

Implications of financial development on poverty and inequality: Evidence from Nigeria

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Abstract

This paper examines the short and long run implications of the four measures of financial development on poverty reduction and income inequality in Nigeria within the period 1996-2017. The study employs the Autoregressive distributed lag (ARDL) long run co-integration approach. The results revealed a positive but economic insignificant relationship between financial development, poverty and inequality both in the short and long run. The study further revealed that corruption and inflationary levels exhibited positive effect on poverty reduction and income inequality. These results advocate for an establishment of more bank branches as well as the development of informal/micro financial institutions in the rural areas. Since the result particularly pointed out the significance of the financial institution efficiency and stability has germane to foreign and domestic investment attraction, the government should embark on policies that strengthen the efficiency and stability of the sector. It also recommends that since the control of corruption has been highlighted as a panacea for poverty and inequality reduction, the government should tilt toward policies that would address corruption which is the most important element in institutional quality.

Keywords: Poverty, Inequality, Financial development

JEL: I 3, O1, G2

1. Introduction

The importance of financial sector development to national development cannot be overemphasized. Financial development justifies the existence of robust financial regulations and framework which is capable of attracting domestic and foreign investment (Abdin, 2016; Abdulnasser and Shamsuddin, 2016). More importantly, it reduces information asymmetries and transaction costs attributable to financial transactions. A sound financial system plays an intermediating role in pooling of funds through savings mobilization and extending credit facilities (Baligh and Pirae 2012; Adams and Klobodu 2016). In addition to the above evidences, financial development has been established to have direct linkage to economic growth in the

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developed countries (Dhrifi, 2013). It improves the establishment of more private business which in turn increases employment opportunities. The increase in employment opportunities empowers the vulnerable thereby inflicting a reduction of poverty in the economy (Daouda, 2015; Dauda and Makinde 2014).

A robust financial system is capable of reducing poverty and inequality through the creation of an enabling environment for easy accessibility of financial services to the vulnerable. The services include the savings mobilization, credit disbursement and provision of micro-insurance services to the grassroots (Sara and Alessio, 2017). It could also proffer financial literacy skills by way of advisory services and trainings. In particular, financial sector development could facilitate the reduction of vulnerability to shocks through effective risk management practices. This includes the examination of the grass-root effects of market failure and also proffers formal access to finance for the poor (Sami and Ruixin 2016). The availability and easy accessibility of credit to the microenterprises creates an environment for more job opportunities for the poor (Daouda, 2015) while improving more equitable income distribution (Omojolaibi, 2017; Adams and Klobodu, 2016).

Extant studies in the developed economies have established an inverse relationship between financial development, poverty and inequality. The works of Durusu-Ciftci, Ispir, and Yetkiner, (2016) confirms the importance of financial development to the reduction of poverty and inequality. The reductive impact of financial development on poverty and inequality could be attributed to the easy accessibility of capital in the system (Keho, 2017; Naceur and Zhang, 2016). The incidence of low financial transaction cost could also be attributed to the significant effect of financial development on poverty level. In a similar manner, the stable and efficient nature of the financial system increases the investors' confidence thereby reducing their cost of investment.

However, in Nigeria and many other low- and middle-income countries, financial sector development has not recorded as significant reduction in the level of poverty and inequality. For instance, Nigeria's financial sector development indicators recorded significant growth in the last few decades. The private credit to gross domestic product grew from 5.9% in 1981 to 20.8% in 2016 while the ratio of deposit demand to gross domestic product rose to 21.3% from 10% in 1981 (CBN, 2017) but her poverty level has not recorded significant improvement. The total number of people living in poverty has risen to 86.3 million (World Bank report, 2018) which is about 50% of the Nigerian populace. The reason for the unfelt impact of financial development on poverty level may be due to the high cost of accessing loans. These attributed costs of assessing loans may erode a major part of their income thereby making them worse off.

