
EFFECTS OF FINANCIAL INCLUSION ON POVERTY ALLEVIATION IN NIGERIA

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Abstract

This study examined the impact of financial inclusion on poverty alleviation in Nigeria using econometrics model, for the period 2010 to 2021. The data was sourced from the United nation office for coordination of Humanitarian affairs-UN-OCHA indicators, 2021, the Central Bank of Nigeria financial inclusion report, the world bank financial inclusion indicator and the united states agency for international Development USAID 2020 report. The study employed the ordinary econometrics regression technique. Financial inclusion is found to exert significant impact on per capita income, reduces poverty level and improves standard of living. Specifically, the result shows that not for profit organization (NGO) cash transfer activities had exerted positive impact on per capita income, increase standard of living and contributes to poverty alleviation. The finding also reveals that number of automated teller machines/ point of sale services enhanced financial inclusion, income generation and poverty alleviation and was statistically significant. The study recommends that the Central Bank of Nigeria needs to come up with effective monetary policies that can influence financial inclusion and alleviation of poverty. This will encourage accessibility to financial services at affordable cost for poverty alleviation purposes.

Keywords: Financial inclusion, Poverty alleviation, per capita income, poverty index

1. INTRODUCTION

Financial inclusion has continued to assume increasing recognition across the globe among policy makers, researchers and development oriented agencies. Its importance derives from the promise it holds as a tool for economic development, particularly in the areas of poverty reduction, employment generation, wealth creation and improving welfare and general standard of living.

The increasing level of poverty and hardship affecting the common man like artisans and the unemployed in Nigeria has been a major concern to the not for profit organization and the general public. The World Poverty Clock (2018) reported that, Nigeria has overtaken India in February 2018 as the country with the largest number of poor people. The statistics further reveals that 82 million Nigerians or 42.4 percent of Nigeria's population live in extreme poverty. According to World Bank (2003), living in extreme poverty implies living under N684 per day. In the light of present economic challenges in Nigeria, there is no doubt this contributes to the inability of persons to meet their minimal survival needs. The aim of the Sustainable Development Goals of the United Nations as outlined in 2015 is to eradicate poverty for all people everywhere by the year 2030 in developing countries, including Nigeria. Despite this, poverty rate is increasingly high in Nigeria given the World Poverty Clock (2018) report.

Intuitively, poverty prevalent in Nigeria may not be unconnected with unstable economic policies of governments. For instance, unemployment is on the ascendancy in addition to difficulty being faced by poor and low income earners like artisans in accessing financial services from the financial sector for entrepreneurship purposes (Igbinosa & Ogbeide, 2016). Persons who are entrepreneurially inclined do not easily access funds from the conventional banks in Nigeria to effectuate their vision, ambitions, goals and aspirations. This may not be unconnected to some bottlenecks like high interest rate, stringent collateral requirements by the commercial banks and sometimes by some microfinance banks, lack of information about access to cheap funds, unstable network in using banks' facilities like the automated teller machines / POS, among others. There are constant yearnings by both the middle and low income earners to be financially inclusive. This is to enable them enhance investment in productive ventures, influence income generation and promoting good standard of living, consequently alleviate poverty considerably.

Financial inclusion as a concept in this research may be seen as having access to finance, especially cheap funds for investment purposes and access to information and knowledge about finance for investment aim (Igbinosa & Ogbeide, 2016). In the view of Flannery (2018), financial access should be for everyone and access to credit allows people to invest in their future, whether buying books for school or paying tuition fees, purchasing inventory for their shops, or undertaking one investment or the other. This should be with the expectation of income generation, alleviating poverty, thereby promoting good standard of living, enhancing individual capacity development and creating value addition in the larger society. Financial inclusion has the propensity to reduce poverty rate and unemployment. In Nigeria to be specific, poverty appears to be a chronic social-economic disease adversely affecting mankind. Majority of the domestic and public violence often witnessed have poverty

as one of the roots causes (Onaolapo, 2015).

However, one of the panaceas may not be far from financial inclusion (Onaolapo, 2015). So, financial inclusion in the context of this paper may be regarded as one of the efficacies for poverty alleviation in Nigeria. It could be a necessary factor to advancing entrepreneurship development given there is proper orientation; sensitization and education of both urban and rural dwellers. Sanusi (2011) opines that the rise in poverty level in Nigeria is due to the challenges of non – financial inclusion and achieving optimal level of financial inclusion in Nigeria means empowering seventy percent (70) of the population living below poverty level as this would boost growth and development.

In an emerging country like Nigeria, the importance of financial inclusion cannot be over emphasized. It assists the poor and low income earners to access financial services. Financial inclusion promotes savings, deposits, enhances capital accumulation, and engenders accessibility to financial services, investments accelerating growth of the economy. Accessibility to financial services implies people have more branches of both deposit money and microfinance banks located near them. This enables them optimize the various products / services at a cheap cost. Financial inclusion most often targets the very low income earners who generate income from one source of business to the other. In an emerging country like Nigeria, there is no doubt greater chunk of idle funds are held in the hands of several millions of the low income earners who engage in one little business or the other. Access to financial services allows these low income earners to save outside their dwelling house (Mehrotra, 2009).

