

Impact of Financial Inclusion on Poverty Reduction in Nigeria (1991-2021)

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Article History

Received : 09 January 2022

Revised : 29 January 2022

Accepted : 05 February 2022

Published : 18 June 2022

Citation

Felix, Emmanuel Dodo, Kayit, Abel Inzabariat & Ismail, Hannatu (2022). Impact of Financial Inclusion on Poverty Reduction in Nigeria (1991-2020). *Indian Development Policy Review*, Vol. 3, No. 1, pp. 1-14.

Abstract: Successive administrations globally acknowledge the fact that financial inclusion serves as a tool for poverty reduction, especially in rural areas. In Nigeria which has been regarded as the home of poverty, the extent and magnitude of the impact of financial inclusion on the poverty rate are undetermined due to the outbreak of Covid-19 induced economic recession. This paper examines the impact of financial inclusion in the Nigerian context from 1991 to 2021. The study employed the ARDL framework for its analysis. The short-run coefficients imply that bank branches spread, deposits in the rural area, Interest rate, Government expenditure, and GDP growth have a negative and significant impact on poverty reduction while credit to the private sector has a positive and significant impact on poverty reduction. Meanwhile, in the long run, the results also indicate that bank branches spread; GDP growths have a negative and significant impact on poverty reduction while credits to the private sector and government expenditure have a positive and significant impact on poverty reduction. Meanwhile, GDP growth has a negative and significant effect on poverty reduction in Nigeria in the long run. In addition, the results of the T.Y causality tests report that there is evidence of a unidirectional causality running from poverty rate to bank branches spread, and from credit to the private sector to poverty rate. The study, therefore, recommends that the government should provide adequate infrastructural facilities such as roads network, adequate electricity supply, communication networks, and other utilities, especially in rural areas to enable deposit banks to set up more branches. This will enable people to save money, send and receive payments, and also access credit facilities to expand their economic activities which in turn reduce the rate of poverty in the country.

Keywords: Poverty rate, Bank branches spread, Credit to private sector, Deposit in rural area, Interest rate, Government expenditure and GDP growth.

1. INTRODUCTION

Financial inclusion globally has been recognized among governments, researchers, and economists as an important tool for poverty reduction, employment generation, wealth creation, and improving the welfare and standard of living of people. The concept has gained momentum in recent times because of its impact on poverty alleviation (Akeem, Opeyemi, Elemide, 2016). In this regard, financial inclusion is the provision of financial services, mostly to the private sector, to reach everyone who could use them. Although low financial literacy, inadequate infrastructural facilities as well as inadequate and inefficient technology-based facilities needed by financial institutions, has limited the achievement of significant expansion in financial inclusion level in Nigeria (Kama and Adigum, 2013). From another perspective, poverty as a global phenomenon has continued to receive the attention of different governments, civil society organizations, donor agencies, and international organizations among others, especially in the developing countries where the rate is already alarming despite the effort put in place to reduce the menace. Indeed, Africa is by far been regarded as the poorest continent in the world housing 28 of the world's poorest countries in the globe, with half of the population estimated to live in poverty without access to basic human needs, such as nutrition, clean water, shelter and more than 47 percent of the African populations are living on \$1.90 or less a day (World Bank, 2017).

In the Nigerian context, the poverty situation is quite alarming; the widespread and severe poverty depicts lack of food, clothes, education and other basic amenities. Severely poor people lack the most basic necessities of life to a degree that it can be wondered how they manage to survive (Felix, Sale & Adegoke, 2019). Meanwhile, the financial inclusion of the poor group in the Nigerian society has generated multiple economic activities, also promotes growth in national output. But the continue rise in poverty level in Nigeria is due to the challenges of financial exclusion (Sanusi, 2011). Subsequently, financial inclusion has been acclaimed to be a robust tool to combat the three evils: unemployment, inequality, and poverty, especially in Nigeria which has been regarded as the home of poverty, housing a large number of poor people. Similarly, financial inclusion in the fight against poverty has been identified as a means to achieve 7 of the 17 Sustainable Development Goals (SDGs) such as Eliminating extreme poverty and promoting economic growth, innovation, and sustainable industrialization (World Bank, 2018).

