

## FINANCIAL INCLUSION AND STANDARD OF LIVING IN NIGERIA

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### ABSTRACT

Financial inclusion is becoming a policy matter in both developed and emerging economies of the world since it has been seen as a proper and useful tool for poverty alleviation and economic growth. Against this background, this paper examines the effect of financial inclusion on the standard of living in Nigeria (1988-2017). Annual time series data was obtained from the CBN Statistical Bulletin for the period under study. Deposits of rural branches of commercial banks(DRBCB), Loans to rural branches of commercial banks(LRBCB),Loans to Agricultural sector(LAS),and Credit to private sectors(CPS)are proxies for financial inclusion which is the independent(explanatory) variable. While per capita income (PCI) is the proxy for standard of living which is the dependent (explained) variable. The study employed autoregressive distributed lag (ARDL) bound co-integration test for the analysis with the help of E-views 9.0. The outcome of the study showed that a long run relationship exists between Per Capita Income (PCI) and financial inclusion proxies. The results also showed that financial inclusion proxies have a mixed effect on Per Capita Income. While Deposits of Rural Branches of Commercial Banks and Private Sector Credit have a positive effect, Loans of rural Branches of Commercial Banks and Loans to the Agricultural Sector have a negative effect. The study concludes that since some of the proxies of financial inclusion positively affects the Standard of living and some have negative effects, a lot more need to be done to improve on the intermediation activities in order to include more people in the intermediation process. It therefore recommends among others that a better loan packaging strategy that meets the aspiration of small farmers and small business people especially in the rural areas should be introduced. Specifically, long term loans, low cost of acquiring loans, more monitoring and supervision of the loans are recommended. More branches of commercial banks have to be opened in many rural areas to increase the banking habit and wider access to bank credit.

**KEYWORDS:** Financial Inclusion, Standard of living, Credit to private sector, Deposits, Loans to Agricultural sector.

### 1. Background to the Study

One of the basic requirements to the development of an economy is proper and effective mobilization and circulation of finance in that economy. Improving standard of living makes financial inclusion a necessary concern for a developing nation like Nigeria. Inclusive financial arrangement is becoming a policy issue in both developed and developing nations of the world as it

has been perceived as a veritable tool for poverty alleviation and economic development. (Onaolapo , 2015) The primary concern of financial inclusion with respect to developing nations like Nigeria is to ensure the participation of the financial activities of all the sections of the economy most importantly the low income earners and household groups as it relates to mopping up their excess cash and making available credit to them for investment. In most emerging economies, most of their financial problems are traced to financial exclusion of the financial arrangements of some smaller economic units, groups or sectors of the economy. Generally, it is believed that the aim of financial inclusion is to extend the scope of activities of the organized financial system to include within its scope the people with low incomes. In the study of Nwankwo and Nwankwo (2014), it was asserted in their work that financial inclusion covers meaningful nation's financial service for financially underserved population of the developing nation(s) especially rural dwellers. Financial inclusion therefore, is where individuals and businesses have access to useful affordable financial products and services that meet their needs that are delivered in a responsible and sustainable way. It is also the availability and equality of opportunities to access financial services.(Wikipedia).

In Nigeria, the financial policies have been capturing the financial inclusion in the recent time; it has been a financial integral part of Nigeria financial industry reforms for over 30years. Dated back to the rural banking program in 1977 to the establishment of micro finance banks in the 2005, the government had introduced a lot of other programs for development of financial inclusion and some of them are; the institution of 300 banks in rural areas as in the 1970s and 1980s, also the provision of N300million (\$80million) to small and medium scale business between the period of 1988 and 1994. Introduction of Peoples Bank in 1989 which was later changed to Nigerian Agricultural Corporative and Rural Development Bank (NACRDB) in 2000, the Nigerian Deposit Insurance Corporation (NDIC) was also established through the NDIC decree of 1988 for consolidation of people confidences and deposit with banks, establishment of Agricultural credit Guarantee scheme fund in 1977. Also the recent innovations in Nigeria banking sector since 2005 such as the national micro financial policy, non-interest banking policy, financial literacy campaign, electronic banking and the cashless policy that saw financial inclusion rose from 23.6% in 2008 to 48.6% in 2014, and 45.4% in 2016 to 63.6% in 2018 (CBN, 2018).

## 1.2 Statement of the Problem

The global target has been to remove all the barriers, including education, gender, age, irregular income, regulation and geographical locations that have together contributed to the dearth of access to financial services by billions of adults all over the world (Kama and Adigun, 2013. Policymakers have thus, viewed financial inclusion as basic access for all citizens, highlighting its non-excludability and also its non-rivalness. Although gradual progress is being made to improve on financial inclusion, critical challenges of low financial literacy, inadequate infrastructural facilities as well as inadequate and inefficient technology based facilities by financial institutions, has limited the achievement of significant expansion in financial inclusion level in Nigeria.

Extant literatures have it that the financial inclusion policy is targeting at involving the financial activities of the poor, low income earners and cottage entrepreneurs to the financial system of a nation. This was evidenced in the works of Ajinaj and Odeyale (2017) who researched on microfinance and the challenge of financial inclusion for SME's Development in Nigeria. Also in the work of Okuma (2018) who researched on effects of financial inclusion on the growth of cottage firms in Nigeria: (1995-2016). Having reviewed these researches, it is evidenced that there are few or no such study on standard of living from the literatures reviewed.