The World Bank particularly considers individuals as financially included provided they have access to a bank account or digital wallet (mobile money). The 2014 Global Findex Report indicates that there are over 1.7 billion adults currently unbanked globally and 4 percent are Nigerian. The Business Day Newspaper of 25th April, 2018 reports that financial inclusion in Nigeria stands at 39.7 percent, a drop from 44.4 percent in 2014, an apparent indication that the number of adults with access to accounts has declined. The report also shows that access to bank account dropped from 44.2 percent in 2014 to 39.4 percent in 2017. This appalling occurrence has two side effects. First it promotes de-savings with the financial institutions, be it commercial bank or micro finance bank. Secondly it predisposes the low income earners to save with informal financial institutions like social clubs and other third party, thus engendering risks and financial exclusion. In the same vein, the Central Bank of Nigeria's pursuit of job creation, financial inclusion and growth seems to be concentrated on small and medium scale enterprises (SMEs) rather than individuals and households both in urban and rural areas who are often at the bottom line of poverty scourges (Okafor, 2012).

CBN-2021 National financial inclusion Policy statement, due to the attendant value attached to financial inclusion, most deposit money banks in Nigeria have continued to display an uncommon drive for customers who are low income earners through the marketing unit to open savings account. Some of the commercial banks like Access bank have long been operating what could best be regarded as kiosk banking where people of low income can easily make a deposit and also optimize the benefits of services there from. Microfinance banks are even more aggressive in this drive in attempt to promoting financial inclusion. Both the microfinance banks and some deposit money banks do encourage low – income earners otherwise referred to as the “poor” to open a daily collection card, persuade them to have savings habit, thus enabling them have access to investible funds and other financial services. Interestingly, financial inclusion makes it possible and easy for large number of persons to be free from the difficulties in opening bank account(s); gaining access to fast credit, conveniently and consistently use financial system products / facilities. The goal of financial inclusion is to ensure every member of the larger society have access to finance at the cheapest possible cost to finance business opportunities that ultimately bring about a constant flow of at least variable income which then assist to reduce poverty, enhance standard of living, thereby reducing social vices in the larger society.

In the light of prevailing global challenges, like fluctuation in exchange rate, inflation rate and unemployment rate, there is no doubt financial inclusivity is critical to poverty alleviation, removal of barriers to active economic commitment of rural and urban dwellers, which encompass both men, women, youths and who may also be regarded to be at the bottom of poverty. Among the members of the Nigerian society, the rural dwellers seem to suffer most from financial inclusion. For example, banks are not located in some rural areas, perhaps due to bad roads, security challenges, electricity and other problems. The little the so-called low income earners earn is not banked and they have difficulty saving it. Never the less these myriad pockets of challenges, some micro finance banks like the Lift Above Poverty Organization (LAPO), NGO's Village savings and loan association (VSLA) and others through effective strategies have continued to expand in length and breadth by opening different branches and cooperative societies in many nooks and crannies in urban areas as well as penetrating deeply into rural areas in Nigeria. The aims are to reach out to the very low income earners, encourage them to save, access credit (loan) facilities at least on a micro basis for profitable investment, consequently enhancing income generation, thus lifting them above poverty level. -CBN 2021 financial inclusion

Poverty level is often indicated with poverty index. Literarily, the lower the index, the better is the standard of living of citizenry. Existence of standard of living of citizenry in a nation is a function of the level of per capital income at the disposal of the people.

Therefore, improvement in the per capita income of people enhances their standard of living and poverty alleviation (Fadun 2014).

This paper is structured into four sections. Section two concerns review of related literature, section three is the methodology section four is empirical analysis while section five is conclusion and recommendations.

Problem Statement

To the best of the knowledge of the researcher, there are little empirical studies which have examined how commercial bank branches per 100,000 adults, depositors with commercial banks per 1000 adults, borrowers of commercial bank per 1000 adults and users of automated teller machines per 100.000 adults arising from the use of bank account by individuals and households as financial inclusion indicators contribute to poverty alleviation in Nigeria (Ogbeide, 2019). Thus, this research seeks to ascertain how financial inclusion contributes to per capita income as well as poverty alleviation in the Nigeria context.

Literature Review

Financial Inclusion

The common concept of financial inclusion is the provision of contact to and usage of different and affordable financial services. The use of and access to financial services is one of the major drivers of economic growth. Financial inclusion covers continuous, important, cost effective and relevant financial services for the poor population (Odi & Ogonna, 2014). The centre for financial inclusion (2013) states financial inclusion as the state where people who can make use of the financial services have access to quality financial services, given at affordable prices, in an appropriate manner and dignity for the client. According to the Reserve Bank of India financial inclusion is the process of guarantying access to relevant resources and financial services needed by the low income group at an affordable price in a transparent manner by the mainstream institutional players.

According to Ashley (2020) the increase in transaction volume and value in 2020/2021 was likely driven largely by “people who are already banked using some new digital financial services or using digital channels more.”

Immanuel said, for example, someone who was previously banked but still traveled to the market to purchase goods with cash may have started using an online delivery service and making payments electronically, or that person may have taken a loan from a Financial Technology (FinTech) for the first time, due to the COVID-19 pandemic.

