure 5: Line Graph of Commercial Bank Loan to Small Scale Enterprises from 1981 to 2019
Source: E-Views output based on Research Data

The graph in Figure 5 revealed movement of commercial bank loan to small and medium-scale enterprises in Nigeria from 1981 to 2019. The movement of the curve showed that the variable made an upward movement from 1991 till 2003, and later descends steadily till 2016. It later steeped up to 2019. This reality signifies that commercial bank loan to small and medium scale enterprises is uncoordinated by the monetary authorities. This actually affects the mobilization of the required funds for investment in Nigeria.

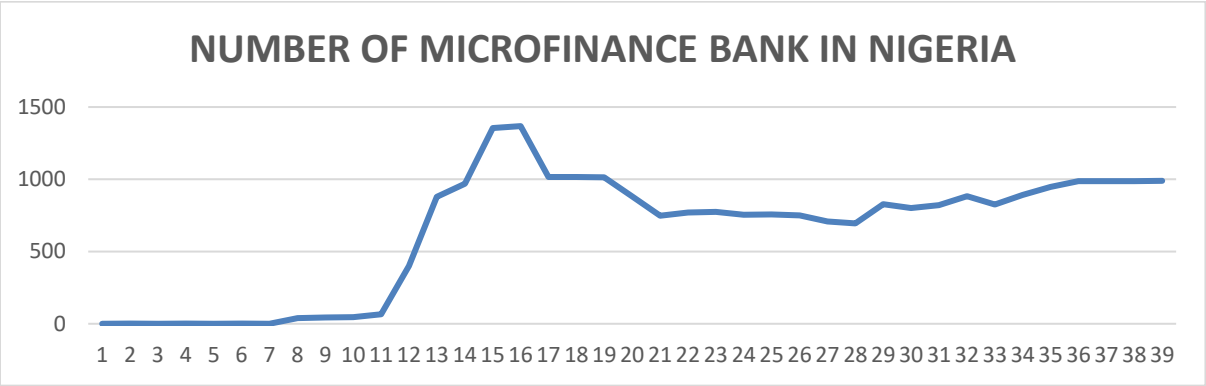

Figure 6: Line Graph of Number of Microfinance Bank in Nigeria from 1981 to 2019
Source: E-Views output based on Research Data

The Line Graph presented in Figure 6 represents the number of microfinance bank in Nigeria from 1981 to 2019. It is visible from the graph that in 1991, the curve made a sharp upward movement till 1997, thereafter; the curve made a downward movement till 2011 and then continued to gradually rise again till 2019. This graphical movement indicates a good spread of microfinance banks in Nigeria after they were reconsolidated for optimum performance.

Table 1: Augmented Phillips-Perron Unit Root Test

Variables	Stages	PP Test Statistics	Critical Values @ 1%	Order of Integration	Decision
CPS	Level	-0.935802	-3.615588		None Stationary
	First Differencing	-6.229328	-3.621023	**I(1)**	**Stationary**
	First Differencing	-6.461466	-3.621023	**I(1)**	**Stationary**
RCBL	Level	-2.863683	-3.615588		None Stationary
	First Differencing	-8.170088	-3.621023	**I(1)**	**Stationary**
RCBD	Level	-1.693787	-3.615588		None Stationary
	First Differencing	-4.638960	-3.621023	**I(1)**	**Stationary**
MFBTA	Level	-4.329060	-3.615588	**I(0)**	**Stationary**
NMFB	Level	-1.633137	-3.615588		None Stationary
	First Differencing	-4.670262	-3.621023	**I(1)**	**Stationary**
CBLSE	Level	-1.369393	-3.615588		None Stationary
	First Differencing	-6.586678	-3.621023	**I(1)**	**Stationary**

Source: Researcher's Summary from Eview Statistical Package Ver. 9.0.

The results of the Phillips-Perron stationarity test in Table 1 above revealed that except microfinance bank total assets that is stationary at levels, every other variables exhibited absence of unit root characteristics at first order of integration. This reality qualifies the employment of auto regressive distributive lag in fitting the models in the study. Sequel to this, various analyses carried out in each of the six models include: Johansen Cointegration Test, Granger Causality Test, diagnostics tests comprising Breusch-Godfrey Serial Correlation LM Test, Heteroskedasticity Test, Breusch-Pagan-Godfrey, Ramsey RESET Test. Also the Auto Regressive Distributive Lag estimation model was also analyzed here to fit the equation.