However this study on the effect of financial inclusion on standard of living in Nigeria is imperative looking at the existence of numerous challenges faced by the lower class of the society in seeking for financial services of the conventional financial institutions. According to Soludo (2007), banking services are only available to about 40% of the Nigeria population and others do not have access to formal finance and are forced to rely on a narrow range of some risky and expensive informal service which constrains their ability to participate fully in financial markets to increase their income and contribute to economic growth which has standard of living as its segment. To attain better financial inclusion, financial services should get to the poor and socially excluded individuals and groups in our nation. Banks and other financial institutions have performed an important function in filling up this gap. Yet, it is still discouraging to note that the number of people with access to the products and services offered by the conventional banking system is still very insignificant even after introduction of various banking reforms and initiatives in the country through measures such as liberalization policy, reversal of deregulation policy, universal banking policy, consolidation policy etc. This work therefore, assists us to identify the involvement of deposit of rural branches of commercial bank, loans of rural branches of commercial banks, loans to agricultural sector, and credit to private sector, to achieve financial inclusion and the extent they go in the promotion of standard of living in Nigeria economy.

### **1.3 Objectives of the study**

The main objective of this study is to examine the effect of financial inclusion on the standard of living in Nigeria from 1980 to 2017. Other specific objectives are:-

1. To establish the extent to which the deposit of rural branches of commercial banks affect the standard of living in Nigeria.
2. To determine the extent to which loans by rural branches of commercial banks affect the standard of living in Nigeria.
3. To find out the extent to which loans to the Agricultural sector affect the standard of living in Nigeria.
4. To ascertain the extent to which credit to the private sector affects the standard of living in Nigeria.

## **2. REVIEW OF RELATED LITERATURE**

### **2.1 Conceptual Review**

## **Financial Inclusion**

Financial Inclusion is defined as a process or situation which allows for ease of access to, or availability of and usage of formal financial systems by members of the economy. It is described as a process where all members of the economy do not have difficulty in opening bank account; can afford to access credit; and can conveniently, easily and consistently use financial system products and facilities without difficulty (Kama and Adigun, 2013). Martinez (2011) identified financial access as an important policy tool employed by government in fighting and stimulating growth given its ability to facilitate efficient allocation of productive resources, thus reducing the cost of capital. Onaolapo (2015), in his research, defined financial inclusion as a process that ensures the ease of access, availability and usage of formal financial system by all members of all economy.

### **2.1.1 Deposits of Rural Branches of Commercial Banks:**

This proxy is seen practically in this study as the fraction of total deposit of rural branches of commercial banks in Nigeria. This shows the percentage of all the deposits of every rural dweller with the commercial bank branches in the country. The deposits involve depict how financial services are available and its usage by citizens of the country. It has been observed that adult populace formed the highest number of financially excluded especially in the rural areas of the Nigerian economy. In this perspective, their deposits in rural banks branches signify their ease of access to financial institutions and banking services.

### **2.1.2 Loans of Rural Branches of Commercial Banks:**

A loan in finance is money, property or other material goods given to another party in exchange for future repayment of the loan value with interest. The loans are seen in this work as the total loan advanced by rural branches of commercial banks to citizens in the rural areas. The essence of including this is because it is one of the financial inclusion variables in terms of financial access and usage. In the aspect of financial services usage, these variables no doubt takes account of the percentage of rural dwellers that have an account with formal financial institutions in Nigeria.

### **2.1.3 Loans to the Agricultural Sector:**

This is the percentage of loans given to the agricultural sector. Agricultural loans can be seen as loans or credit facilities extended to the farmers.

Agricultural Credit Guarantee Scheme Fund (ACGSF) is one of the schemes introduced by the Nigerian government to tackle the credit needs of the rural farmers and also improve domestic food supply in the country. The scheme provides guarantee covers to borrowers/ farmers up to 75% of any outstanding balance upon defaulting (Zakaree, 2014).. The beneficiary must be a farmer who has the ability to accept the cost, make available acceptable collateral. Also the activities to be sponsored must be during the season and within the list of eligible enterprises. The maximum credit of N1m for individual and N10m for corporate and cooperative societies which have maximum terms of 2years

are available. Okaro (2018), in his work Financial Inclusion and Nigeria Economy(1990-2015) used Loan to agricultural sector as one of the financial inclusion indicators.

## **2.1.4 Credit to the Private Sector**

Credit is an important instrument of acquiring command over the use of working capital, fixed capital and consumption goods ( Sarfraz K, 2008).

Domestic credit to private sector by banks can be seen as the financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of non- equity securities, and trade credits and other accounts receivables, that establish a claim for repayment ( Sarfraz K, 2008).For some countries, these claims include credit to public enterprises. Bank credit in Nigeria and other countries is defined as the credit given by the banking institutions to the private sector, both firms and households excluding the government. Credit is very important for an economy to function well. Availability of credit helps to fund new investments and allows people to purchase houses, cars, and other items. The world Bank provides data for Nigeria from 1960-2017 on Bank credit to private sector as percentage of GDP. The average value for Nigeria during that period was 11.9 percent with a minimum of 3.7 percent in 2009.

Private sector credit in Nigeria increased to 22723726.11 NGN Million in October from 22560470.56 NGN Million in September of 2018. Private sector credit in Nigeria averaged 9466880.46 NGN Million form 2000 until 2018, reaching an all-time high of 23069635.07 NGN Million in October of 2016 and a record low of 440872.30 NGN Million in January of 2000( [TRADINGECONOMICS.COM](http://TRADINGECONOMICS.COM) /CENRAL BANK OF NIGERIA(CBN)).

