Innovations

Financial inclusion and poverty alleviation in Nigeria

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Abstract

It examined the association between financial inclusion (FI) and poverty alleviation (PA) in Nigeria between the periods of 1981-2020, which is a period of 40years. It made used of secondary data from CBN statistical bulletin and World Bank Development Indicators. It covers all deposit money banks in Nigeria and was limited to evaluation of the various measures of FI (Bank Credit to Private Sector (BCPS), Total Bank Loans to Rural Dwellers (TBLRD), Loans and Advances to Small & Medium Scale Enterprises (LADSMSEs), Number of Rural Bank Branches (NRBB), ATM Transactions (ATMTs) and Lending Interest Rate (LINTR)) on PA (proxy Poverty Index (PI)). The data were analyzed with descriptive statistics comprising minimum, maximum, mean and standard deviation was used for the preliminary description of the series. The correlation analysis was used to ascertain the co-movement in the variables while the Multiple Regression analysis was employed with the aid of E-VIEW version 9.0. The result showed that BCPS, TBLRD and LADSMSEs have significant effect on PI while NRBB, ATMTs and LINTR do not have significant effect on PI in Nigeria. Finally, the study found that FI in Nigeria had a considerable impact on inclusive growth. As a result, Nigerian banks should produce financial products to reach the country's financially disadvantaged areas, as this will boost the country's GDP growth rate and, alleviate poverty.

Keywords: *1.Financial Inclusion, 2.Poverty Alleviation, 3.Bank Loans and Credits, 4.Rural Dwellers, 5. Private Sector.*

1.0 Introduction

Financial inclusion (FI) worldwide has been perceived among governments, analysts and financial eyewitnesses as a significant apparatus for poverty alleviation (PA), employment generation, wealth creation and improving government assistance and way of life of individuals and thus in turn economic development (Ehiedu, Odita & Kifordu, 2020). The idea has acquired force of late due to its clear effect on PA which is the way to economic development of the country. This is because of the acknowledgment by the public authority that as more individuals enter the financial system, the lesser the measure of cash left outside the system which can assist with boosting investment in the economy (Akeem, Olokoyo, Babalola & Farouk, 2018).

FI scheme had been worldwide consideration in organizing finances toward the financial improvement of a country. Be that as it may, the financial misfortune confronting the nation has been a urgent disquiet to the regular resident in Nigeria (Ehiedu, Onuorah & Okoh, 2021).

The dimension of poverty status in Nigeria is due to the shortfall of asylum, absence of good medical services frameworks, a flimsy arrangement of instruction, high pace of uncertainty, appetite, and joblessness among the young

people, illegal exploitation, slavery, child labour and disenfranchisement (Adekoya, 2018). Nigeria with relentless issues of poverty has weak to have a hold on the raised stride in the poverty rate. As per NBS (2019) uncovered the five years intermitted level of poverty in Nigeria going from 2004 (54.5%), 2009 (69%), 2015 (33.1%) and 2020 (51.4%). Passing by these insights, Nigeria Human Development Index esteem rose from 0.465 to 0.534 between the years 2005 to 2019 with an increment of about (14.8%).

Concept of FI

The basic idea of monetary incorporation is the arrangement of contact to and use of various and moderate FI. The utilization of and access to FI is one of the significant drivers of FI. FI covers consistent, significant, practical and applicable FI for the helpless populace (Odi and Ogonna, 2014). The centre for FI (2013), states that FI is the state where individuals who can utilize the financial services, given at affordable prices, in an appropriate manner and dignity for the client. As indicated by the Reserve Bank of India monetary incorporation is the interaction of guarantying access to important assets and financial services required by the low pay group at a moderate cost in a straightforward way by the standard institutional players. FI is a state wherein all people approach banking and protection benefits just as monetary education. It is additionally a state in which all people approach wanted monetary items and services to deal with their cash successfully. It is accomplished by financial proficiency and monetary capacity (Lindsay and Gillespie, 2009).