Studies has however been conducted to investigate the impact of financial development on poverty and inequality but mixed results were established. Some

studies like (Abdin, 2016; Dauda and Makinde, 2014) expressed that financial development reduces poverty level while others (Keho, 2017; Neaime and Gaysset, 2017; Uddin, 2016) reflected that poverty levels is not affected by the developments in the financial system. Some other studies however noted that financial development affect poverty levels in different manners according to the countries level of economic development. Rewilak, (2017) and Shahbaz, Arouri, and Teulon (2014) noted that at an initial stage of economic development, poverty level increases as the financial system improves but at a later stage of development, poverty level reduces as financial development increases. In the same vein, studies on the consequence of financial development on income inequality reveals inconclusive results (Omojolaibi, 2017; Adams and Klobodu, 2016; Zhang and Chen, 2015).

The inconclusiveness in the outcome of the studies on financial development, poverty and inequality could be traced to measurement issues. Most of the studies evaluated financial development through the use of private credit to GDP and the ratio of broad money to GDP. These measures concentrated on the access and depth measure of financial development while very few studies investigated on the significance of financial efficiency and stability to the reduction of poverty and inequality. In order to critically examine the financial development impact on poverty and inequality, the full measure of financial development must be considered.

Against this backdrop, this study investigates the extent of the contributions of each of the dimension of financial institution development on the poverty and inequality. It further examines the long run relationship between financial development, poverty and inequality in the Nigerian economy. The study to the best of knowledge is novel to the literature on financial institution development, poverty and inequality reduction in Nigeria.

2. Review of literature

It has been established in the literature that there exist three strands of theory which were used to explain the behavior of financial sector development to poverty reduction and income inequality (Zhang and Chen 2016). They are the inequality-narrowing hypothesis, the inequality-widening hypothesis and the inverted U- hypothesis.

The income widening theory predicted that financial development automatically promotes poverty and inequality. It was noted that the effect of financial development is dependent on the different endowments of the individuals (Baligh and Pirae, 2012; Zhang and Chen, 2016). In the study, it was noted that the wealthy are able to provide collateral for obtaining loan and also have a higher capacity to

repay the credit. Even when the financial market develops, inequality as well as poverty tends to increase due to their inability to provide collateral as well as weak institutional policies thereby excluding the poor from the benefits accrued to improved financial system.

In a different vein, other opines that inequality reduces as the financial sector develops. The inequality narrowing hypothesis predicts that financial development bridges the income inequality gap. It noted that the poor are prone to more opportunities as a result of the trickle-down effect of indivisible investments. The exposure and ease of access to credit facilities will reduce income inequality. Hence, under the inequality narrowing hypothesis, financial development exhibits a linear but negative relationship with poverty and inequality (Zhang and Chen 2016).

The last strand combines the positive and negative linearity of the effects of financial development on inequality. The inverted U hypothesis was developed by Greenwood & Jovanovich as cited by Reliwak (2017). The theory predicted an inverted relationship between financial development, income inequality and economic development. He noted that as the financial system develops, the financial services become unaffordable to the poor due to the increased fixed cost of financial alliance. This resulted in a broader gap in income inequality but as the system develops the financial services becomes affordable and accessible because physical capital is being replaced by human capital (Naceur and Zhang 2016). Studies by Zahonogo 2017; Zhang and Chen 2016) supports the Greenwood and Jovanovich Inverted U hypothesis. This study premised its assumption on the Greenwood & Jovanovich inverted U relationship between finance, inequality and poverty reduction nexus in line with the study by Naceur and Zhang (2016).

Many studies have been conducted to examine the relationship between poverty, inequality and financial development. The works of Fowowe and Abidoye (2009), Simon and Isabella (2017) confirms the propositions that financial development has no contributions to the reduction of poverty and inequality. Fowowe and Abidoye (2009) observed that private credit and broad money do not significantly influence poverty and inequality in African countries. The study employed the GMM as its method of estimation technique to explore the role of financial development in combating poverty and inequality. It was deduced that the financial institutions in most of the African countries prefer to invest in treasury bills due to the level of risk associated with lending to small and medium scale enterprises and its associated high cost of transaction.