## **2.1.5 Standard of Living:**

The Consultative Group to Assist the Poor, CGAP (2007), in their report estimated that 80 percent of people in least developed countries are un-banked. The term un-banked refers to people who do not use simple banking services that the developed world and most people in urban areas take for granted, such as remittances and saving ( Elizabethwanguiwang'oo, 2013).Standard of living is a determinant of the material aspects of an economy. It counts the amount of goods and services produced and available for purchase by a person, family, group, or nation. The generally accepted measure of the standard of living is GDP per capita. This is a nation's gross domestic product divided by its population. The GDP is the total output of goods and services produced in a year by everyone within the country's borders. Real GDP per capita removes the effects of inflation or price increases. Real GDP is a better measure of the standard of living than nominal GDP (Investopedia).

## **2.4 Empirical Review**

Onaolapo A. R. (2015) examined the effects of financial inclusion on the economic growth of Nigeria from 1982-2012. Using OLS, the study tested hypotheses on how Branch Network, Loan to

Rural Area, Demand Deposit, Liquidity Ratio, Capital adequacy all proxies of financial inclusion influenced poverty reduction and Gross Domestic Product. The overall results showed that inclusive Bank financial activities greatly influenced poverty reduction but marginally determined national economic growth with Financial Intermediation through enhanced Bank Branch Networks, Loan To Rural Areas, and Loan To Small Scale Enterprise given about 50% relatedness between variables on either sides of the equations.

Nwankwo and Nwankwo (2014) examined the sustainability of financial inclusion to rural dwellers in Nigeria using descriptive study and content analysis. The study observed that the sustainability of financial inclusion to rural dwellers in Nigeria remains the mainstream for economic growth in any country and concluded that economy cannot grow fast without proper implementation of financial inclusion to rural areas in Nigeria. The study therefore, recommended the enhanced promotion of collaboration between Deposit Money Banks (DMBs), Microfinance Banks (MFBs) and Communication services providers for enhanced intermediation of financial services.

Seck, Naiya, and Muhammad (2017) used panel data approach to analyse the effect of financial inclusion on the households' welfare through consumption in Nigeria, basing the study on the data of Living Standards and Demographic survey of 2012-2013. Findings of the study showed that access to finance has a positive impact on households' consumption. The study recommended that Islamic finance could be useful in improving access to finance by attracting the voluntarily excluded segment of the population by offering them an alternative form of banking Okuma (2017) employing ex-post facto research design, examined the effects of financial inclusion on the growth of cottage firms in Nigeria using data covering the period 1995-2016. Applying Engle-Granger Co-integration Test and Error Correction Model Test, analysis showed that agriculture credit guarantee scheme fund (ACGSF), microfinance loans and advances (MFLA) and ratio of deposit money bank to SMEs to total credit and SMEs deposit with deposit money bank (SMEL) have a positive contribution to the growth of cottage firms while Small and medium enterprises Deposit with Deposit money bank (SMED) has a negative contribution, however, only MFLA was statistically significant in explaining the changes in the growth of cottage industries in Nigeria. This, notwithstanding, the result of prob.(F-statistics) 0.089752 showed that financial inclusion had no significant effect on the growth of cottage firms in Nigeria within the period of the study.

Wangoo (2013) conducted a study to critically examine financial inclusion and economic development in Kenya covering the period 2005 to 2011 by reviewing existing sources of detailed data on financial inclusion and economic development in the country. The study employed a mega - analysis research design using descriptive statistical approach, regression and correlation analysis of the SPSS research package. The study found out that there is a positive relationship between financial inclusion and economic development and an increase in financial inclusion leads to an increase in economic development. The study arrived at this conclusion based on the fact that the Pearson correlation matrix between human development Index (HDI) representing the dependent

variable and number of bank branches and number of bank accounts representing the independent variables were 0.985 and 0.952 respectively

Joseph and Varghese (2014) carried out a study to analyse the effect of financial inclusion in the growth of Indian economy and the initiatives taken by the banking institution in India to attain inclusive growth. This was done by analyzing five state bank group and five private sector banks as well as analyzing Bank growth rate in terms of number of bank branches, offsite and onsite ATM, usage of debit card and credit cards. It was observed from the study that the usage of debit card has increased tremendously throughout the study period and banks focused more on rural and semi-urban areas although the number of people with access to the products and services offered by the banking system continued to be very limited, in spite of the introduction of inclusive banking initiatives in the country a long time ago. The study however, concluded that financial inclusion contribute much to the development of Indian economy and there is further scope for achieving inclusive growth Yorulmaz (2012) examined financial inclusion and economic development in Turkey, as well as a cross country analysis of European Union. The study found that income is positively and significantly correlated with financial inclusion. The study equally showed that Human Development Index (HDI), inequality, and urbanization were statistically significant with the level of financial inclusion and that comparatively, Turkey has a lower financial inclusion level than several EU member countries although recent policy initiatives had a positive effect on level of financial inclusion in Turkey

Odeleye and Olusoji (2016) employed ordinary least square to examine the role of financial inclusion on the economic growth of Nigeria while also seeking to know the direction of causality between financial inclusion and economic growth in the country between 1981 and 2014. The study validated the finance led growth hypothesis and established that finance causes growth in Nigeria. With these findings, the study urged policy makers to focus more on long run financial policies that can enhance effectiveness of the financial sector both in the money and in the capital markets in promoting growth

Hariharan and Marktanner (2012) defined financial inclusion as access to formal financial services such as credit, savings and insurance opportunities. They assumed that lack of financial inclusion was a multifaceted socio-economic phenomenon that resulted from various factors such as geography, culture, history, religion, socio-economic inequality, structure of the economy and economic policy. In addition, they however noted that financial inclusion was a huge source of economic growth and development, adding that it was a strong and significant correlate of a country's total factor productivity and, therefore, possessed the ability to create capital. The study concluded that financial inclusion had the potential to increase the financial sector savings portfolio, the efficiency of financial intermediation, which allowed for tapping of new business opportunities.