“When banked Nigerians start using more or additional digital financial services, that is beneficial for the Nigerian financial system and economy but does not drive financial inclusion in the sense of helping unbanked or financially excluded adults' access formal financial services for the first time,” she said.

Financial inclusion means that people have access to basic financial services like a savings account, credit and insurance. A higher exclusion rate in Nigeria could lead to a poorer population as lack of access to credit and insurance puts them at an economic disadvantage.

Nigeria did not only miss its overall financial inclusion target, but it was unable to also achieve other sub-targets outlined by the Central Bank of Nigeria.

Below are the facts behind Nigeria's financial inclusion figures.

38.1million

38.1 million of the country's 106 million (18 years and above) adults or 36 percent of Nigerian adults remain completely financially excluded. This is a shortfall by 16 percent points from the desired target of a 20 percent exclusion rate.

The 2012 strategy by the Central Bank of Nigeria (CBN) had also aimed to reach 70 percent of Nigerians with formal financial services by 2020; the actual figure reported by the Enhancing Financial innovation and Access (EFInA) on Thursday showed it was 51 percent. A shortfall by 19 percent points **1.5million**.

With a tepid 0.9 percent growth, Nigeria's financial inclusion rate improved to 64.1 percent in 2020 from 63.2 percent in 2018. This means that its financial exclusion rate slowed marginally from 36.8 percent in 2018 to 35.9 percent in 2020. However, the excluded adult population of 38.1 million reported in 2020 was higher than the 36.6 million recorded in 2018, meaning 1.5 million adults fell into the excursion circle in the last two years to 2020.

“At our current rate of progress, we will not reach the 2020 financial inclusion targets until around 2030,” Immanuel said.

Financial inclusion means that people have access to basic financial services like a savings account, credit and insurance. A higher exclusion rate in Nigeria could lead to a poorer population as lack of access to credit and insurance puts them at an economic disadvantage.**45%**

A breakdown of the Enhancing Financial innovation and Access report showed that Nigeria did not only miss its overall financial inclusion target, it was unable to also achieve other sub-targets outlined by the Central Bank of Nigeria.

Africa's largest economy planned to ensure that its adult population that has a transaction account with a regulated financial institution and/or has made an electronic payment through a regulated financial institution in the last 12 months will be 70 percent at the end of 2020 but only 45 percent was achieved, leaving 25 percent point's gap.

It was the same for savings, as only 32 percent was achieved, 28 percent short of its 60 percent target.

The 40 percent target for credit was also not achieved as a 37 percent gap was reported in 2020, meaning only 3 percent of the target was achieved.

Out of the 40 percent target set for the insurance inclusion, only 2 percent was achieved, meaning 38percent of the target was unreachd.

"We can reach these targets much faster if we follow paths taken by other African countries that have seen rapid financial inclusion growth due to mobile money," Immanuel cited.

11.5%

Analysis of the EFlNA report revealed that Nigeria's financial inclusion gender gap persisted in 2020 as the difference between men with access compared to women remained in the review period.

While there was a slight reduction in the exclusion rate for both male and female by a paltry 0.7 percent and 1 percent respectively, the number of banked male adults was put at 50.6 percent as against the 39.1percent reported for females, a gap of 11.5 percentage points. Slightly slower than the 24-percentage points gap reported in 2018.

According to the result of Enhancing Financial innovation and Access survey, rural adults are still more excluded because banking services are not getting to the communities. While the data, however, showed there was a slight increase in inclusion among the rural population as informal financial services continued to be dominant in the rural areas, 44.2 percent were reported to be financially excluded as compared to the 19.9 percent in the urban areas.

The use of digital financial services and agent networks, according to EFlNA's Access to Financial Services Surveys, started to grow significantly between 2018 and 2020. Phone ownership has also increased, with 81 percent of Nigerians now owning mobile phones.

"Now is the time to build on this initial progress and drive faster financial inclusion growth through digital financial services such as mobile money," Immanuel said.

According to her, “Nigeria can do this by creating an open and level playing field for a wide range of providers, creating the right environment for Fintech to thrive, and encouraging partnerships between different providers.” 45% compared to its African peers, Nigeria has a fairly large banked population (45%) but also has the highest proportion of financially excluded adults at 36 percent. Rwanda in 2020 reported a 36 percent banked population but has far less excluded adults at 7 percent. With a banked population above 40 percent Kenya has about 83 percent of its adult population financially included leaving only about 17 percent out of their financial system.

A further breakdown of the report showed that regional differences in financial access persist, with troubling regression in the North West. While South-West passed the target of 20 percent national exclusion, South-South was closer to meeting the target and North Central and South-East were within the range to reach the exclusion target of 20 percent. Both these regions have seen a significant reduction of the excluded population by 5 percent and 4 percent respectively. However, North East and North West, the regions with the most security challenges in the country, are unlikely to reach the exclusion target anytime soon. The latter has recorded an increase in the excluded by 5.4 percentage points.