We may consider FI to be as a state wherein everybody approaches a scope of value financial services at reasonable costs with comfort, respect, and buyer insurances, conveyed by a scope of suppliers in a steady, cutthroat market to monetarily competent customers. Khan (2011) states that FI redesigns the monetary way of life for the under advantaged and destitute individuals, since it permits them increment their responsibility in their financial exercises.

Poverty Alleviation (PA)

Poverty is a social issue experienced by individuals having restricted financial assets and a low expectation for everyday life (Umar, 2013). Aduda and Kalunda (2012) set up that destitution is an embarrassment to human kind, endeavours around has been assembled to eliminate it. In non-industrial nation like Nigeria, the truth of neediness can't be denied. As per Ogwumike (2001), neediness is a circumstance where individuals have low or deficient pay to meet the fundamental requirements of life. Ehiedu and Agbogun (2022), Olowononi (2002) considers neediness to be living in a second rate climate and insufficient social conveniences. As indicated by Atolaye and Bamidele (2007), destitution is the absence of essential necessities. Destitution in this investigation might be viewed as a circumstance where people do not have the essential requirements of life like food sources, attire and safe house. It is a state where whereby individuals are desperate of fundamental assets like monetary and material assets to meet the fundamental necessities of life. In Nigeria, Ehiedu, (2022) takes note of that the degree of destitution is hugely high, with around 66% of the populace underneath the neediness line particularly in rustic regions. Mitigating the scourge of destitution is a component of empowering government arrangements and purposeful endeavours by people in a country. This assumes that factors that can impact destitution mitigation are a worry on hypothetical and experimental fronts. By basic explanation, neediness lightening is a bunch of measures, which incorporate both monetary and helpful which objectives are intended to for all time lift individuals out of destitution (Onaolapo, 2015; Bayem, Ehiedu, Agbogun, and Onuorah, 2022).

Financing Theory of FI

The nexus between finance and real activity can be traced to Smith (1776) who argues that real growth in an economy is driven by activities of the FI because increased production and specialization is facilitated by enhanced resource (credit) acquisition offered by the system. Also, according to Bagehot (1873), the financial system pushed Europe's 19th-century industrial revolution by mobilizing cash in unusually "large shape" for industry. Schumpeter (1912) claims that the financial sector facilitates technical innovation (a necessity for productivity development) through effective resource mobilization and allocation, echoing Smith (1776) and Bagehot (1873) viewpoints.

The above reasons imply that finance has a positive or growth-inducing impact on the real economy, implying that greater access to money boosts productivity, improves welfare, and reduces poverty. According to Okoye, Adetiloye,

Olayinka and Modebe (2020), people become economically empowered as they become more integrated into the official financial system, and they are able to raise themselves out of poverty while also growing the economy through active participation in productive activities.

Empirical Review

Okoye, Adetiloye, Olayinka and Modebe (2020), Bayem, Ehiedu, Agbogun and Onuorah (2022) decided the impact of financial on FI and improvement in Nigeria utilizing authentic information on chose factors over the period 1986-2015. Common Least Squares relapse procedure was received. FI was estimated in the examination utilizing loan to deposit ratio (LDR), financial deepening indicators (FDI), loan to rural areas (LRA), and branch network (Bbranch). Measures of financial deepening adopted in the study are ratios of private sector credit to GDP and broad money supply to GDP. Economic growth was proxied as growth in GDP over progressive periods while PCI was adopted as a measure of PA. The main findings are (i) credit delivery to the private sector (an index of FI) has not significantly supported economic growth in Nigeria (ii) FI has promoted PA in Nigeria through rural credit delivery.