Karlan and Zinman (2010) conducted a study on South African economy and found that access to consumer credit resulted to increased borrower's well-being through increasing income and food

consumption; improvement in decision making within the household, as well as borrower's status in the community in addition to overall health and outlook on prospects and position.

Sarma and Pais (2010) emphasized that financial inclusion as a process guarantees ease of access, availability and usage of the formal financial system to all segments of an economy. Equally, they opined that an inclusive financial system while enabling efficient allocation of productive resources reduces the cost of capital and in the process, significantly improves the daily management of finances. Furthermore, an inclusive financial system also contributes in reducing the prevalence of informal financial institutions that are in most cases exploitative. The study concluded that an all-inclusive financial system would enhance efficiency and welfare by providing avenues for secure and safe financial practices.

Park and Mercado (2015), examined the link between financial inclusion, poverty and income distribution in 37 Asian countries. They found that per capita income, rule of law, and demographic characteristics significantly affect financial inclusion in developing Asia. In addition, they established that financial inclusion significantly reduces poverty and lowers income inequality affirming both economic theory and empirical evidences which show that financial depth or in general, financial development has direct and indirect effects on small firms and poor households by making them take advantages of having greater investment opportunities, smoothing their consumption, and insuring themselves from risks Decanay, Nito and Buensuceso (2011) carried out an empirical investigation with international perspective on financial inclusion, microfinance and financial development for eighty countries Nkwede (2015) investigated the influence of financial inclusion on the growth of African economy, with Nigeria as a case study covering the period 1981 to 2013. The study adopted the multiple regression models anchored on Ordinary Least Square technique in estimating the contributions of the variables. The results showed that financial inclusion has a significant negative impact on the growth of Nigeria economy over the years. The study argued that this was attributable to a high level of financial exclusion of bankable adult citizens in Nigeria in particular and Africa as a whole and recommended more inclusive financial system in Nigeria (and Africa) with focus on the rural populace because in their opinion, growth is good, sustained high growth is better and sustained high growth with financial inclusiveness is best especially in the developing economy.

### **3. METHODOLOGY**

#### **3.1 Research Design**

This study employed the ex-post factor research design. The study relies on historical time series secondary data collected from the Central Bank of Nigeria's annual Statistical Bulletin from 1988 – 2017.

#### **3.2 Nature and source of Data**

The data used in this study are purely secondary data sourced from CBN statistical bulletin of 2017 and the figures of the data are the annual aggregates.

3.4 Model specification and Justification

Onaolapo (2015) studied Effects of financial inclusion on the economic growth of Nigeria using this model, GDP=F (FD1,FD2,LDR,LQR) where GDP = Gross Domestic Product, FD1 = Ratio of Broad Money to GDP (M2/GDP), FD2 = Ratio of Credit to Private Sector to GDP (CPS/GDP), LDR= Loan-to-Deposit Ratio and LQR = Liquidity Ratio.

In order to attain a robust result in the context of this work, the researcher instead of adopting, modified the models of one of the preceding researchers – the above model of Onaolapo (2015) . This work’s model tests for relationship between financial inclusion and standard of living. Per capita income (PCI) has been a reliable variable for measuring the economic well-being of the residents of a country. Based on the explanation of both the explanatory and the explained variables above, the study theoretically positions that standard of living in Nigeria is a function of the level of financial inclusion. However the study states the model of the effect of financial inclusion on the standard of living in Nigeria as follows,

STL = F(FI).....(1)

Where STL is proxied by PCI (Per Capita Income). PCI is an indicator of people’s standard of living and the general wellbeing of the individuals in a country.

FI = is proxied by DRBCB, LRBCB,LAS, and CPS.

The model is expressed in functional notation as:

PCI = F(DRBCB, LRBCB, LAS, CPS).....(2)

The model is expressed in econometric function as:

PCI = β + β DRBCB + β + LRBCB + β LAS + β CPS + μt.....(3)

PCI = Standard of living which is the dependent (explained) variable

β0 = intercept of the equation

DRBCB = ratio of deposits of rural branches of commercial bank to GDP (DRBCB / GDP)

LRBCB = ratio of loans of rural branches of commercial bank to GDP (LRBCB / GDP)

LAS = ratio of loans to agricultural sector to GDP (LAS/GDP)

CPS = ratio of credit to private sectors to GDP (CPS/GDP).

β1, β2, β3 and β4 are constants establishing the relationship between each of the explanatory variables to the explained variable, respectively. That is the coefficients of the independent variables in each model.

μ is the error term known as residual representing the factors not observed that influence the dependent variable other than the independent variables.

The data obtained were processed using e-views 9.0 statistical package.

3.5 Method of Data Analysis

The variables selected for measuring financial inclusion include; the ratio of deposits of rural branches of commercial bank to GDP (DRBCB /GDP), the ratio of loans of rural branches of commercial bank to GDP (LRBCB /GDP), the ratio of loans to agricultural sector to the GDP (LAS/GDP) and the ratio of credit to private sector to GDP (CPS/GDP). While the dependent variable, standard of living is represented by PCIG. The study however proceeded to examine the relationship between the explanatory (independent) variables and the explained (dependent) variable. The null hypotheses is tested using the t-statistic, the F-statistic and the P-values of the econometric software, Eviews 9.0.