According to the report, adults residing in communities with the financial access point (FAP) are more likely to be financially included. These FAPs include banks, ATMs & Microfinance institutions. EFInA data revealed that 46 percent (25million) adults living in communities where there are no FAPs or no FAPs in or around them are financially excluded. 51 percent of Nigerian adults are using formal financial services, such as banks, microfinance banks, mobile money, insurance, or pension accounts, up from 49 percent in 2018. This was largely driven by growth in banking, with 45 percent of Nigerians banked in 2020, up from 40 percent in 2018.

Hastening the licencing of the much-anticipated payment service bank (PSB) to help deepen access, especially in the rural communities, where the majority of Nigeria's excluded population live is one of the ways analysts believe Nigeria can grow its financial inclusion rate. MTN and Airtel recently received approval in principle for the PSB permit, more than two years after they applied.

- Financial inclusion has been identified as an enabler for 7 of the 17 Sustainable Development Goals
- The G20 committed to advance financial inclusion worldwide and reaffirmed its commitment to implement the G20 High-level principles for digital financial inclusion.

- The World Bank Group considers financial inclusion a key enabler to reduce extreme poverty and boost shared prosperity.

Poverty

Poverty is a social problem experienced by people having limited economic resources and a low standard of living (Umar, 2013). Aduda and Kalunda (2012) established that poverty is a humiliation to humanity, efforts around have been put together to remove it. In developing country like Nigeria, the reality of poverty cannot be denied. The intensity of poverty on peoples' life these days and most especially in Nigeria is very alarming and worrisome! Poverty is robbing people of their safety, stripping people not only of safe water, adequate food, clothing and shelter, education and health, but constantly predisposing youths to blood ritual practices and other get rich evil syndromes. Poverty is not just about physical disadvantage; it is also about lack of opportunity and loss of hope. Poverty is one of the worst causes of violence either at family level or in the general society. According to Ogwumike (2001), poverty is a situation where people have low or inadequate income to meet the basic needs of life. Olowononi (1982) sees poverty as living in a low grade environment and inadequate social amenities. According to Atolaye and Bamidele (1997), poverty is the lack of basic necessities.

Poverty in this study may be seen as a situation where persons lack the basic needs of life like foods, clothing and shelter. It is a state where whereby people are destitute of basic resources such as financial and material resources to meet the essential needs of life. Poverty could be absolute or relative. Absolute poverty may be seen as a condition whereby people are unable to obtain adequate resources to get a minimum amount of physical health. Relative poverty is a situation where persons cannot afford and enjoy a level of living standard. Both absolute and relative poverty are a function of per capita income level at the disposal of individuals in an economy. In Nigeria, Aluko (2011) notes that the level of poverty is immensely high, with about two thirds of the population below the poverty line especially in rural areas.

Alleviating the scourge of poverty is a function of enabling government policies and concerted efforts by individuals in a country. This presupposes that variables that can influence poverty alleviation are a concern on theoretical and empirical fronts. By simple clarification, poverty alleviation is a set of measures, which include both economic and humanitarian which goals are meant to permanently lift people out of poverty (Onaolapo, 2015). It is also involves improving the living conditions of people who are already poor. Poverty alleviation may be achieved by increasing income generation. Income generation should imply people have access to at least micro loans or loan facility from conventional banks for investment and productivity purpose. This obviously creates self-empowerment and wealth creation which eventually leads to

poverty reduction.

Empirical Literature

Fadun (2014) examines financial inclusion, tool for poverty alleviation and income redistribution in Nigeria. Structured questionnaires were administered to some selected respondents in the study area. This consequently favoured the use of descriptive statistics to analyze the data generated. The study finding indicates that financial inclusion serves as a veritable tool for alleviating poverty as well as income redistributing in Nigeria. Similarly, the report by Enhancing financial innovation and Access (2010) shows that 53.7% of persons in Nigeria urban centres are financially served, 46.3% are financially excluded, 36.63% are formally served (included), 17.49% are informally served (included) 30.0% are banked while 6.3% are other financial institutions. Similarly, the record also shows that on the basis of zones in Nigeria, North West had 13% formally banked, 13% are informally served, 68% are financially excluded. In North Central (FCT), 27% were formally banked, 23% were informally served, 44% financially excluded. In south west (Lagos), 42% were formally banked, 18% were informally served, while 33% were financially excluded. 15% were formally banked, 11% were informally served while 68% were financially excluded in the North East, 41% were formally banked, 21% were informally served and 32% were financially excluded in the South East. In the South –South, 39% were formally banked, 19% were informally served while 36% were financially excluded, 80.4% freely excluded from formal and informal financial services live in rural areas while the remaining 19.6% live in urban areas of Nigeria (EFINA, 2010).

Reasons put forward for this problem include physical distance to bank branches in most rural areas is long and this pose high cost for accessing financial services, secondly there is lower economic activity in rural areas which affects the profitability of financial institutions. Thirdly a lower degree of education and financial literacy in rural areas reduces the tendency for clients to make use of financial products. Fadun (2014) notes that about 54.4% of women in the rural area are financially excluded while 73.8% which are below 45 years mainly youth are financially excluded. In the same vein, about 34.0% of the uneducated are financially excluded in the rural areas while 80.4% of the rural residents are financially excluded. The implication of these startling findings is unprecedented increase in poverty rate in Nigeria. This can only be remedied if there is adequate orientation, sensitization, and education, encouragement of microfinance banks and good network of roads in the rural areas and in some urban centres of Nigeria.