Using time series data for the years 2002 to 2015, Ogbeide and Igbinigie (2019) and Ehiedu and Imoagwu (2022) investigated the impact of FI on PA in Nigeria. The information came from the World Bank's 2016 indicators. The multivariate regression technique used in the study was ordinary least squares. FI has been shown to increase per capita income, alleviate poverty, and enhance living standards. The findings suggest that having 100, 000 commercial bank branches has a favourable influence on per capita income, raises living standards, and helps to alleviate poverty. Commercial bank depositors per 1000 adults had a negative impact on poverty reduction and were not statistically significant over the study period. Borrowers from commercial banks per 1000 individuals are found to enhance per capita income and, as a result, poverty reduction, although their numbers are not statistically significant. The findings also show that the number of automated teller machines improved FI, income production, and poverty reduction, but that this effect was not statistically significant.

Ibrahim, Manu, Adamu, Jediel, Kasima, Hajara, and Yusrah (2019), Ehiedu, Onuorah, and Osakwe, (2022) and Ehiedu and Obi (2022) used data from 49 Sub-Saharan African nations to assess the impact of FI on PA. The study used a static panel data model to analyze the data. Savings, credit to the private sector as a percentage of GDP, access to ATMs, access to information technology, inflation, and government expenditure all play a role in poverty reduction, accounting for 32.5, 11.7, 27.4, 49.1, 96.1, and 25.2 percent of the sub-poverty region's reduction, respectively, while interest rate and economic growth both increase poverty, accounting for 124 and 14.8 percent of the sub-poverty region's increase, respectively. On the foundations of the discoveries, the examination reasoned that FI is a suitable device for poverty decrease technique in Sub-Saharan African nations.

Uruakpa, Kalu and Ufomadu (2019), Evesi, Ehiedu, Obaro, and Onuorah, (2022), examined the impact of FI on the economic growth of Nigeria for the period 2003 – 2015. The study made use of the OLS analysis. Real Gross Domestic Product (RGDP) proxy for economic growth was adopted as the dependent variable while Deposits from rural branches of commercial banks (DRBCB), Loans to rural branches of commercial banks (LRBCB) and ATM transactions (ATM) were adopted as the explanatory variables. The empirical results show that DRBCB and ATM transactions exert a positive and significant impact on RGDP in Nigeria while LRBCB exert a negative and insignificant impact on RGDP.

Methodology

The model for the study was adopted from the study of Ehiedu, (2022), Akeem, Olokoyo, Babalola and Farouk (2018) and Ehiedu and Imoagwu (2022). Their model was restated to suit the variables of this study. The PA (proxy with Poverty Index (PI)) and FI was proxy with {Bank Credit to Private Sector (BCPS), Total Bank Loans to Rural Dwellers (TBLRD), Loans and Advances to Small & Medium Scale Enterprises (LADSMSEs), Number of Rural Bank Branches (NRBB), ATM Transactions (ATMTs) and Lending Interest Rate (LINTR)}. Hence, the functional is:

PI = *f*(BCPS, TBLRD, LADSMSEs, NRBB, ATMTs, LINTR).

Therefore, the re-modified model is stated as:

$$\mathbf{PI = a + b_1BCPS + b_2TBLRD + b_3LADSMSEs + b_4NRBB + b_5ATMTs + b_4LINTR + u.}$$

Where; u = Error Term, $\beta_0 - \beta_6$ = the Parameters and A prior Expectation = $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6 > 0$

4.1 Result and Discussions

The descriptive statistics are summarized on table below;