### 3.5.1 Diagnostic Test

Preliminary investigations were carried out on the various time series data of the variables to confirm their stationarity. A Unit Root Test as a preliminary or diagnostic test is employed to determine the stationarity of the variables. For the results of data analysis to be reliable, the data should be stationary, if not, it will generate spurious or false results and this may lead to inconsistency in parameter estimates. Data is said to be stationary if it is well behaved i.e. has a constant mean wave. This implies that the data are predictable. Stationarity was determined by employing Augmented Dickey Fuller unit root test. The test was conducted under two specifications of the Augmented Dickey Fuller (ADF) Test, (1) intercept (11) trend and intercept. If the time series are stationary in their level then they are said to be integrated of order zero i.e 1(0), if the time series are stationary in their first differences, then they are said to be integrated of order one, i.e 1(1), if stationary in their second different, then they are integrated by order two i.e 1(2) (Nwakobi&Alajekwu, 2016).

### 3.5.2 Main Test (ARDL)

Co integration test was conducted using ARDL bound testing technique. And finally, coefficient estimation and testing of hypotheses was done employing the ARDL - Autoregressive Distribution Lag estimation method. The Null hypothesis of a unit root is rejected against the one sided alternative if the t-statistics is less than the critical value. Secondly, co-integration test was performed on the variables to ascertain their long run relationship. Stationality of the residuals at level signified that the variables were co-integrated and that a long run relationship exists between the independent variables and the dependent variable.

### 3.6 Apriori Expectation

The apriori expectation in each of the model is as follows:

$\beta_1 > 0$ ,  $\beta_2 > 0$ ,  $\beta_3 > 0$ ,  $\beta_4 > 0$ . This explains the theoretical linkage on the sign and magnitude of parameter of the specified functions.

> Sign indicates an improvement on standard of living as the explanatory (independent) variables increases by a unit. While,

< Sign means decrease on standard of living with a unit increase in the explanatory variables.

## 4. DATA PRESENTATION AND ANALYSIS

4.1 Presentation of Data

Table 4.2.0

	Year	PCI	DRBCB (M'N)	LRBCB (M'N)	LAS (B'N)	(CPS/GDP) (%)
	1987	273.47	1 , 2 2 9 . 2	4 9 2 . 8	2.4	8 . 5
	1988	257.29	1,378.4	6 5 9 . 9	3.1	8 . 5
	1989	260.99	5,722.0	3,721.1	3.5	7 . 3
	1990	322.84	8,360.1	4,730.8	4.2	6 . 7
	1991	280.30	10,580.7	5,962.1	5.0	6 . 9
	1992	292.36	4,612.2	1,895.3	7.0	6 . 4
	1993	153.65	19,542.3	10,910.4	10.8	1 0 . 1
	1994	171.67	4,855.2	1,602.2	17.8	8 . 1
	1995	264.30	8,807.1	8,659.3	25.3	6 . 2
	1996	315.97	12,442.0	4,411.2	33.3	6 . 3
	1997	315.55	19,047.6	11,158.6	27.9	7 . 7
	1998	274.99	18,513.8	11,852.7	27.2	7 . 7
	1999	300.61	15,860.5	7,498.1	31.0	8 . 1
	2000	379.12	20,640.9	11,150.3	41.0	7 . 7
	2001	351.80	16,875.9	12,341.0	55.8	9 . 4
	2002	459.46	14,861.6	8,942.2	59.8	8 . 2
	2003	512.65	20,551.8	11,251.9	62.1	8 . 2
	2004	648.82	64,490.0	34,118.5	67.7	8 . 2
	2005	807.89	18,461.9	16,105.5	48.6	8 . 3
	2006	1,019.74	3,118.6	24,274.6	49.4	8 . 0
	2007	1,136.83	3,082.3	27,263.5	149.6	1 1 . 2
	2008	1,383.89	13,411.8	46,521.5	106.4	1 7 . 7
	2009	1,097.66	3,296.2	15,590.5	135.7	2 3 . 1
	2010	2,327.32	20.8	16,556.0	128.4	1 8 . 0
	2011	2,527.94	20.2	19,980.3	255.2	2 2 . 5
	2012	2,755.30	19.7	22,580.0	316.4	2 1 . 1
	2013	2,996.96	20.5	739,923.3	343.7	2 0 . 2
	2014	3,221.68	480.3	988,587.9	478.9	2 0 . 4
	2015	2,655.16	248,295.0	144,768.6	1,870.6	1 9 . 9
	2016	2,175.67	376,308.9	156,050.2	1,979.8	2 1 . 7
	2017	1 , 9 6 8	359,389.8	743,580.7	2,012.3	1 9 . 6

Source: CBN Statistical bulletin

4.2.1 Unit Root Tests

The study employed the Augmented Dickey Fuller (ADF) Unit root testing technique to ascertain the stationarity of the variables in the study. The result is presented in Appendices  
 The summary of the unit root tests for the model is presented in Table 4.1 below.