Burgess and Pande (2005) studied the effect of rural banks on poverty reduction in India for the period 1972 to 2003. Ordinary least squares multivariate regression

technique was used in the data analysis. The finding reveals that rural bank branches in India influences poverty reduction. The researchers were of the view that citing bank branches in rural areas was a necessity for poverty alleviation. Brune, Gine, Golberg and Yan (2011) report that increased commitment in opening savings account in rural areas of Malawi alleviate the economic hardship.

Park and Mercado (2015) empirically examine financial inclusion, poverty and income inequality in developing Asia. The ordinary least squares and error correction mechanism were used to analyze the data. The finding revealed that per capital income is significantly related with financial inclusion. The researchers emphasized that financial inclusion significantly reduces poverty and lowers income inequality. Onaolapo (2015) empirically assessed how financial inclusion is related to the economic growth of Nigeria in the reference period 1982 and 2012 with the use of multivariate regression method. The finding showed that the number of bank branches, loan to the rural area and agricultural credit guarantee scheme fund increase per capital income, suggesting that financial inclusion significantly reduces poverty in Nigeria.

Ene and Inemesit (2015) examined the impact of microfinance in promoting financial inclusion in Nigeria for the period 1990 – 2014 using ordinary least squares method. The research result also indicated that access to microfinance minimum deposit amount has significant effect on savings account opened by rural dwellers while microfinance interest rate revealed a negative and non-significant relationship with financial inclusiveness of the rural dwellers particularly by way of loans and advances. Nwankwo and Abah (2013) examined the impact of microfinance on rural transformation in Nigeria using descriptive analysis. The findings showed that microfinance is positive on the rural poor through enabling them access finances for farm purpose, other business opportunities for income generation purpose, thereby mitigating the adverse effects of poverty.

Olumuyiwa and Oluwatosin (2012) empirically examined the effect microfinance banks have on income generation and standard of living of hairdressers in some part of Nigeria, specifically in Oshodi-Isolo local government Area of Lagos State. The intriguing finding was that microfinance bank contributes significantly to poverty mitigation among the target respondents in the local government area of Lagos State. Okpara (2010) investigated the impact of microfinance on poverty alleviation in Nigeria using regression analysis. The finding identified five factors like low profit; high prices of commodities, hard economic times, and lack of finance to start or expand business were critical factors contributing to poverty. Olucombo (2011) points out that microfinance banks have positive effect on poverty alleviation. This is made possible through accessibility to finance for investment purpose. These above prior literatures failed to investigate how financial inclusion indicators like commercial

bank branches per 100,000 adults, depositors with commercial banks per 1000 adults, borrowers of commercial bank per 1000 adults automated teller machines per 100.000 adults could contribute to per capita income and consequently the alleviation of poverty among the rural and urban dwellers in Nigeria. These gaps necessitate the reason why this study is undertaken with a view to contributing to knowledge.

3. Research Methods

The study adopted a causal-comparative method of research design. Time series data for the research was extracted from the Apex Bank of Nigeria Statistical Bulletin various issues, National Bureau of Statistics and World Bank indicators in the period, 2002 to 2015 and used for the econometric analysis. Annual data for the periods of 2004 – 2019 were extracted from the Apex Bank in Nigeria (CBN) through the World Bank Indicators statistical bulletin 2019 online edition was used to measure the econometrics models. The numerical methods adopted are Ordinary Least Square (OLS) and Error Correction Model (ECM) method of regression analysis. The model estimates the stationary test that was conducted to examine the scholastic properties by avoiding spurious regression estimated results. The Augmented Dickey-Fuller (ADF) test was conducted to investigate the stationarity properties through the time series test. The null hypothesis was tested at 5% level of significance. The financial inclusion scheme was measured with the following parameters; Loan to Depositor Ratio (LDR), Loan to Rural Areas (LRA), Financial Deeping Indicators (FDI) and Social Investment Loan (SIL) while poverty alleviation was measured with Poverty Index (PI) and Per Capita Income (PCI) respectively.

The econometrics model was employed to test the null hypothesis postulated for this study. However, a model adopted from the work of Oladele, Aribaba, Ahmodu and Ajayi (2018). The model stated as follows:

$$FP = \beta_0 + \beta_1 PROF + \beta_2 FS + \beta_3 FINLEV + \beta_4 INDST + it \dots\dots\dots(Eqn. 1)$$

The above econometrics model was modified to accommodate the variables in stochastic forms as:

$$PI = \beta_0 + \beta_1 LDR + \beta_2 LRA + \beta_3 FDI + \beta_4 SIL + it \dots\dots\dots(Eqn. 2)$$

$$PCI = \beta_0 + \beta_1 LDR + \beta_2 LRA + \beta_3 FDI + \beta_4 SIL + it \dots\dots\dots(Eqn. 3)$$

PI = Poverty Index as a proxy to poverty alleviation

PCI = Per Capita Income as a proxy to poverty alleviation

LDR = Loan to Depositors Ratio (per 10,000 adults) measure financial inclusion.