As pointed out by Anthony *et al* (2018) lack of financial inclusion of disadvantaged people and the poor in any jurisdiction is the major reason for the rising level of poverty and unemployment among underprivileged communities. Therefore, access to financial services especially in developing countries has been quite limited. Expanding financial inclusion can be critical for an improved standard of living and by extension poverty reduction.

More so, the Nigerian government and monetary authorities have introduced varying policies aimed at deepening financial inclusion within the economy like the National Financial Inclusion Strategy (NFIS) and the establishment of community and microfinance banks to facilitate access to formal financial services. The goal of this policy is to decrease the number of Nigerians without access to financial services from 46.3% to 20% by the year 2020 to combat the wave of poverty in Nigeria. Despite these policy measures in Africa's largest economy, many adults in the Nigerian economy have no bank account at a formal banking institution. Besides, the Nigerian poverty rate rose to 93 million in 2020, at the same time, with an additional 7 million people sliding into extreme poverty (World, Bank, 2020).

It is in this regard that the objective of this paper is to examine the impact of financial inclusion on poverty reduction in Nigeria. To achieve the stated objective, the paper is, therefore, divided into five sections. Following the introduction is section two which contains literature reviews on financial inclusion and the poverty rate in Nigeria. Section three presents the research methodology, while section four covers the result and discussions. The final section contains a summary and conclusions

2. LITERATURE REVIEW

2.1. Conceptual

According to World Bank (2020), financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit, and insurance – delivered responsibly and sustainably. Being able to have access to a transaction account is the first step toward broader financial inclusion since a transaction account allows people to save, send and receive payments.

Poverty is defined as a situation where a person is unable to meet his/her basic needs such as food, water, shelter, health, and education. Also, poverty is a condition of severe deprivation of basic human needs such as food, shelter, safe drinking water, sanitary facilities, information, and education due not only to lack of income but also to lack of access to services (World Bank, 2017).

2.2. Theoretical Framework

2.2.1. The Free Market Theory of Financial Inclusion

The free market theory also known as “the shareholder’s wealth maximization theory” explain the determinants of financial inclusion at the macro level. It is based on the assumption that market forces can best determine access to financial services, and that

a free market economy has the capacity for financial inclusion to an optimal level. However, government intervention in the financial system in form of controls and reforms has the potential of excluding some segments of the society in the financial system which increases the poverty rate of the disadvantaged group. In a free market economy, financial services providers are involved in the transactions in the financial service environment to provide and access funds that are used to carry out their daily activities. Competition among financial service providers can force them to device cheaper ways such as know your customer Tier one, two, and three, internet banking, mobile banking, point of sales devices, children accounts, etc. that target inducing people to open an account, access other financial services available and hence, increasing access to financial services. The proposition that a market-friendly system increases the rate of financial inclusion rather than exclusion is based on the assumption that a free market and deregulated financial system always lead to the spawning of financial products. On the other hand, the public in the quest to meet their daily obligations accesses available financial services to finance their daily needs such as education, health, shelter, and other facilities that will improve their living standard which in turn reduce their poverty rate.

2.3. Empirical Literature

At the global level, empirical works of literature on the impact of financial inclusion on the poverty rate come with conflicting results. Abdullah and Kazuo (2020) investigated the impact of financial inclusion on reducing poverty and income inequality in 116 developing countries. The study employed unbalanced annual panel data from 2004 through 2016. The results show that financial inclusion has a negative impact on poverty rates and income inequality in developing countries. In support of this study, Gunarsih, Sayekti, and Dawanti (2018) explored the impact of financial inclusion on poverty alleviation in Indonesia. The study used descriptive statistics and the results revealed that increased access to financial services has a negative impact on poverty alleviation within rural areas. On the other side, Kusuma (2020) examined the effect of financial inclusion on economic growth, poverty, and income inequality in several countries in Asia. The results from the hypothesis test show that the financial inclusion dimension has not been optimal in increasing economic growth and reducing poverty alleviation in some countries in Asia