Table 4.2.1: Descriptive Statistics

	LOGPI	LOGBCPS	LOGTBLRD	LOGLADSMSES	LOGNRBB	LOGATMTS	LOGLINTR
Mean	1.375182	2.792125	0.886941	1.099802	2.840202	1.571923	1.225894
Median	1.436899	2.804111	1.049418	1.189822	2.871813	1.891248	1.243720
Maximum	1.630428	4.463170	2.995015	2.093184	2.993436	3.813755	1.474216
Minimum	0.968483	0.932983	-1.522879	-0.082232	2.380211	0.000000	0.889302
Std. Dev.	0.201399	1.204282	1.131054	0.630324	0.130277	1.586394	0.123288
Skewness	-0.603101	-0.084060	-0.482084	-0.426974	-1.855460	0.136318	-0.724091
Kurtosis	2.116422	1.581543	2.960979	1.927109	6.251670	1.242291	3.682294
Jarque-Bera	3.726056	3.400473	1.551907	3.133869	40.57380	5.273120	4.271256
Probability	0.005202	0.002640	0.040265	0.008684	0.000000	0.041607	0.018170
Sum	55.00727	111.6850	35.47764	43.99210	113.6081	62.87690	49.03576
Sum Sq. Dev.	1.581895	56.56149	49.89205	15.49500	0.661908	98.14921	0.592799
Observations	40	40	40	40	40	40	40

Source: Eviews9.0 Output, 2021.

PI had a mean value of 1.3752 from the year 1981-2020; and with a maximum and minimum of 1.6304 and 0.9685 respectively; the standard deviation (SD) for PI between 1981 and 2020. This shows that PI recorded an average (mean) that is greater than its SD thus this implies that PI recorded rapid growth. BCPS had a mean of 2.7921 from the year 1981 to 2020; with a maximum and minimum of 4.4632 and 0.9330 respectively; the SD stood at 1.2043. BCPS recorded a SD that is lesser than its average (mean) thus this implies that BCPS recorded rapid growth. TBLRD had a mean of 0.8869 from the year 1981 to 2020; and with a maximum and minimum of 2.9950 and -1.5229 respectively; the SD for the period was 1.1311. This shows that TBLRD recorded a SD that is more than its average (mean) thus this implies that TBLRD, recorded slow growth. LADSMSEs, had a mean of 1.0998 from the year 1981 to 2020; and with a maximum and minimum of 2.0932 and -0.0822 respectively; the SD is 0.6303. This shows that LADSMSEs, recorded a SD that is less than its average (mean) thus this implies that LADSMSEs, recorded rapid growth. NRBB a mean of 2.8402 from the year 1981 to 2020; and with a maximum and minimum of 2.9934 and 2.3802 respectively; the SD was 0.1303. This shows that NRBB recorded a SD that is less than its average (mean) thus this implies that NRBB recorded rapid growth. ATMTs a mean of 1.5719 from the year 1981 to 2020; and with a maximum and minimum of 3.8138 and 0.0000 respectively; the SD was 1.5864. This shows that ATMTs recorded a standard deviation that is more than its average (mean) thus this implies that ATMTs recorded slow growth. LINTR a mean of 1.2259 from the year 1981 to 2020; and with a maximum and minimum of 1.4742 and 0.8893 respectively; the SD was 0.1233. This shows that LINTR recorded a SD that is less than its average (mean) thus this implies that LINTR recorded rapid growth.

Finally, the SD shows that ATMTs is the most volatile variable and follows by BCPS. The kurtosis that measures the peak of the distribution reveals that NRBB and LINTR are leptokurtic indicating that the distributions are peaked relative to normal distribution, while PI, BCPS, TBLRD, LADSMSEs and ATMTs are platykurtic, which implies that the distribution of the variables are flat relative to normal distribution. Lastly, the Jarque-Bera statistics reveals that the variables are normally distributed at 5% significant level. Hence, Jarque-Bera statistics for all variables is significant; hence we reject the null hypothesis and conclude that the series is normally distributed.

4.3 Multicollinearity Test

The multicollinearity test was conducted to ascertain if the data contained multicollinearity, this is presented in table 4.3 below;

Table 4.3.1: Multicollinearity Test

Date: 09/01/21 Time: 02:17
Sample: 1981 2020
Included observations: 40

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.187036	2867.634	NA
LOGBCPS	0.000991	139.8778	8.427583
LOGTBLRD	0.000453	14.11355	8.654942
LOGLADSMSES	0.000436	10.68174	2.591106
LOGNRBB	0.037205	4610.892	9.439169
LOGATMTS	0.000275	20.79932	9.316332
LOGLINTR	0.013616	316.8262	3.093864

Source: EVIEW, 9.0 Outputs, 2021.