**Table 4.2.1: Unit root tests**

Variable	TEST CONDUCTED	Mackinnon Critical Value at 5% probability level	Level Test Stat	Mackinnon Critical Value at 5% probability level	1 <sup>st</sup> Difference Test Stat	Order of Integration
PCIG	A D F	-2.967767	-5.575350	-	-	I ( 0 )
DRBCB	A D F	-2.967767	-2.470805	-2.971853	-9.276061	I ( 1 )
LRBCB	A D F	-2.967767	-3.395815	-	-	I ( 0 )
LAS	A D F	-2.967767	-1.034628	-2.971853	-5.051554	I ( 1 )
CPS	A D F	-2.967767	-0.763619	-2.971853	-5.682056	I ( 1 )

**Source: Output from views 9**

It can be seen from the summary of the result that there is a mixed order of integration, that is I(0) and I(1). This is justified by the fact that the Augmented Dickey-Fuller test statistic was in each case more negative than the t-statistic at the 5% level of significance. While PCIG and LRBCB are stationary at level, I(0), DRBCB, LAS, and CPS are stationary at first difference I(1). In such a result, the use of ARDL bound testing technique for co-integration test, and ARDL estimation technique are justified being that the most frequently used Engel - Granger and Johanson co-integration techniques are used only when data is stationary at first difference I(1).

**4.2.2 Co integration Test – ARDL) Bound Testing Co integration Technique**

Having established the stationarity of the variables and the order of integration, it became necessary to conduct co integration test in order to establish if there exists a long run relationship between standard of living as the dependent variable, and the explanatory variables, namely, Deposit of rural Branches of Commercial Banks (DRBCB), Loans of Rural Branches of Commercial Banks (LRBCB), Loans to Agricultural Sector (LAS), and Credit to Private sector (CPS).

Additionally, since the variables have a mixed order of integration, I(0) and I(1), a suitable test used to investigate if the variables cointegrate, implying that, they possess equilibrium relationship in the long run is the more advanced Auto Regressive Distributed Lag (ARDL) bound testing technique developed by Persaran and Shin (1999) and Pesran et al, (2001). The Akaike Info Criterion (AIC) is used in this regard, to select the maximum lag length. It has generally been stated that the ARDL bound testing and estimation technique is more robust than the commonly employed techniques like

Engel-Granger and also Johansen cointegration techniques. Its superiority lies in its flexibility as it can be used with I(0) or I(1) variables, or both, works well with small sample data, and provides unbiased estimation of long run relationship and long run parameters. By Distributed Lag (DL) variables we imply lagged values of observed exogenous predictor variables while Autoregressive (AR) variables are lagged values of observed endogenous response variables.

In the bound test, Pesaran and Pesaran (1996a), and Pesaran et al. (2001) give two sets of critical values. A set for the lower bound I(0) values assuming that all the variables are I(0) and the other for the upper bound I(1) values assuming that all the variables are I(1). Once the test is conducted, if the F-statistic so reported is greater than the lower bound values, then there is no cointegration. If the F-statistic is greater than the upper bound values, then the variables are cointegrated, implying that a long run equilibrium relationship exists between Standard of Living and the financial inclusion variables under study. The result will be inconclusive if the F-statistic value lies in-between the lower and the upper bounds. The results of the ARDL bound testing cointegration technique for the model under study is presented in table 4.2.

**Table 4.2: Result of ARDL bound testing for cointegration**

ARDL Bounds Test

Date: 03/09/19 Time: 14:40

Sample: 1989 2017

Included observations: 29

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	5.989812	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

**Source: Output from Eviews 9**

In the model, the F statistic of 5.989812 in table 4.2 above is greater than all the critical values at 1%, 2.5%, 5%, and 10%, of 5.06, 4.49, 4.01, and 3.52 respectively. This indicates the existence of a long run equilibrium relationship between the dependent variable, Standard of Living and the independent

variables namely, Deposit of rural Branches of Commercial Banks (DRBCB), Loans of Rural Branches of Commercial Banks (LRBCB), Loans to Agricultural Sector (LAS), and Credit to Private sector (CPS).

**4.2.3 Results of Autoregressive Distributed Lag (ARDL) Estimation Model**

The results of the bound test showed evidence of the existence of long run equilibrium relationships in the model. This implied that we could proceed to conduct further analysis of the model. In this regard, we employed ARDL estimation technique to estimate the various parameters in the models. The restructured result of ARDL model gives the short-run dynamics and long run relationship of dependent and the independent variables. The model was selected automatically using Akaike Info Criterion (AIC). Tables 4.3 gives the result of best ARDL model that was selected and table 4.4 presents the restructured ARDL results incorporating both the long run and the short run dynamics for model

**Table 4.3 ARDL model selected for the study (1, 0, 0, 0, 1)**

Dependent Variable: PCIG  
 Method: ARDL  
 Date: 03/10/19 Time: 17:52  
 Sample (adjusted): 1989 2017  
 Included observations: 29 after adjustments  
 Maximum dependent lags: 1 (Automatic selection)  
 Model selection method: Akaike info criterion (AIC)  
 Dynamic regressors (1 lag, automatic): DRBCB LRBCB LAS  
 CPS  
 Fixed regressors: C  
 Number of models evaluated: 16  
 Selected Model: ARDL(1, 0, 0, 0, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
PCIG(-1)	0.046706	0.158571	0.294540	0.7711
DRBCB	1.490571	12.81637	0.116302	0.9085
LRBCB	-22.82216	15.72793	-1.451059	0.1609
LAS	-29.53012	9.401797	-3.140901	0.0047
CPS	-7.303083	1.757907	-4.154418	0.0004
CPS(-1)	7.904627	1.883334	4.197147	0.0004
C	33.24438	11.22190	2.962456	0.0072
R-squared	0.619666	Mean dependent var		10.41517
Adjusted R-squared	0.515939	S.D. dependent var		27.99242
S.E. of regression	19.47560	Akaike info criterion		8.982707
Sum squared resid	8344.575	Schwarz criterion		9.312744

Log likelihood	-123.2492	Hannan-Quinn criter.	9.086070
F-statistic	5.973982	Durbin-Watson stat	2.116675
Prob(F-statistic)	0.000799		

Source: Output from Eviews 9

In table 4.3, the model selected automatically for the study is 1 0 00 1. The preceding year’s values of standard of Living have a positive but insignificant effect on current Standard of living while the preceding year’s values of Credit to Private Sector have a positive relationship and significant effect on Standard of Living, at least in the short run.