In the African context, the same conflicting results prevailed. For instance, Ibrahim *et al.* (2019) examined the impact of financial inclusion on poverty reduction in forty-nine Sub-Saharan African countries using data spanning the period of 1980 -2017, the study employ a static panel data model to analyze the data. It was found that savings, credits to the private sector, access to ATMs, access to information Technology, Inflation,

and Government expenditure have a negative impact on poverty reduction while interest rate and economic growth were found to have a positive impact on the poverty rate. Another study by Ayensu (2017) examined the impact of financial inclusion on poverty reduction in Sub-Saharan Africa, from 2010 to 2014. The findings reveal that credit to the private sector by domestic banks (financial depth) significantly reduced poverty in Sub-Saharan Africa.

In the West African region, Isaac, Renato, and David (2020) examined the effect of financial inclusion on poverty and vulnerability to poverty in Ghanaian households. Using data extracted from the seventh round of the Ghana Living Standards Survey in 2016/17. The study used the probit technique and the results indicate that financial inclusion reduces poverty and vulnerability to poverty more in rural than in urban areas.

In the case of Nigeria, Ogbeide and Igbinigie (2019) examined the impact of financial inclusion on poverty alleviation in Nigeria, for the period 2002 to 2015. The study employed the ordinary least squares multivariate regression technique. Specifically, the result shows that financial inclusion has a positive impact on poverty alleviation under the reference period. Besides, Anthony *et al* (2018) ascertained the effect of financial inclusion on poverty reduction in Nigeria using quarterly data from 2009: Q1 to 2014: Q4. The study employed the Johansen cointegration and the findings reveal that Automated teller machines and bank credit to the rural populace have a positive effect on poverty reduction, whereas internet banking channels and microfinance credit exert a negative impact on poverty reduction. Also, Ajide (2015) examined the effect of financial inclusion on poverty reduction in Nigerian rural communities using data from 1996-2013. The data were analyzed using Autoregressive Distributed Lag Modeling (ARDL). The finding of this paper shows that financial inclusion has a positive effect on rural poverty reduction due to the high cost of borrowing and a higher degree of financial openness.

The review of literature on the nexus between financial inclusion and poverty rate shows three general observations are notable from the literature. A study by Isaac, Renato, and David (2020), Ogbeide and Igbinigie (2019), Anthony *et al* (2018), and Ajide (2015), concluded that financial inclusion has a positive impact on the poverty rate which may be due to high cost of borrowing. On the contrary, the study by Abdullah and Kazuo (2020), Ibrahim *et al* (2019), Gunarsih, Sayekti and Dawanti (2018), and Ayensu (2017), report that financial inclusion has a negative impact on poverty rates. Indeed, those studies that do not find any significant impact between financial inclusion and poverty rate are those of Kusuma (2020) and Ayensu, (2017). In Nigeria, there are limited studies that have investigated the effects of financial inclusion on the poverty

rate, especially after the outbreak of covid-19 induced economic recession. However, this study distinguished itself among the existing pieces of literature because it captures the period of insecurity in the northeast and oil-producing region as well as periods of episodes of economic recession in Nigeria.

3. DATA AND METHODOLOGY

3.1. Variables and Data Sources

This study employs annual data on poverty rate, bank branches spread, credit to the private sector, and deposits in the rural area, interest rate, government expenditure, and GDP growth rate from 1991 to 2021 published by the World Bank. This is because it has been proven to be one of the major reliable sources of data that is of international standard. The period of study was chosen because it was the time the Nigerian economy experienced different episodes of economic recession.

3.2. Model Specification

The model specification for this study is as follows:

$$PTR_t = \beta_0 + \beta_1 BBS_t + \beta_2 CPS_t + \beta_3 DRA + \beta_4 ITRT_t + \beta_5 GE_t + \beta_6 GDP + \mu \quad (1)$$

Where PTR = Poverty rate, BBS = Bank branches spread, CPS = Credit to private sector, DRA= Deposit in rural area, ITRT= Interest rate, GE = Government expenditure and GDP= Gross domestic products. The terms μ , and β_0 represent the error term, time-series, and the constant. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are the parameters estimated.