Multicollinearity occurs in a data set when two or more independent variables in multiple regression models are highly correlated. In order to ensure that the results of this study are valid, the variance inflation factor (VIF) computed as shown in Table 4.3. Furthermore, the Centered Variance Inflation Factor (CVIF) statistics for all the independent variables consistently lies between 8.427583, 8.654942, 2.591106, 9.439169, 9.316332 and 3.093864 for BCPS, TBLRD, LADSMSEs, NRBB, ATMTs and LINTR respectively. This indicates the absence of multicollinearity problems among the variables under investigation because the cut off value of VIF is 10. Values of VIF that exceed 10 are often regarded as indicating multicollinearity.

4.4 Augmented Dickey-Fuller (ADF) Unit Root Test

Testing for the existence of unit roots is a principal concern in the study of time series models and co-integration. The rationale behind this test is to avoid the problem of spurious regression which is commonly associated with time series data. The unit root test was conducted using the ADF test as presented in table 4.4.1 below:

Table 4.4.1: Result of Stationarity Using ADF Test

Test Variables	**ADF Test Statistic Value**	**Mackinnon Critical Value @ 5%**	**Order of Integration**	**P-Value**	**Decision**
PI	-5.365653	-2.943427	1(1)	0.0048	**Stationary**
BCPS	-3.296652	-2.941145	1(1)	0.0221	**Stationary**
TBLRD	5.459517	-2.967767	1(1)	0.0000	**Stationary**
LADSMSEs	-6.419455	-2.941145	1(1)	0.0000	**Stationary**
NRBB	-4.036249	-2.941145	1(1)	0.0033	**Stationary**
ATMTs	-4.290770	-2.967767	1(1)	0.0201	**Stationary**
LINTR	-5.908318	-2.943427	1(1)	0.0000	**Stationary**

Source: Computed from E-Views 9.0 (2021)

The summary of the ADF unit root test output in table 4.4.1, above revealed that all the variables under investigation i.e. PI, BCPS, TBLRD, LADSMSEs, NRBB, ATMTs and LINTR contain unit root test at their first difference 1(1).

Evidence of this could be seen from the value of their respective ADF statistics which is more than the critical value at 5%. Moreover, additional evidence of stationary series could also be seen from the p-value for all variables which is less than 5% level of significance greater than 95% confidence level. Based on this result, the null hypothesis of non-Stationarity is rejected while the alternative hypothesis specifying the presence of Stationarity is accepted instead.

4.5. Johansen Cointegration Cointegration Test

Having determined the ADF of the variables, this study further investigates by making use of the (Trace Statistics) and (Maximum Eigenvalue) using the methodology proposed by Johansen and Juselius (1990) in order to ascertain if the variables have a long-run relationship. Thus, Table 4.5.1 below presents a summary of the cointegration test:

Table 4.5.1: Summary of Johansen Cointegration Test Output

Date: 09/01/21 Time: 02:12
Sample (adjusted): 1983 2020
Included observations: 38 after adjustments
Trend assumption: Linear deterministic trend
Series: LOGPI LOGBCPS LOGTBLRD LOGLADSMSES LOGNRBB LOGATMTS LOGLINTR