Table 2: Results of Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.795541	139.1735	95.75366	0.0000
At most 1 *	0.579274	80.44002	69.81889	0.0056
At most 2 *	0.526960	48.40638	47.85613	0.0443
At most 3	0.281740	20.70913	29.79707	0.3760
At most 4	0.183214	8.464938	15.49471	0.4171
At most 5	0.026059	0.976964	3.841466	0.3229
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
None *	0.795541	58.73344	40.07757	0.0002
At most 1	0.579274	32.03364	33.87687	0.0816
At most 2 *	0.526960	27.69725	27.58434	0.0484
At most 3	0.281740	12.24419	21.13162	0.5237
At most 4	0.183214	7.487973	14.26460	0.4331
At most 5	0.026059	0.976964	3.841466	0.3229

Source: E-Views output based on Research Data

The result of the cointegration test presented in Table 4.2 shows that at 5% Critical Value, three cointegrating equations are found in the Trace Statistics series and one cointegration equation is found in the Maximum Eigenvalue Statistic. This is an indication that long-run equilibrium relationship may exist among the variables; hence we reject the null hypothesis of no cointegration.

Table 3: Auto Regressive Distributive Lag Bounds Test

Test Statistic	Value	k
F-statistic	7.612777	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: E-Views output based on Research Data

The result revealed an F-statistic of 7.612777 is greater than 10%, 5%, 2.5% and 1% Critical Values in I(0) and I(1) bounds respectively. The import of the result is the rejection of the null hypothesis that no long-run relationship exist between the dependent and explanatory variables. That is, a long-run relationship is found among the variables under investigation.

Table 4: Results of Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
RCBL does not Granger Cause CPS	37	0.47183	0.6281
CPS does not Granger Cause RCBL		14.8910	3.E-05
RCBD does not Granger Cause CPS	37	3.21359	0.0535
CPS does not Granger Cause RCBD		8.09847	0.0014
MFBTA does not Granger Cause CPS	37	0.78292	0.4656
CPS does not Granger Cause MFBTA		12.4536	0.0001
NMFB does not Granger Cause CPS	37	0.22587	0.7991
CPS does not Granger Cause NMFB		0.14992	0.8614
CBLSE does not Granger Cause CPS	37	1.48213	0.2423
CPS does not Granger Cause CBLSE		4.57428	0.0179

Source: E-Views output based on Research Data

The results of Granger Causality Test presented in Table 4 above revealed that at 5% critical value, a one-directional causal relationships exist from Credit to Private Sector to Rural Commercial Bank Loan with probability value of 0.00005, Rural Commercial Bank Deposits with probability value of 0.0014, Micro Finance Bank Total Assets with probability value of 0.0001 and Commercial Bank Loan to Small and Medium Scale Enterprise with probability value of 0.0179 respectively. The import of these statistics is that past variations of Credit to Private Sector have significant influence on the Rural Commercial Bank Loan, Rural Commercial Bank Deposits, Micro Finance Bank Total Assets and Commercial Bank Loan to Small and Medium Scale Enterprise. These signify the Credit to Private Sectors is a major driver to Financial Inclusion in Nigeria.

Table 5: Auto Regressive Distributive Lag (ARDL)

Dependent Variable: D(CPS)
Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(CPS(-1))	-0.324197	0.232139	-1.396567	0.1748
D(RCBL)	-0.752092	0.896604	-0.838822	0.4095
D(RCBL(-1))	-2.093935	0.769082	-2.722641	0.0116
D(RCBD)	-14.27834	4.082163	-3.497740	0.0018
D(RCBD(-1))	-6.425426	4.143995	-1.550539	0.1336
MFBTA	23.14915	5.062010	4.573114	0.0001
MFBTA(-1)	-9.761579	4.793100	-2.036590	0.0524
D(NMFB)	0.371861	0.797448	0.466314	0.6450
D(NMFB(-1))	-0.520954	0.800481	-0.650802	0.5211