3.3. Estimation Procedures

In this study, unit root tests were carried out using the popular Augmented Dickey-Fuller (1982) and Phillip (1987), and Perron (1988) to avoid producing spurious regression results. Therefore, in line with the model developed by Pesaran and Shin (1999), which was extended, by Pesaran, Shin, and Smith (2001) the long and short runs the effect of financial inclusion on the poverty rate in Nigeria is presented as;

$$\begin{aligned} \Delta(\ln PTR_t) = & \beta_0 + \beta_1 \ln(PTR_{t-1}) + \beta_2 \ln(BBS_{t-1}) + \beta_3 (CPS_{t-1}) + \beta_4 (DRA_{t-1}) \\ & + \beta_5 (ITRT_{t-1}) + \beta_6 (GE_{t-1}) + \beta_7 (GDP_{t-1}) \sum_{i=1}^p \alpha_1 \Delta_1 \ln(PTR_{t-1}) \\ & + \sum_{i=1}^m \alpha_2 \Delta \ln(BBS_{t-1}) + \sum_{i=1}^n \alpha_3 \Delta \ln(CPS_{t-1}) + \sum_{i=1}^n \alpha_4 \Delta \ln(DRA_{t-1}) \end{aligned}$$

$$+ \sum_{i=1}^n \alpha_5 \Delta \ln(INTRT_{t-1}) + \sum_{i=1}^n \alpha_6 \Delta \ln(GE_{t-1}) + \sum_{i=1}^n \alpha_7 \Delta \ln(GDP_{t-1}) + \varepsilon_t \quad (2)$$

Similarly, the error correction model is also specified as follows:

$$\begin{aligned} \Delta[\ln PTR] = & \beta_0 + \sum_{i=1}^p \alpha_1 \Delta \ln(BBS_{t-1}) + \sum_{i=1}^m \alpha_2 \Delta \ln(CPS_{t-1}) + \sum_{i=1}^n \alpha_3 \Delta DRA_{t-1} \\ & + \sum_{i=1}^n \alpha_4 \Delta ITRT_{t-1} + \sum_{i=1}^n \alpha_5 \Delta GE_{t-1} + \sum_{i=1}^n \alpha_6 \Delta GDP_{t-1} ecm_{t-1} \end{aligned} \quad (3)$$

Where Δ is the first difference operator, $\ln(PTR)$ is the natural log of poverty rate, $\ln(BBS)$ is the natural log of the bank branches spread, $\ln(CPS)$ is the natural log of the credit to the private sector, $\ln(DRA)$ is the natural log of deposit in the rural area, $\ln(ITRT)$ is the natural log of the interest rate, $\ln(GE)$ is the natural log of the government expenditure, $\ln(GDP)$ is the natural log of the GDP growth rate. Meanwhile, the p denotes the lag Length, the $\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6$ and α_7 . Indeed, the $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$, and β_7 are parameters of the model expected to be estimated while the ε_t is the error term.

4. RESULTS AND DISCUSSION

4.1. Unit Root Tests

The results of both Augmented Dickey-Fuller (ADF) and the Phillips Perron (PP) unit root tests are presented in Table 2.

Table 1: Results of Unit Root Tests

<i>Unit Root Tests</i>				
	<i>Augmented Dickey-Fuller (ADF)</i>		<i>Phillips Perron (PP)</i>	
	<i>Level</i>			
<i>Variables</i>	<i>Constant Without Trend</i>	<i>Constant With Trend</i>	<i>Constant Without Trend</i>	<i>Constant With Trend</i>
LPTR	-2.9249	-2.8495	-2.8594	-2.7793
LBBS	-1.5493	-1.6562	-1.5785	-1.8572
LCPS	-0.1987	-1.2089	-0.7872	-2.0906
LDRA	-2.5525	-2.3152	-2.5525	-2.3662
LITRT	-2.8427	-2.9817	-2.9061	-2.0270
LGE	-4.5790*	-4.6853*	-4.4318*	-4.2341*
LGDP	-3.9608*	-3.5733*	-3.6255*	-3.3039*

	<i>First Difference</i>			
LPTR	-6.9609*	-6.8827*	-6.9409*	-6.8827*
LBBS	-4.4482*	-4.3709*	-4.3793*	=4.2749*
LCPS	-5.1585*	-5.0813*	-6.3146*	-6.0515*
LDRA	-6.4075*	-6.3565*	-8.07034*	-9.6961*
LITRT	-7.0344	-8.1159	-8.0044*	-16.0288*
LGE	-0.4098	-0.8132	-0.5839	-0.17021
LGDP	-2.7949	-2.7556	-2.6255	-2.3038

Note: * denotes significant at 1% levels of significance respectively.