Hypothesized No. of CE(s)	Eigenvalue	**Trace** Statistic	**0.05 Critical Value**	Prob.**	**Max-Eigen** Statistic	**0.05 Critical Value**	**Prob.****
None *	0.745546	140.1654	125.6154	0.0048	52.00814	46.23142	0.0109
At most 1 *	0.682584	98.15726	95.75366	0.0286	43.60662	40.07757	0.0192
At most 2 *	0.346607	74.55063	69.81889	0.0449	36.17193	33.87687	0.0494
At most 3	0.229646	48.37871	47.85613	0.0270	29.14394	27.58434	0.0061
At most 4	0.202431	38.46431	29.79707	0.0319	28.95117	21.13162	0.0036
At most 5	0.145641	19.89197	15.49471	0.0509	15.81344	14.26460	0.0156
At most 6	0.097252	3.887853	3.841466	0.0486	3.887853	3.841466	0.0486

Researcher's computation Based E-views 9.0. Output, 2021.

Table 4.5.1 above revealed that the result of the multivariate cointegration test by Johansen and Juselius cointegration technique reveal that both the trace statistic and the Maximum Eigenvalue statistic shows evidence of two cointegration relationship (at None and at most 1), where the values of the trace statistic and the Maximum Eigenvalue statistic is greater than their respective critical values at 5% level of significance level. This result conforms to the existence of a stable long-run relationship between PA [proxied by PI] and FI {measured by BCPS, TBLRD, LADSMSEs, NRBB, ATMTs and LINTR}.

4.6 Correlation Matrix

Table 4.6.1: Correlation Matrix

	LOGPI	LOGBCPS	LOGTBLRD	LOGLADSMSES	LOGNRBB	LOGATMTS	LOGLINTR
LOGPI	1.000000						
LOGBCPS	0.629801	1.000000					
LOGTBLRD	0.616701	0.886985	1.000000				
LOGLADSMSES	0.454897	0.689709	0.716901	1.000000			
LOGNRBB	-0.659420	0.771171	0.879409	0.683044	1.000000		
LOGATMTS	-0.619419	0.928642	0.778155	0.529400	0.608606	1.000000	
LOGLINTR	-0.148975	0.225836	0.449572	0.434467	0.668993	0.080223	1.000000

Source: E-VIEW 9.0 Output, 2021.

The correlation matrix that is presented in Table 4.6.1, and it shows the absence of multi-co linearity among the variables since the correlation values are less than 0.8. Furthermore, the result shows the explanatory variables namely; NRBB, ATMTs and LINTR has negative strong correlation with PI while BCPS, TBLRD and LADSMSEs have positive strong correlation with PI in Nigeria.

Table 4.7.1: Regression Result

Dependent Variable: LOGPI
Method: Least Squares
Date: 09/01/21 Time: 02:09
Sample: 1981 2020
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.964040	0.432477	2.229115	0.0327
LOGBCPS	0.171132	0.031474	5.437326	0.0000
LOGTBLRD	0.044771	0.021274	2.104520	0.0430
LOGLADSMSES	0.120604	0.020887	5.774103	0.0000
LOGNRBB	0.373897	0.192885	1.938442	0.0612
LOGATMTS	-0.014059	0.016597	-0.847059	0.4031
LOGLINTR	-0.198885	0.116688	-1.704410	0.0977

R-squared	0.945575	Mean dependent var	1.375182
Adjusted R-squared	0.935680	S.D. dependent var	0.201399
S.E. of regression	0.051078	Akaike info criterion	-2.953312
Sum squared resid	0.086095	Schwarz criterion	-2.657758
Log likelihood	66.06623	Hannan-Quinn criter.	-2.846449
F-statistic	95.55660	Durbin-Watson stat	0.851891
Prob(F-statistic)	0.000000		

Source: E-VIEW 9.0 Output, 2021.