Similarly, the study of Simon and Isabella (2017) on the relevance of financial stability and inclusion on poverty and inequality levels in MENA noted that financial inclusion has a detrimental effect on inequality, population and inflation while it has a positive relationship with the growth rate of poverty. The study observed that financial inclusion has a contributory effect on the stability of the

sector. Financial inclusion strategies was not able to reduce poverty growth rate because the lack of entrepreneurial development.

However, other studies suggest that financial development has a positive influence on the reduction of poverty and inequality. Dhrifi (2013); Daouda (2015); Seven and Coskum, (2016), Sami and Ruixin (2016) amongst others confirmed that financial development reduces poverty and economic inequality. Dhrifi (2013) in his study considered the effect of growth and inequality in the relationship between financial development and the reduction of poverty in a sample of 89 developing countries over the period of 21 years. The study revealed that financial development through access to credit; savings mobilization and insurance channels are robust in reducing poverty. It was also noted that institutional quality is a key criteria that is capable of influencing the relationship between poverty reduction and financial development.

Seven & Coskum (2016) examined the contributions of financial institution and markets to the reduction of poverty and inequality in emerging countries. The study was carried out for the period (1987-2011) using the ordinary least square and the system GMM. The result exhibited a mixed reaction, a significantly positive relationship existed between financial institution and inequality level while both the financial institutions and markets signified negative relationships with poverty levels. In the overall, the financial development failed to have a beneficial impact on the wellbeing of the poorest segment of the society.

Sami & Ruixin (2016) in his study also examined the role of financial sector development on poverty and inequality on the perspective of the two broad categories of financial institution and market. The study spans across 1961-2011 for a selection of 143 countries across the globe. They employed ordinary least square and instrumental variable method of estimation to control for endogeneity problems. The result revealed that financial development indicators except the financial liberalization reduce income inequality and poverty. It also noted that the banking sector development tends to provide a better impact on the distribution of income than the stock market development.

Having reviewed existing studies, it was observed that majority of the studies concentrated on the aggregate measure financial development or a combination of one or two of its measures, this study seeks to fill the lacuna by investigating the individual effects of financial indicators as well as examining the interactive effects of the indicators on the Nigeria poverty and inequality level.

3. Research Methodology

• *Theoretical framework*

The theoretical framework underpinning this study is the Greenwood & Jovanovich inverted U- hypothesis. It assumes that at the initial stage of development, the relationship between financial development and poverty levels is linear and positive until it gets to the altitude where a reversal of the relationship is witnessed. Conventionally, the model of the inverted U- shaped assumed a non- linear relationship between financial development and income inequality.

• *Model specification:*

The principal objective of the study is captured succinctly in the model below in which poverty is expressed as a function of financial development, GDP per capita, squared GDP per capita, and the other control variables. This model stemmed out from previous studies done by scholars in related field particularly Simon and Isabella (2017). The functional form of the model is specified as:

$$Hoscom_t = \varphi_0 + \varphi_1 \sum fid_t + \varphi_2 gdp_t + \varphi_3 infl_t + \varphi_4 corr_t + \varepsilon_t \quad (1)$$

Where *hoscom*, is the measure of poverty in terms of the household consumption expenditure per capita, *fid*, is the vector of financial development indicators. The parameters *gdp*, *inf*, *corr*, are the GDP per capita, inflation, corruption. These parameters measure the growth, macro-economic, political and economic openness effect on poverty levels respectively.

In a similar vein, the inequality- financial development relationship is expressed in a linear form as follows:

$$gini_t = \rho_0 + \rho_1 fid_t + \rho_2 gdp_t + \rho_3 inf_t + \rho_4 corr_t + \varepsilon_t \quad (2)$$

Where *gini*, is the gini coefficient and it measures the level of inequality in the economy. The other parameters remain as defined in the poverty- financial development equation.