Source: Researcher's computations using E-Views 9, (2022)

The results in Table 1 show that variables such as government expenditure and GDP growth rate are stationary at level 1(0) while other variables in the model, namely poverty rate, bank branches spread, credit to the private sector, and deposit in the rural area are stationary in their first differences, implying that the variables were I(1). Since none of the variables was found to be integrated of order 2, the study proceeded to carry out the ARDL bounds test for cointegration.

4.2. ARDL Cointegration Test

The results of the bound test are presented as follows:

Table 2: Results of ARDL Bounds Test

<i>Test Statistic</i>	<i>Value</i>	<i>k</i>
F-statistic	11.51552	6
Critical Value Bounds		
<i>Significance</i>	<i>I0 Bound</i>	<i>I1 Bound</i>
10%	2.12	3.23
5%	2.45	3.61
1%	3.15	4.43

Source: Researcher's computations using E-Views 9, (2022)

The result of the bound test reported in Table 2 reveals that the value of F-Statistics 11.5155 of both the financial inclusion and poverty rate in the models is greater than the critical upper and lower bounds at the expected 1% level of significance. This implies that there is long-run cointegration among all the variables.

Table 3: Results of Short run ARDL coefficient

<i>Cointegrating Form</i>				
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
D(BBSP)	-0.0094	0.0028	-3.3135	0.0296
D(CPS)	0.8684	0.5399	12.7217	0.0002
D(DRA)	-0.8540	0.2209	-3.8661	0.0181
D(ITRI)	-0.7363	0.1695	-4.3447	0.0122
D(GE)	-0.0321	0.0032	-10.1401	0.0005
D(GDP)	-0.8511	0.2402	-3.5429	0.0240
C	56.7835	3.9905	14.2298	0.0001
CointEq(-1)	-0.7718	0.0545	-14.1958	0.0001

Source: Researcher's computations using E-Views 9, (2022)

The short-run estimates presented in Table 3 demonstrate that all the variables have a significant impact on the poverty rate. This implies that bank branches spread has a negative impact on poverty rate at a 5% level of significance. This indicates that an increase in bank branches spread by 1% would reduce the poverty rate by roughly 0.9% while credit to the private sector has a positive and significant impact on poverty rate at a 1% level of significance. This implies that an increase in credit to the private sector by 1% would increase the poverty rate by roughly 87%. Deposit in the rural area has a negative and significant effect on poverty rate at a 5% level of significance. It also reveals that an increase in deposits in the rural area by 1% would decrease poverty by roughly 85%. Besides, the interest rate has a negative and significant effect on poverty rate at a 5% level of significance. This shows that an increased interest rate by 1% would decrease the poverty rate by roughly 74%. Meanwhile, Government expenditure has a negative and significant effect on poverty rate at a 1% level of significance. This shows that increasing government expenditure by 1% would decrease the poverty rate by roughly 0.3%. GDP growth has a negative and significant effect on poverty rate at a 5% level of significance. This shows that an increasing GDP growth by 1% would decrease the poverty rate by roughly 85%. The intercept, otherwise called the constant of the model has a positive coefficient (56.7835) and is significant at a 1% level of significance. This implies that the rate of poverty in Nigeria during the period running from 1991 to 2021 will be 57% increase if the independent variables in the model are held constant or are zero, other things being equal. The error correction term for the model ECM (-1) is less than one with a negative sign and is statistically significant at 1%. Additionally, the speed of adjustment for correcting disequilibrium from the previous year to equilibrium in the current year is 77% respectively. This has further confirmed the existence of a long-term co-integration among the variables.