LRA = Loan to Rural Area (per 10,000 adults) measure financial inclusion.

FDI = Financial Deeping Indicator (per 10,000 adults) measure financial inclusion.

SIL = Social Investment Loan (per 10.000 SMEs) measure financial inclusion.

β_0 = intercept

β_{1-4} = coefficients of poverty index and per capita income

Σ_{it} = Stochastic error term.

Table 2. Descriptive Analysis of the Variables

	PI	LDR	LRA	FDI	SIL
Mean	65.12706	3.571765	34.95144	13.53765	6.267882
Median	68.70000	4.938000	46.09540	0.000000	4.444000
Maximum	112.4700	6.513000	66.18900	30.82000	16.07500
Minimum	0.000000	0.000000	0.000000	0.000000	0.000000
Std. Dev.	39.90429	2.816826	28.87362	14.85550	6.340357
Skewness	-0.807611	-0.423998	-0.226606	0.139508	0.261318
Kurtosis	2.190304	1.375595	1.341287	1.046930	1.410478
Jarque-Bera	2.312390	2.378435	2.094351	2.757069	1.983140
Probability	0.314681	0.304459	0.350928	0.251948	0.370994
Sum	1107.160	60.72000	594.1745	230.1400	106.5540
Sum Sq. Dev.	25477.64	126.9522	1333897.	3530.976	643.2020
Observations	15	15	15	15	15

Source: E-VIEWS 8.0 Output, (2020)

Table 2 observed that the average value of poverty index (PI) was (65.12%) with the maximum value of (112.47%). Loan to depositors' ratio (LDR) per 10,000 adults average value was (3.57%), with the maximum value of (6.51%). Loan to rural areas (LRA) per 10,000 adults' average value was (34.95%) with the maximum value of (66.18%). Financial Deeping Indicator (FDI) per 10,000 adults was (13.53%) with the maximum value of (30.82%). The average value of social investment loan (SIL) per 10,000 SMEs was (6.26%) with the maximum value of (16.07%) in the periods observed. The reason behind the unabated level of poverty in Nigeria is quite clear from the descriptive analysis above. For instance, the percentage of Loan to depositors' ratio (LDR) per 10,000 adults, Financial Deeping indicator (FDI) per 10,000 adults, and social investment loan (SIL) per 10,000 SMEs are very low while the percentage of Loan to rural areas (LRA) per 10,000 adults' who have access to agricultural loan services are very low despite the percentage of loan inclusiveness among the northern farmers. Therefore, financial stakeholders need to do more to alleviate the poverty level in our dear country.

4.2. Presentation of Equation Model Two

Table 3. Diagnostic Tests Results

Variance inflation factors (VIFs)		
	Uncentered VIF	Centered VIF
C		3.978
LDR		7.450
LRA		2.868
FDI		9.780
SIL		6.248
Breusch – Godfrey – serial correlation LM test		
F-statistic = 2.471		Prob.F(2, 18)
Obs * R-squared = 4.864		Prob.Chi-square (2)
Heteroskedasticity test		
F-statistic 6.393		Prob. F(1,18)
Obs * R-squared 5.449		Prob. Chi-square (1)
Ramsey Reset Test		
t-statistic = 0.405		Df = 15
F-statistic = 0.062		Prob.F(1,15)

Source: Researchers' Compilation from E-view 8.0 (2020)

Table 3 revealed the statistical variance of the variables with less than 10 (centered VIF < 10). This designates the nonexistence of multi-collinearity between the explanatory variables. The ARCH: Heteroscedasticity test revealed the occurrence of homoscedasticity (0.413 > 0.05). Therefore, to validate the assumption of constant variance estimator of ordinary least square, the serial correlation test of Breusch-Godfrey result is (0.375 > 0.05) shows the nonappearance of greater direct relationship. The test result of Ramsey Reset is (0.941 > 0.05) which corroborate with the regression model.

4.3. Pearson Correlation Statistics

Table 4.3 Correlation Matrix

	PI	LDR	LRA	FDI	SIL
PI	1	0.827	0.836	0.742	0.779
LDR	0.827	1	0.956	0.816	0.832
LRA	0.836	0.956	1	0.877	0.930
FDI	0.742	0.816	0.877	1	0.955
SIL	0.779	0.832	0.730	0.955	1

Source: E-View 8.0 Output, 2020

Table 4 shows the correlational matrix of the Pearson Products Moment correlation coefficient of the parameters. The outcome of the correlation depicts that poverty index is correlated with Loan to depositors' ratio (LDR) per 10,000 adults ($r = 0.827$), poverty index is correlated positively with Loan to rural areas (LRA) per 10,000 adults ($r = 0.836$), poverty index is correlated with Financial Deeping indicator (FDI) per 10,000 adults ($r = 0.742$), poverty index is positively correlated with social investment loan (SIL) per 10,000 SMEs ($r = 0.779$) respectively.