The study adopts the ARDL co-integration and bound test by Pesaran, Shin and Smith (2001) to examine the long run relationship between the level of financial development, Poverty and inequality in the Nigerian economy. The error correction method (ECM) is expressed as follows:

$$\Delta \ln houscom_t = \varphi_0 + \varphi_1 \sum fid_{t-1} + \sum_{i=0}^n \varphi_2 \Delta \ln gdp_{t-1} + \sum_{i=0}^n \varphi_3 \Delta \ln infl_{t-1} + \sum_{i=0}^n \varphi_4 \Delta \ln corr_{t-1} + \varphi_5 \varepsilon_{t-1} + u_t \quad (3)$$

Where Δ signifies a change in the level of poverty, financial development and the ε_{t-1} is the one time period lagged error correction term. The equation expresses

how fast the level of disequilibrium is corrected between the short and long run model.

- **Data sources and variable justification:**

Financial development is measured in terms of its access, depth, efficiency and stability. The bank branches per 1000 adults, ratio domestic credit of private sector to GDP, liquidity ratio, and total bank assets, were used to as standard proxy the access, depth, efficiency and stability respectively (Zahogono 2017; Keho 2017; Sami and Ruixin 2016). The household final consumption expenditure was used as a measure of poverty (see Keho 2017, Uddin et al 2014). Gini coefficient was used as a measure of income inequality. The validity of these measures has been tested in existing studies and this informed the choice of data employed. Gini index as a measure of inequality was obtained from the standardized world income inequality Database SWIID Solt (2016). The data on financial development, poverty and other indicators were accessed from the World Bank development indicator database. The period of study spans from the year 2004 to 2016. The study coverage was largely limited due to the inadequacy of data. As a result, the available data was transformed to quarterly data so as to increase the number of time periods.

4. Results

- **Descriptive analysis**

From the analysis in table 1, the annual percentage household consumption expenditure per capita recorded 1, 736.00 naira as the highest household consumption expenditure per individual while the least expenditure was less than one thousand naira.

Table 1. Descriptive analysis

Variables	Obs.	Mean	Maxima	Minima	Std. Dev.
Household final consumption expenditure per capita (annual %)	20	1398.73	1736.00	954.36	249.37
Gini Coefficients	20	0.45	0.46	0.44	0.00
Commercial bank per 100000 adults	20	0.04	0.07	0.00	0.03
Private credit to GDP	20	0.15	0.36	0.09	0.06
Net interest margin	20	0.09	0.16	0.06	0.03
Bank liquidity reserve to bank asset ratio	20	0.15	0.34	0.00	0.11
Growth rate of GDP per capita	20	0.04	0.30	-0.03	0.07
Inflation	20	0.12	0.29	0.05	0.05
Corruption	20	-1.00	0.00	-1.43	0.45

The average expenditure of an individual in the country was concentrated around 1, 398 naira with a trifling deviation from the mean value. Gini coefficient which measures the level of income inequality in the country lies within the range of 44% and 46%. The highest percentage of commercial banks per 100000 adults recorded during the period of study was 7% and the least was less than 1%. Although an improvement was noted during the period but the growth was low compared to some other countries. Private credit to GDP has an average value of 15% while it recorded 36% at its altitude and 9% as its least value. The net interest margin and the bank liquidity noted a maximum performance of 16% and 36% respectively while 9% and 15% was the lease recorded performance for the two measures of financial development. The per capita income of the country documented a negative growth rate of 3% at the least period while the highest growth recorded was 30%.

- **Correlation between financial development, poverty and inequality**

Table 2 presents the degree of correlation between the explained and the explanatory variables. The matrix reflects that most of the variables have weak correlation while very few of the exhibit strong correlations amongst each other. The variables are however in good fit because the rule of correlation was not violated as none of the variables has correlation degree of 80%.