Table 4: Result of Long Run Coefficients

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
BBSP	-0.0218	0.0107	-2.0346	0.0116
CPS	3.1451	1.4065	2.2361	0.0890
DRA	0.3424	1.5299	0.2238	0.8339
ITRT	1.4873	2.2574	0.6589	0.5460
GE	0.0419	0.0157	2.6702	0.0558
GDP	-2.1331	0.8346	-2.5558	0.0629

Source: Researcher's computations using E-Views 9, (2022)

The results in Table 4 also indicate that bank branches spread has a negative impact on poverty rate at a 5% level of significance. This indicates that an increase in bank branches spread by 1% would reduce the poverty rate by roughly 0.2% while credit to the private sector and government expenditure has a positive and significant impact on poverty rate at a 10% level of significance. Meanwhile, GDP growth has a negative and significant effect on poverty rate at a 10% level of significance in Nigeria in the long run.

4.3. Residual Diagnostic Test

The paper conducted various residual diagnostic tests to determine the adequacy of the estimates such as the normality (Jarque-bera (JB) test for normal distribution of error or the residuals, Serial Correlation, and the Heteroscedasticity test. The results are presented in Table 6.

Table 5: Result of ARDL Residual Diagnostic Tests

<i>Tests</i>	<i>F-statistics</i>	<i>Prob. Value</i>
Normality((Jarque -Bera Test Statistics)	0.9971	0.6074
(Breusch-Godfrey Serial Correlation LM Test)	3.5559	0.2195
Heteroscedasticity Test: Breusch-Pagan-Godfrey	0.9745	0.5852

Source: Researchers' Computations from E-views 9 (2022).

The results of the residual diagnostic tests in Table 5 show that the Jarque-bera probability value of 0.6074 is not significant at any significances level. Therefore, the data is normally distributed. From the Breusch-Godfrey serial correlation LM test, the result indicates the p-value statistics of 0.2195 is not significant at any level. Therefore, the model is free from autocorrelation problem. Also, the result of tests for Breusch-Pagan-Godfrey Heteroskedasticity conducted reveals that the p-value 0.5852 is not statistically

significant at any level which implies the absence of Heteroskedasticity problem. As a result, the study concludes that the model is reliable for decision-making and forecasting.

4.4. Stability Diagnostic Test

The paper also carried out the Ramsey RESET Test for model specification and the CUSUM and CUSUMSQ of square stability tests for the adequacy of the dynamic specification. The results are presented as follows:

Table 6: Results of Ramsey RESET Test

	<i>Value</i>	<i>df</i>	<i>Probability</i>
t-statistic	0.3749	3	0.7327
F-statistic	0.1405	(1, 3)	0.7327
	<i>Sum of Sq.</i>	<i>df</i>	<i>Mean Squares</i>
Test SSR	3.7181	1	3.7181
Restricted SSR	83.0846	4	20.771
Unrestricted SSR	79.3665	3	26.4555

Source: Researcher's computations using E-Views 9, (2022)

In Table 6, the results of the Ramsey Reset test of Misspecification indicate that the computed F-statistic and p-value is 0.1405 (0.7327) is considered meaningful because the p-values are not significant at any significances level. This reveals that there is a shred of evidence that the variables are stable and the residuals in the models are free from any diagnostic problems.

The CUSUM and CUSUMSQ of the square are used for testing the structural stability of the models. The result is presented in Figures 1 and 2.