D(CBLSE)	-0.040071	0.010727	-3.735646	0.0010
D(CBLSE(-1))	0.013583	0.019645	0.691419	0.4957
C	38.08145	133.3041	0.285673	0.7775
R-squared	0.725028	Mean dependent var		636.0316
Adjusted R-squared	0.604040	S.D. dependent var		967.7836
S.E. of regression	608.9813	Akaike info criterion		15.91806
Sum squared resid	9271455.	Schwarz criterion		16.44052
Log likelihood	-282.4841	Hannan-Quinn criter.		16.10225
F-statistic	5.992568	Durbin-Watson stat		2.150742
Prob(F-statistic)	0.000104			

Source: E-Views output based on Research Data

From the ARDL regression analysis in Table 4.8 above, the econometrics of the relationship between Credit to Private Sector (Financial Intermediation) and Financial Inclusion policy in Nigeria is stated in equation 4.1 below:

CPS =38.08**-0.752RCBL-14.278RCBD+23.149MFBTA+0.372NMFB-0.040CBLSE** 4.1

(0.7775) (0.4095) (0.1336) (0.0001) (0.6450) (0.0010)

The model for the lagged variables is also presented in equation 4.2

CPS = 38.08-2.094RCBL-6.425RCBD-9.762MFBTA-0.5209NMFB+0.0136CBLSE-0.324CPS 4.2

(0.7775) (0.0116) (0.1336) (0.0524) (0.5211) (0.4957) (0.1748)

NB: probability values are in parentheses

The Constant Value

From the model in equation 1 above, it is apparent that the constant parameter (β_0) has positive coefficient (38.08). This is a signal that credit to private sector will increase by 38.08billion Naira when the explanatory variables as used in the study were kept constant.

The *a priori* Expectation

The coefficients of the explanatory variables revealed that Microfinance Bank Total Assets, Number of Microfinance Bank in Nigeria and one period Lagged Commercial Bank Loan to Small and Medium Scale Enterprises are positive which is in conformity with the a priori expectations of study. However, the coefficients of Rural Commercial Bank Loan, Rural Commercial Bank Deposits, Commercial Bank Loan to Small and Medium Scale Enterprises and one period Lagged variables of Credit to Private Sector, Rural Commercial Bank Loan, Rural Commercial Bank Deposits, Microfinance Bank Total Assets, Number of Microfinance Bank and Credit to Private Sector are negative which is in negation with the *a priori* expectations of the study. Overall implications of the signs of variables are as follows; a unit increase in Microfinance Bank Total Assets, Number of Microfinance Bank in Nigeria and one period Lagged variable of Commercial Bank Loan to Small and Medium Scale Enterprises respectively increase Credit to Private Sector by 23.149, 0.372 and 0.0126 billion naira respectively. Conversely, Rural Commercial Bank Loan, Rural Commercial Bank Deposits, Commercial Bank Loan to Small and Medium Scale Enterprises and one period Lagged variables of Credit to Private Sector, Rural Commercial Bank Loan, Rural Commercial Bank Deposits, Microfinance Bank Total Assets, Number of Microfinance Bank and Credit to Private Sector decreased of Credit to Private Sector by 0.752, 14.278, 0.040, 2.094, 6.426, 9.762, 0.521, 0.0136 and 0.324 billion naira in that order.

Model One Fitness (R^2)

R-squared value of 0.725 as seen in Table 5 implies that the model explained about 72.5% variations in the Credit to Private Sector while the residue of 27.5% is explained by the white noise variables. Additionally, the degree of freedom adjusted R-square of 60.4% notwithstanding indicates a fair fitted and robust model. These statistics signify that the model is well fitted and stable in making informed decisions.

Joint Significance Testing, F-test

Hypothesis $H0_1$: (*the overall financial inclusion variables have no significant effect on the commercial bank intermediation in Nigeria).*

Hypothesis HA_1: (*the overall financial inclusion variables have significant effect on the commercial bank intermediation in Nigeria*)

Decision Rule: Reject H_0 if F-statistic is greater than F-critical at 5% significance level.

Statistics: F-Statistic = 5.992568

Probability (F-Statistic) = 0.000104

$F_{5\%(5,\ 34)} = 2.494$

F-statistic value of 5.992568 and its probability value of 0.000104 which is less than the F-Critical of 2.494 at 5% critical probability standard as shown in Table 4.8 revealed that the model is statistically significant. We therefore reject the null hypothesis and conclude that Rural Commercial Bank Loan, Rural Commercial Bank Deposits, Number of Microfinance Bank in Nigeria, Microfinance Bank Total Assets and Commercial Bank Loan to Small and Medium Scale Enterprises as a whole have significant effect on Credit to Private Sector.