The p-value of BCPS 0.0000, which is lesser than the set value of 0.05 and the t-ratio value, is 5.4373 which indicate the extent of significance to which BCPS affects PI. The coefficient of BCPS 0.1711, which imply that BCPS has a positive trend with PI, one percent (1%) movement in BCPS would lead to 17.11% increases in PI. BCPS has a significant influence on PI in Nigeria. By implication the increase in the granting of loans to the private sector of the economy by the banks, will help to accelerate and implement financial inclusion policy in Nigeria, which will go along way reducing poverty index in Nigeria, (Ehiedu, Onuorah, and Owonye, (2022), Ehiedu, 2022). This hypothetical discoveries from different examinations tracked down that all high level economies with elevated expectation of living have solid positive relationship with the three components of the exercises in production lines, inclusion of banks and strategy backing of government individually as hypothesized in the Great Spurt theory. This findings is supported by Ehiedu and Olannye, (2014), Aribaba, Adedokun, Oladele, Babatunde, Ahmodu and Olassehinde (2020) and Okoro, Obiekwe and Okoro (2020), Ehiedu, Onuorah, and Mbagwu (2022), but contrary to the findings of Okoye, Adetiloye, Olayinka and Modebe (2020).

The p-value of TBLRD is 0.0430. Which is lesser than the set value of 0.05 and the t-ratio value is 2.1045 which indicate the extent of significance influence to which TBLRD has on the PI. The coefficient of TBLRD is 0.0448 which imply that TBLRD has a positive trend with PI. One percent (1%) movement in TBLRD would lead to 4.48% increases in PI. By implication, the loans granted by the banks to the rural dwellers has contributed much in reducing poverty in Nigeria, this may be due to the fact that most rural dwellers used secure the loans in engaging in business ventures, by implication, it has reduce the level of poverty in the rural area. This finding is supported by the finance-

growth theory, which posited that the lack of access to finance as a critical factor responsible for persistent income inequality as well as sluggish growth. Hence, access to a safe, easy, and affordable source of finance is recognized as a pre-condition for accelerating growth and reducing income disparities and poverty, resulting in equal opportunities for economically and socially excluded people to better integrate into the economy, actively contribute to development, and protect themselves against economic shocks. This finding is in line with finding of Meteke, Ehiedu, Ndah and Onuorah, (2022), Aribaba, Adedokun, Oladele, Babatunde, Ahmodu and Olassehinde (2020), Okoro, Obiekwe and Okoro (2020)and Okoye, Adetiloye, Olayinka and Modebe (2020) but contrary to the finding of Ibrahim, Manu, Adamu, Jediel, Kasima, Hajara and Yusrah (2019). .

The p-value of LADSMSEs is 0.0000 which is lesser than the set value of 0.05 and the t-ratio value is 5.7741 which indicate the extent of significant influence to which LADSMSEs has on PI. The coefficient of LADSMSEs is 0.1206 which imply that LADSMSEs have a positive trend with PI. One percent (1%) movement in LADSMSEs would lead to 12.06% increases PI. LADSMSEs have a significant influence on PI in Nigeria. The findings implies that increase of loan and advances granted to the small and medium scale enterprises by the banks has gone a long way in reducing poverty, resulting to the increase in real gross domestic product growth rate. This finding is affirmed by the financing theory of FI. This finding is in line with the findings of Aribaba, Adedokun, Oladele, Babatunde, Ahmodu and Olassehinde (2020), Enueshike and Okpebru (2020), Obi and Ehiedu, (2020) and Okoro, Obiekwe and Okoro (2020).

The p-value of NRBB is 0.0612 which is greater than the set value of 0.05 and the t-ratio value is 1.9384 which indicates the extent of effect of NRBB to PI. The coefficient of NRBB is 0.3739, which imply NRBB has a positive trend with PI. One percent (1%) movement in NRBB would lead to 37.39% decrease in PI. NRBB has an insignificant influence on Poverty Index (PI) in Nigeria. This implies that, the numbers of rural bank branches are few and scanty; this has negated the effort of FI in reducing poverty in Nigeria. In an free market theory, financial inclusion suppliers are include in the exchanges in the financial services to give and access store that are utilized to do their everyday activities. This finding is supported by Odita, Ehiedu and Kifordu, (2020), Ogbeide and Igbinigie (2019), Obaro, Onuorah, Evesi and Ehiedu (2022) but contrary to the finding of Okoro, Obiekwe and Okoro (2020) and Afolabi (2020).