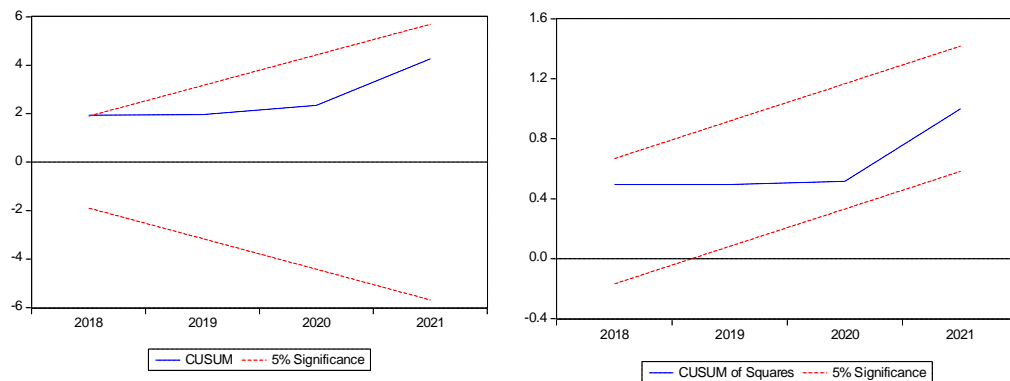


Figure 1: CUSUM and CUSUMSQ Stability Test

Source: Researcher's computations using E-Views 9, (2022)

The figures report that all the models passed the CUSUM tests. Besides, the CUSUM and CUSUM Squares statistics do not cross the 5% critical bounds. That is, the significant blue lines are in-between the two red lines, suggesting stability in the models.

4.5. Toda and Yamamoto Causality Test

In this paper, the Toda and Yamamoto (1995) causality test is employed to determine the direction of causal between the financial inclusion and poverty rate in Nigeria from 1991 to 2021.

Table 7: TY Causality Test

<i>Causality</i>	<i>Chi-sq</i>	<i>df</i>	<i>Prob.</i>
PTR does not Granger cause BBS	8.6328	2	0.0133
BBS does not Granger cause PTR	1.5696	2	0.4562
CPS does not Granger cause PTR	13.1166	2	0.0014
DRA does not Granger cause PTR	4.5369	2	0.1035
ITRT does not Granger cause PTR	1.7240	2	0.4223
GE does not Granger cause PRT	2.1334	2	0.3441
GDP does not Granger cause PRT	3.4760	2	0.1759

* and ** represent 1% and 5% level of significance.

Source: Researcher's computations using E-Views 9 (2022).

In Table 7, the results of the T.Y causality tests report that there is evidence of a unidirectional causality running from poverty rate to bank branches spread, and from credit to the private sector to poverty rate, as shown by the significance of the \hat{n} -values. Furthermore, there is no causality between the bank branches spread and poverty rate, deposits in the rural area and poverty rate, interest rate and poverty rate, government expenditure and poverty rate, and also GDP growth and poverty rate. This is because the p-values are not significant at any significant levels.

5. SUMMARY AND CONCLUSION

This paper examines the long-run and short-run impact of financial inclusion on the poverty rate using time series data from 1991 to 2021. The review of empirical literature shows that financial inclusion can either have positive, negative, or even no effects on the poverty rate. The Augmented Dickey-Fuller (ADF) and Phillip Peron (PP) techniques were used to run the unit root test and the results show some variables are stationary at a level while others are at their first difference. The study proceeded to employ the ARDL techniques. Therefore, the findings revealed that bank branches

spread, Deposit in the rural area, Interest rate, Government expenditure, and GDP growth have a negative and significant impact on poverty alleviation while credit to the private sector has a positive and significant impact on poverty reduction in the short run. Meanwhile, in the long run, the results also indicate that bank branches spread; GDP growths have a negative and significant impact on poverty rate while credits to the private sector and government expenditure have a positive and significant impact on poverty rate. Meanwhile, GDP growth has a negative and significant effect on poverty rate in Nigeria in the long run. More specifically, the results of the study endorse the studies that found a negative impact between financial inclusion and poverty rate, for example, a study by Abdullah and Kazuo (2020), Ibrahim et al. (2019), Gunarsih, Sayekti, and Dawanti (2018), and Ayensu, (2017). In light of this, the government should provide credit facilities at an affordable interest rate to support the poor with entrepreneurial skills to make them self-reliant and to reduce their poverty level.