**Table 4.4 Re-structured ARDL results – short run and long run dynamics**

ARDL Cointegrating And Long Run Form

Dependent Variable: PCIG

Selected Model: ARDL(1, 0, 0, 0, 1)

Date: 03/10/19 Time: 17:53

Sample: 1988 2017

Included observations: 29

**Cointegrating Form (Short Run)**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DRBCB)	1.490571	12.816369	0.116302	0.9085
D(LRBCB)	-22.822157	15.727928	-1.451059	0.1609
D(LAS)	-29.530116	9.401797	-3.140901	0.0047
D(CPS)	-7.303083	1.757907	-4.154418	0.0004
CointEq(-1)	-0.953294	0.158571	-6.011769	0.0000

$$\text{Cointeq} = \text{PCIG} - (1.5636*\text{DRBCB} - 23.9403*\text{LRBCB} - 30.9769*\text{LAS} + 0.6310*\text{CPS} + 34.8731)$$

**Long Run Coefficients**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DRBCB	1.563600	13.451323	0.116241	0.9085
LRBCB	-23.940304	16.849227	-1.420855	0.1694
LAS	-30.976913	9.934431	-3.118137	0.0050
CPS	0.631017	0.877865	0.718808	0.4798
C	34.873149	11.672120	2.987730	0.0068

Source: Output from Eviews 9

**4.3 Discussion of Findings**

In the selected model for the study, Table 4.3, the error correction term (CointEq (-1) which is the equivalence of the Error Correction Model ECM (-1)'s coefficient - known otherwise as the adjustment coefficient is of the expected negative sign and also significant. This term tells the rate at which disequilibrium is offset in order to reach equilibrium. It measures the speed of adjustment. In other words, it shows how the rate at which the errors in the short term are corrected in order to reach equilibrium in the long run. The absolute value of the coefficient of the CointEq(-1) in Table 4.4 is 0.95 indicating that about 95% of the disequilibrium in Standard of Living (PCIG) is corrected by short-run adjustment in each year. In other words, 95% disequilibrium in the short-run between the endogenous and the exogenous variables is adjusted with in one period.

The R- square and adjusted R- square values of 0.6196 and 0.5159 respectively in the ARDL model (table 4.3) imply that about 52% variations in the dependent variables are explained by the explanatory variables in the model and 48% of changes in the Standard of Living in Nigeria are as a result of other factors represented by the error term ( $\epsilon$ ). The value of the F-statistic of 5.97 and Prob (F-statistic) of 0.00079 shows that the parameters in the model have a joint effect on the dependent variable, and that the effect is significant.

The re-structured ARDL model results in table 4.4 above give the short run and the long run dynamics of the selected model. The co-integrating equation for the model in the study is as shown below:

$$PCIG = 1.5636*DRBCB -23.9403*LRBCB -30.9769*LAS + 0.6310*CPS + 34.8731$$

The result of the long run and the short run dynamics (Table 4) reveal that Deposits of Rural Branches of Commercial Banks (DRBCB) had a positive but statistically insignificant relationship with changes in Standard of Living (PCIG) both in the short run, and in the long run. The long run coefficient of Deposits of Rural Branches of Commercial Banks (DRBCB) of 1.5636 implies that the a priori expectation is confirmed. On the contrary, the probability of 0.9 for DRBCB is greater than 0.05 at 5% level of significance and shows that the effect of Deposits of Rural Branches of Commercial Banks is insignificant presupposing that the null hypothesis be accepted and the alternate rejected. The implication is that as banking is brought closer to the people, the more the formerly unbanked become interested and begin to bank. The result is an improvement in their standard of living. Although the improvement is statistically insignificant, it portrays a positive development as far as financial inclusion strategy is concerned.

The coefficient of Loans of Rural Branches of Commercial Banks (LRBCB) and Loans to the Agricultural Sector (LS) of -22.822157 and -29.530116 in the short run; and -23.9403 and -30.9769 in the long run respectively show that both variables have a negative effect on Standard of Living (PCIG) in short run and in the long run. However, while both effects are significant in the short run, only Loans to the Agricultural sector (LAS) is significant in the long run. The null hypothesis of no

significant effect is therefore rejected since the probability of 0.005 is less than 0.05 at 5% level of significance. The negative coefficient shows that increase in agricultural loan will lead to a decrease in the standard of living in Nigeria, which is contrary to a priori expectation. Precisely, a unit increase in LAS will lead to a 30.97 unit decrease in PCI. The result is however consistent with the result gotten by Okaro (2016) when he regressed PCI and LAS in his study but is contrary to the result of a study by Onaolapo (2015) which showed a positive relationship between loans to Rural Areas and PCI within the period 1982 to 2015. The results in this study may however be signalling a problem in the method, nature, and magnitude of Loans of Rural Branches of Commercial banks and Loans to the agricultural sector. Most often than not, agriculture is practiced in the rural areas of Nigeria by the rural dwellers. Often times loans to these rural dwellers and farmers rather than make them improve on their conditions, actually make them poorer. It is common knowledge that these rural dwellers and rural farmers described by Ausberg (2011) as “a market of asset less and highly risky clients”, do not have what it takes to obtain medium and long term loans. In this regard, the little they obtain is usually misdirected and these results to difficulties in repayments – in some cases, Peter has to be robbed in order to pay Paul. This plunge them into more debts, hence rendering them poorer. For instance, Nkwede (2015) showed that financial inclusion has a significant negative impact on the growth of Nigeria economy over the years and argued that it was attributable to a high level of financial exclusion of bankable adult citizens in Nigeria especially in the rural areas. Sanusi (2011) on his part posited that the challenges of financial exclusion are responsible for the rise in poverty level in Nigeria. Also consistent with the result of this work is a study by Kama and Adigun (2013) which showed that progress in the expansion of financial inclusion in Nigeria has been marred by low financial literacy, insufficient infrastructural facilities as well as scanty and malfunctioning technology based facilities by financial institutions.