Discussion of Findings

The study analyzed the individual impact of each financial inclusion measure as well as their joint influence on credit to the private sector in Nigeria. The results showed that all the financial inclusion parameters jointly had significant impact on credit to the private sector. Evidence of this was clearly shown by the F- Statistic value and its probability value as in table 5 leading to the rejection of the null hypothesis. The individual statistical test of significance showed that microfinance bank total asset, number of microfinance banks and one period lag variable of commercial bank credit to small and medium enterprises have positive influence on credit to the private sector. These findings support the results of the empirical study of Oba (2014) and Omojalaibi (2017) confirming that including the financially excluded in the official financial sector services has the ability to stimulate credit for private sector investment.

However, observing closely, the findings are that rural commercial bank loans, rural commercial bank deposits and commercial bank loans to small and medium scale enterprises have negative influence on credit to the private sector. This is an inversion away from the a priori expectation of the study. Indeed the influence of these inclusion measures on credit to the private sector is retrogressive. The current result is in conformity with the findings of Okoye, Adetiloye, Erim and Modebe (2017) which suggest that financial inclusion has not significantly supported credit delivery to the private sector in Nigeria. More so, the findings are in disagreement with the theory of linkage between finance and growth (Levine, 1999).

This may not be unconnected with the high cost of accessing bank credit from financial institutions in Nigeria which most rural bankers and small enterprises may not ordinarily afford. That attributes to the harsh business environment in the country, thus strangulating smaller investors into incessant extinction. It is a common knowledge that commercial banks' requirements to access credits are almost unaffordable to small investors. In some cases, where these loans are accessed, these little investors do not afford the repayment terms which most often ultimately liquidate their businesses. This reality is hampering the mobilization of every available fund to feed the surplus unit, hence limiting the operational efficiency of the intermediation function of the commercial banks. Interestingly, the positive significance of

microfinance total asset and the positive coefficient of number of microfinance bank in Nigeria according to the findings of this study implies that the microfinance banking is getting viable and robust by day in meeting the financial needs of rural dwellers and small business owners because of the ease of accessing their credit and easy mode of payment. From this evidence, it is more reliable and result oriented to run the financial inclusion policy via the microfinance banking.

Conclusion

This study examined the relationship between financial inclusion policy and credit to the private sector in Nigeria. The study found that 60.4 percent variation in credit to private sector in Nigeria could be traced financial inclusion policy as formulated in the regression model. Findings revealed that the individual statistical test of significance showed that microfinance bank total asset, number of microfinance banks and one period lag variable of commercial bank credit to small and medium enterprises have positive influence on credit to the private sector. The findings are that rural commercial bank loans, rural commercial bank deposits and commercial bank loans to small and medium scale enterprises have negative influence on credit to the private sector. This is an inversion away from the a priori expectation of the study. Indeed the influence of these inclusion measures on credit to the private sector is retrogressive. From the findings we conclude that financial inclusion policy has significant relationship with credit to private sector.

Recommendations

1. It is now imperative for the Central Bank of Nigeria to launch workable financial reforms and policies capable of enhancing the accessibility of credit to small and medium scale enterprises and rural investors and ensure adequate monitoring and implementation of the existing policies with a view to strengthening the financial inclusion policy and thereby promoting economic performance of Nigeria.
2. Monetary authorities should put measures in place to address financial exclusion of poor and low-income groups from the formal financial services. Measures that will address growing income inequality will be of great help in alleviating poverty in the country. Enhancing credit to lower income groups (micro-financing) will improve their access to financial services, which will in turn enable them undertake productive activities and experience increased welfare.
3. Financial players should build inclusive financial system that facilitate financial access and use, expand the portfolio of financial services available in the mainstream beyond banking and payments and incorporate informal financial institutions into the financial services ecosystem.

A robust awareness and sensitization should be carried out by the commercial and central banks on the usage and applications of electronic banking channels which is very elusive among the rural dwellers and low income earners. The cashless policy of the CBN will not be implemented partially but holistically if it will achieve the desired results.

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