References

- Abdullah, O. & Kazuo, I. (2020). Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis, 9(37)
- Ajide, F. (2015), Financial Inclusion and Rural Poverty Reduction: Evidence from Nigeria. *International Journal of Management Sciences and Humanities*, 3(2), 23
- Akeem, A, Opeyemi, B. & Elemide, F. (2016). Financial Inclusion as a Catalyst for Poverty Reduction in Nigeria. *International Journal of Scientific Research and Management (IJSRM)*, Index Copernicus value, (2016):93.67
- Anthony, E. Ageme, C. A. Anisiuba, F. C., Hillary, C. E., & Onwumere, J.U.J. (2018). Empirical Assessment of the Effects of Financial Inclusion on Poverty Reduction in Nigeria, *European Journal of Economics, Finance and Administrative Sciences issue 99*, 22-29
- Ayensu, E. A. (2017). The Impact of Financial Inclusion on Poverty Reduction in Some Selected Sub-Saharan Africa Countries. Balme Library, University of Ghana. Powered by Academic Computing Unit (ACU) of UGCS.
- Dickey, D.A., & Fuller, W.A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root, *econometrical*, 49, 1057-1072. *Econometrica*, 47, 263–291.
- Felix E. D, Sale M. & Adegoke D. A. (2019). Effects of Poverty on Human Development in Nigeria. *UMYUK, Journal of Economics and Development (UJED)*, 2(1), 257-269. 4.
- Gunarsih, T. Sayekti, F. & Dewenti, R. L. (2018). Financial Inclusion and Poverty Alleviation: Evidence from Indonesia. *International Journal of Economics, Business and Management Research*, 2(3).
- Ibrahim, H. B., Manu D., Adamu, I J, Kasima, W., Babayo, H., & Yusrah, I. (2019). An examination of the Impact of Financial Inclusion on Poverty Reduction: An Empirical Evidence from Sub-Saharan Africa. *International Journal of Scientific and Research Publications*, 9(1), 239-252.
- International Banker (2021). Accelerating Financial Inclusion for Economic Development and Increased Industry Profitability.

- Isaac, K, Renato, A. V. & David, H. (2020). Effect of financial inclusion on poverty and vulnerability to poverty: Evidence using a multi-dimensional measure of financial inclusion, Network for Socioeconomic Research and Advancement, Working Paper, NESRA /WP/20/001
- Jarque, C. M., & Bera, A. K. (1987). A Test for normality of observations and regression residuals, *International Statistical Review*, 55(2), 163-172.
- Kama, U. & Adigum M. (2013). Financial inclusion in Nigeria: Issue and challenges. CBN Occasional paper. No 45.
- Kusuma, R. (2020). The Impact of Financial Inclusion on Economic Growth, Poverty, Income Inequality, and Financial Stability in Asia, *Journal of Asian Finance, Economics and Business*, 3(1), 42-54.
- Ogbeide, S.O & Igbini, O.O. (2019). Financial inclusion and poverty alleviation in Nigeria. *International Journal of Scientific Research and Management* 6(06)
- Pesaran, M.H., Sin Y., & Smith, R.J. (2001). Bounds testing approaches to the analysis of the level relationship. *Journal of Applied Econometrics*, 6, 289-326
- Philips, P.C.B., & Perron, P. (1998). Testing for a unit root in time series regression, *biometrical*. 32, 301-308.
- Ramsey, J. B. (1969). Test of Specification Error in Classical Linear Least-Squares Regression Analysis. *Journal of the Royal Statistical Society Series B*, 31, 350-371.
- Sanusi, L. S. (2011): "Financial Inclusion for Accelerated Micro, Small and Medium Enterprises Development: The Nigerian Perspective" Paper presented at the 2011 Annual Microfinance and Entrepreneurship Awards.
- Toda, H.Y. & Yamamoto (1995). Statistical inference in Vector Autoregressions with possibly integrated processes. *Journal of Econometrics*, 66, 225-250.
- World Bank (2017). Finance for all? Policies and pitfalls in expanding access. (*World Bank Policy Research Report*). Washington, DC: World Bank
- World Bank (2020). Group's Universal Financial Access 2020 initiative. Financial inclusion has been identified as an enabler for 7 of the 17 Sustainable Development Goals.
- World Bank (2018). Women's Financial Inclusion and the Law. Washington, DC: World Bank publication.
- The CUSUM and CUSUMSQ of the square are used for testing the structural stability of the models. The result is presented in Figures 1 and 2.