Credit to the Private Sector has a negative and significant effect on Standard of Living in the short run, and a positive but insignificant effect on Standard of Living in the long run. This implies that the null hypothesis of insignificant effect is thereby accepted and the alternate hypothesis rejected. Though insignificant, this result is in accordance with a priori expectation. It shows that financial inclusion through intermediation is to a less extent improving the standard of living of the Nigerian citizens. For there to be a significant CPS on PCI, a lot more still has to be done in improving the intermediation process especially deriving instruments that will meet the aspirations of the small business owners. These results are consistent with many others in extant studies. For instance, Okaro (2016) found a positive and significant relationship between CPS and Standard of Living.

## **5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Summary of Findings**

- 1) Deposits of Rural Branches of Commercial Banks (DRBCB) has a positive but statistically insignificant effect on Standard of Living (PCIG) both in the short run, and in the long run.

- 2) Loans of Rural Branches of Commercial Banks (LRBCB) has a negative but insignificant effect on Standard of Living (PCIG) both in the short run, and in the long run.
- 3) Loans to the Agricultural Sector has a negative and significant effect on Standard of Living (PCIG) both in the short run, and in the long run
- 4) Credit to the Private Sector has a negative and significant effect on Standard of Living in the short run, and a positive but insignificant effect on Standard of Living in the long run.

## 5.2 CONCLUSION

The study established that a long run relationship exists between Per Capita Income (PCI) and financial inclusion proxies, namely; DRBCB, LRBCB, LAS, and CPS. Also, the results show that financial inclusion proxies have a mixed effect on Per Capita Income in Nigeria. While Deposits of Rural Branches of Commercial Banks and Private Sector Credit have a positive effect, Loans of rural Branches of Commercial Banks and Loans to the Agricultural Sector have a negative effect.

The positive effect of financial inclusion on Per Capita Income is consistent with many studies including Park and Mercado (2015) who established that financial inclusion significantly reduces poverty and lowers income inequality, Seck, Naiya, and Muhammad (2017) who showed that access to finance has a positive impact on households' consumption, Yorulmaz (2012) whose study showed that income and Human Development Index (HDI) are each positively and significantly correlated with financial inclusion.

However, the negative effect of Loans to Rural Branches and Loans to the Agricultural Sector on Per Capita Income in this study may be signalling a problem in the method, nature, and magnitude of Loans to Rural Branches of Commercial banks and Loans to the agricultural sector. Often times, agriculture is practiced in the rural areas of Nigeria by the rural dwellers. Loans to these rural dwellers are short term with its associated high cost. Inadequate monitoring and follow-up usually lead to misdirection of loans resulting to difficulty in repayments. This usually plunge them to more debts rendering them poorer than they were, hence the negative relationship.

In general, therefore, the study concludes that in as much as financial inclusion positively affect the Standard of living in Nigeria, a lot more still has to be done to improve on the intermediation in order to include more people in the intermediation process.

## 5.3 RECOMMENDATIONS

- 1) More branches of commercial banks have to be opened in many rural areas, and the quantity of loans disbursed has to be increased so as to have a significant impact on the standard of Living.
- 2) Short, Medium and Long term loans, at low cost, increased loan monitoring and supervision are recommended.
- 3) Expansion and more inclusive private sector loans especially to small business owners with little collateral is recommended. This will enable CPS to have a significant impact on the Standard of

Living in Nigeria. Government and policy makers should embark on sensitization and awareness program on the benefits of partaking in conventional financial activities which is available for the citizens. These will educate them and enhance their knowledge about the services and the system. The government should support and encourage financial sector by licensing more microfinance institutions and as well encouraging them to have branches in the more remote rural areas.

## 5.4 Contribution to Knowledge

- 1) An updated data set (1988-2017) was used in investigating the effect of financial inclusion on standard of living in Nigeria.
- 2) This work also established a new model after modifying the models used by Onaolapo (2015) who studied the effect of financial inclusion on economic growth of Nigeria economy with a model  $GDP = F(FD1, FD2, LDR, LQR)$ . This work after the modifications and improvements on the models used by Onaolapo (2015), established a new model and added to knowledge as  $PCI = \beta + \beta DRBCB + \beta LRBCB + \beta LAS + \beta CPS + \mu t$ .
- 3) The work also employed Autoregressive Distributed Lag (ARDL) bound testing co-integration technique and ARDL estimation method which has more advantage and as well more robust compared to the traditional Engel-Granger or Johansen co-integration techniques for analysis making the findings and results more reliable. Considering these facts, this study has improved on earlier researches by different authors and also is able to establish the fact that financial inclusion has a significant effect on the standard of living in Nigeria

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