4.4. Ordinary Least Squares Multivariate Regression Results

Table 5. OLS Regression Result

Table 5. OLS Regression Result

Variables	Coefficient	Prob.value
C	69.700***** (61.069) [2.138]	0.389
LDR	6.464***** (12.246) [0.657]	0.676
LRA	-0.083***** (0.140) [-0.505]	0.444
FDI	-0.728***** (1.262) [-0.525]	0.355
SIL	8.260***** (6.865) [1.430]	0.342
R-square =	0.872	
Adjusted R-square =	0.642	
F-statistic =	6.429	
Prob.(F-statistic) =	0.005	
Durbin-Watson stat =	2.046	

*****Coefficient values

() *standard error in the bracket

[] * T- statistic value in parenthesisSource: E-views 8.0 Output

Table 5 depicts the projected model of about (64%) logical dissimilarity of poverty index variable adopted in determining the adjusted coefficient of (36%) which represents the presence of stochastic error term. It proposes the long-run of financial inclusion scheme and poverty alleviation index in Nigeria. That is, with access to financial services, people can raise capital for investments, generate income, enhance the standard of living and consequently reduce unemployment rates. Reduction in the unemployment rate is often known in finance and economic literature to positively influence economic development. To improve the standard of living of citizenry, it has always been a central focus of government in power in any nation of the world. The value of F – statistic is (6.829) which represent the explanatory variables at (5%) significance level. The goodness fit of the model shows that the financial inclusion scheme can alleviate poverty in Nigeria. The statistical value of Durbin – Watson is (2.023) with the absence of time series Autocorrelation serial data. Financial inclusion scheme translated a very low impact on poverty alleviation in Nigeria.

Presentation of Model Equation Three Results

Table 6. Pearson Correlation Matrix

Table 6. Pearson Correlation Matrix

	PCI	LDR	LRA	FDI	SIL
PCI	1				
LDR	-0.313	1			
LRA	-0.341	0.956	1		
FDI	-0.288	0.816	0.877	1	
SIL	-0.320	0.832	0.930	0.955	1

Source: E-View 8.0 output, (2020)

Table 6 above describes the coefficient matrix of the Pearson Products Moment Correlation variables. The Pearson outcomes displays per capita income as it was negatively correlated with loan to depositors' ratio (LDR) per 10,000 adults ($r = 0.313$), per capita income is negatively correlated with loan to rural areas (LRA) per 10,000 adults ($r = -0.341$), per capita income is negatively correlated with a financial deepening indicator (FDI) per 10,000 adults ($r = -0.288$), per capita income is negatively correlated with social investment loan (SIL) per 10,000 SMEs ($r = -0.320$) respectively.

4.6. Ordinary Least Squares Multivariate Regression Results

Table 7. OLS Regression Result of Per Capita Income

Variables	Coefficient	Prob.value
C	8.253***** (4.021) [3.218]	0.041
LDR	0.412***** (4.234) [0.087]	0.915
LRA	-0.022***** (0.057) [-0.324]	0.666
FDI	0.064***** (0.586) [0.215]	0.915
SIL	-0.089***** (1.876) [-0.065]	0.869
R-square = 0.718		
Adjusted R-square = 0.692		
F-statistic = 8.615		
Prob.(F-statistic) = 0.005		
Durbin-Watson stat = 3.122		

*****Coefficient values

() *standard error in the bracket

[] * T- statistic value in parenthesis Source: E-views 8.0 Output,
(2020)

Table 7 depicts the aforementioned exemplary equation three projected (69%) logical discrepancy of per capita income variable through the adjusted coefficient determination, parting about (31%) were not accounted because of the stochastic error term occurrences. The outcome of this analysis was advocating that in the long-run, financial inclusion scheme will determine the per capita income which is a proxy for poverty alleviation and thereby, lean-to a decent standard of living in Nigeria. The F – statistic of (8.615) explaining the geometrical significance of the variables at (5%). This denotes that the model postulated above determines the poverty alleviation through the financial inclusion schemes. This explained the absence of Autocorrelation of time series data by Durbin – Watson statistic with the value of (3.122). These variables categorically explained the financial inclusion scheme with low impact on poverty alleviation among the low-income earners in Nigeria.

Discussion of Findings

The implication of this research connotes the value relevance of financial inclusion scheme in alleviating poverty among the low-income earners in Nigeria. This value relevancy cannot be accentuated, due to its importance in the life of Nigerian. The government shall put in place a policy that will improve the standard of living and reduce the poverty level of Nigerian. The findings also revealed the effect of

financial inclusion schemes on poverty alleviation among the selected category of income earners in Nigeria. The Pearson correlation statistics outcome of poverty index and per capita income of the models postulated depicts the following;

The Pearson correlation statistics of loan to depositors' ratio (LDR) per 10,000 adults ($r = 0.827$; $r = -0.313$), poverty index is positively correlated while the per capita income is negatively correlated. The Pearson correlation statistics of loan to rural areas (LRA) per 10,000 adults ($r = 0.836$; $r = -0.341$), poverty index is positively correlated while the per capita income is negatively correlated. The Pearson correlation statistics of financial deepening indicator (FDI) per 10,000 adults ($r = 0.742$; $r = -0.288$), the poverty index is positively correlated while the per capita income is negatively correlated. The Pearson correlation statistics of social investment loan to SMEs (SIL) per 10,000 SMEs ($r = 0.779$; $r = -0.320$) respectively.