The p-value of ATMTs is 0.4031 which is greater than the set value of 0.05 and the t-ratio value is -0.8471which indicate the extent of effect to which ATMTs affects PI. The coefficient of ATMTs is -0.0141, which imply ATMTs has a negative trend with Poverty Index (PI). One percent (1%) movement in ATMTs would lead to 1.41% decreases in PI. ATMTs have an insignificant influence on PI in Nigeria. This implies that ATM points in the rural area are very scanty; thus, it has negated the impact of FI in reducing poverty among the rural dwellers in Nigeria. This finding is supported by. This finding is in agreement with the findings of Afolabi (2020) and Ogbeide and Igbinigie (2019) but contrary to the finding of Onuorah, Ehiedu and Okoh, (2021), Ehiedu and ODITA, (2014), Okoro, Obiekwe and Okoro (2020) and Ibrahim, Manu, Adamu, Jediel, Kasima, Hajara and Yusrah (2019).

The p-value of LINTR 0.0977 which is greater than the set value of 0.05 and the t-ratio value is -1.7044 which indicate the extent of significance to which LINTR affects PI. The coefficient of LINTR is -0.1989, which imply that LINTR has a negative trend PI. One percent (1%) movement in LINTR would lead to 19.89% decreases in PI. LINTR has an insignificant influence on PI in Nigeria. This implies that, increasing LINTR in the Nigeria society has an adverse effect on poverty level in Nigeria. This is in line with findings of Afolabi (2020) and Ibrahim, Manu, Adamu, Jediel, Kasima, Hajara and Yusrah (2019) but contrary to the finding of Odita, and Ehiedu, (2015); Okoro, Obiekwe and Okoro (2020).

Conclusion

The study examined the association between FI and PA in Nigeria between the duration of 1981-2020, which is a period of 40years. The study made used of secondary data (Time Series) from CBN statistical bulletin and World Bank Development Indicators. The study covers the whole DMBs in the Nigeria economy and was limited to evaluation of the various measures of FI (BCPS, TBLRD, LADSMSEs, NRBB, ATMTs and LINTR) on PA (proxy with PI) in Nigeria.

The data were analyzed with descriptive statistics which comprises of the minimum, maximum, mean and standard deviation was used for the preliminary description of the data set. Since the data are annual time series that the

stationary test (Multicollinearity, ADF and Johansen Cointegration Tests) was conducted to as if the data are stationary in order to have accurate regression result. The correlation analysis will be use to ascertain the co-movement of the variables while the Multiple Regression analysis were employed with the aid of E-VIEW version 9.0. The result showed that BCPS, TBLRD and LADSMSEs have significant effect on PI while NRBB, ATMTs and LINTR do not have significant effect on PI in Nigeria. Finally, the study concludes that FI has significant effect on PA in Nigeria in Nigeria.

Recommendations

The following recommendations are put forward;

1. Nigerian banks should produce financial products to reach out to the country's financially disadvantaged areas, as this will boost the country's GDP growth rate and, as a result, alleviate poverty.
2. The CBN should help reduce the high interest rate of banks as this would help ensure an increased financial intermediation to the rural dwellers, which in turn reduce poverty in Nigeria.
3. Banks should plant sub-bank branches and ATM outlets as this will help include the financially excluded regions of Nigeria, which in turn reduce poverty in Nigeria.
4. Finally, this study therefore, recommends that more and improved financial services be made available at a reasonable cost to rural dwellers and the economy as a whole at a reasonably low interest rate so as to help them participate and contribute to national productivity. However, these financial services should be carefully monitored to make sure they are used productively as loan to private sector is revealed to affect inclusive growth negatively. This will help reduce inequality in the country and put the country in a path of inclusive growth.

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