The findings are in line with the conclusion of Fadun (2014); Okoye, Adetiloye, Erin, and Modebe, (2015); Ogbeide and Igbinigie (2019) who aver that the only strategy government can adopt to alleviate the poverty index level is to expand on these financial inclusion scheme apparatuses and increase per capita income level of the citizenry. Onaolapo (2015); Imegi and Ogbeide (2017) posit that the scheme should also extend to rural areas through agricultural value chain loan facilities among the rural farmers to upsurge the per capita income and reduce the poverty level of the low-income earners in the country. This will increase the optimism of the rural farmers and SMEs business owners to contribute heavily to the per capita income of the country. However, this will cushion the effect after the post-global pandemic virus era called "COVID'19" that posed challenges to the world.

The study further explained that due to stochastic error term presence. Model 2 result indicates that financial inclusion explains 77.3% systematic variation in per capital income using the adjusted R- square. It suggests that in the long-run financial inclusion alleviates poverty in Nigeria. It portends that financial inclusion influences people to access capital. The accesses to cheap fund no doubt promotes investments and reduces unemployment, enhance generation of income, determines standard of living and consequently poverty alleviation. The F – statistic value of 6.829 for model 1 and 9.407 for model 2 reveals that all the explanatory variables put together are statistically significant at 95% levels. It indicates that financial inclusion has the capacity to increase per capita income and alleviate poverty in Nigeria.

The individual coefficient indicates that a unit change in commercial bank branches per 100,000 adults has a positive impact on per capita income and poverty alleviation and is statistically not significant at 95% levels. A unit change in depositors with commercial banks per 1000 adults exerts negative effects on per capita income

and poverty alleviation and is statistically not significant at 95% levels. While borrowers from commercial banks per 1000 adults contribute negatively to poverty alleviation, it exerted a positive effect on per capita income and is statistically not significant at 95% levels. Similarly, a unit change in automated teller machine (ATM per 100,000 adults) result to a decrease in per capita income, it however positively influences poverty alleviation and is statistically significant at 95% levels in Nigeria in the long – run. The Durbin – Watson statistic values of the two models show the absence of serial Autocorrelation in the time series data.

The empirical results reveal that financial inclusion is found to exert significant impact on per capita income, reduces poverty level and improves standard of living. Specifically, the result shows that commercial bank branches per 100, 000 adults exert positive impact on per capita income, increase standard of living and contributes to poverty alleviation. Depositors with commercial banks per 1000 adults exerted a negative effect on poverty alleviation and are not statistically significant under the reference period. Borrowers from commercial banks per 1000 adults are found to increase per capita income and by extension poverty alleviation and are not statistically significant. The finding also reveals that number of automated teller machines enhanced financial inclusion, income generation and poverty alleviation and was not statistically significant.

Due to the relevance of financial inclusion, a lot of policy thrusts have been put in place by the government in Nigeria through her agency like the Central Bank of Nigeria to ensure low income earners and the financially excluded are made to access financial services at the cheapest possible costs. The study finding correlates with Burgess and Pande (2005), Oluyombo (2013), Ene and Inemesit (2015) and Fadun (2014). It is however not in tandem with Park and Mercado (2015). The empirical findings are also in consonance with Onaolapo (2015), Bamidele (1997), Bruce, Gine, Golberge and Yan (2011) empirical studies which indicate that the number of bank branches and loans to the rural area and agricultural credit guarantee scheme fund increase per capita income and significantly reduces poverty in the period observed. On the overall, financial inclusion has a positive impact on the reduction of poverty index, increases standard of living, boost economic activities and thus engender economic growth.

Conclusions and Recommendations

This study has empirically examined the impact of financial inclusion on poverty alleviation in Nigeria. The study findings clearly indicate that financial inclusion is found to exert significant impact on per capita income, reduces poverty level and improve standard of living. Specifically, the result shows that commercial bank

branches per 100, 000 adults exert positive impact on per capita income, increase standard of living and contributes to poverty alleviation. Depositors with commercial banks per 1000 adults exerted a negative effect on poverty alleviation and are not statistically significant under the reference period. Borrowers from commercial banks per 1000 adults are found to increase per capita income and by extension poverty alleviation and are not statistically significant. The finding also reveals that number of automated teller machines enhanced financial inclusion, income generation and poverty alleviation and was not statistically significant. The implication of these findings is that financial inclusion is a major tool in the alleviation of poverty particularly in developing country like Nigeria.

The study recommends that the Central Bank of Nigeria, the world Bank and the United nation needs to come up with effective monetary policies that can influence financial inclusion and alleviation of poverty. This study also recommended that more branches of microfinance banks with functional adequate number of automated teller machines be located in both urban and rural areas. This will encourage accessibility to financial services at affordable cost for poverty alleviation purposes. The study also suggests that future researchers should undertake comparative researches on the effect of financial inclusion at alleviating poverty among countries in the African continents.

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