Table 2: Correlation coefficients matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Household final consumption exp. per capita (annual %)	(1)	1.00								
Gini Coefficients	(2)	-0.45	1.00							
Commercial bank per 100000 adults	(3)	0.79	-0.17	1.00						
Private credit to GDP	(4)	0.38	-0.13	0.42	1.00					
Net interest margin	(5)	-0.51	0.40	-0.62	-0.42	1.00				
Bank liquidity reserve to bank asset ratio	(6)	0.71	-0.54	0.43	-0.08	-0.34	1.00			
Growth rate of GDP per capita	(7)	0.44	-0.38	0.27	0.03	-0.37	0.25	1.00		
Inflation	(8)	-0.03	0.18	-0.19	-0.10	0.56	-0.13	0.17	1.00	
Corruption	(9)	0.41	0.33	-0.39	0.03	-0.06	-0.33	-0.10	-0.06	1.00

Source: Authors compilation (2018)

From the foregoing, the need to test the levels of co-integration is essential for the selection of appropriate method of analysis in evaluating the relationship between financial development, poverty and inequality.

- **Unit root analysis and long run co-integration/bound test**

The study examined the stationary levels of the variables through the use of Augmented Dickey fuller and Phillip Perron. The two examinations reported mixed stationary levels but the Phillip Perron result was the preferred choice and hence presented in the table below. The dependent variables are stationary at first difference while the explained variables displayed stationary levels at level and first difference. Having identified mixed stationary levels amongst the variables, the most appropriate method of analysis is the Autoregressive distributed lag (ARDL). The superiority of the ARDL to the ordinary least square is in its flexibility in handling co-integrating variables of level and first difference levels. In addition, it offers better outcomes in cases of small sample size which is the case of this study.

Table 3: Phillip - Perron Unit root analysis @ 5% critical value

Variables	Adjusted t- statistics	Critical values	Decision criteria
Household final consumption expenditure per capita (annual %)	-7.840279	-3.690814	I (1)
Gini Coefficients	-10.38454	-3.658446	I (1)
Commercial bank per 100000 adults	-4.97508	-3.690814	I (1)
Private credit to GDP	-3.763496	-3.658446	I (1)
Net interest margin	-3.861069	3.644963	I (0)
Bank liquidity reserve to bank asset ratio	-4.626239	3.658446	I (1)
Growth rate of GDP per capita	-3.681073	-3.644963	I (0)
Inflation	-5.487892	-3.673616	I (0)
Corruption	-3.790878	-3.791172	I (1)

Source: Authors extraction from E-views 13.0

Another condition for determining the level of co-integration is the long run form and bound test. The decision criterion for long run co-integration is the comparison of the F-statistic value and the critical values of lower and upper bound values. The null hypothesis of no long run co-integration is rejected if the F-statistic value is greater than the critical value at upper bound. If the F-statistics falls below the critical value at lower bound, then the null hypothesis of no long run relationship is accepted, but if falls within the two critical bound, then it can be noted that the result is inconclusive.

Table 4: ARDL long run co-integration form and bound test

Dependent Variables	F- Statistics	Co-integration decision
Household final consumption expenditure per capita (annual %)	1.614697	No long run co-integration
Gini Coefficients	4.728133	Long run co-integration exist
Critical value		
Significance	Lower Bound	Upper Bound
10.0%	2.03	3.13
5.0%	2.32	3.50
2.5%	2.60	3.84
1.0%	2.96	4.26

Source: Author's compilation, (2018)

From the results in table 4, The F- statistics of 1.614697 is lesser than the lower bound critical values at 1%, 2.5%, 5% and 10% levels of significance. This indicated that there is no long run relationship between the level of poverty, financial development and the other control variables. In a similar manner, the outcome the bound and co- integration test between the level of inequality and financial development revealed an f- statistic value of 4.728133. The value however exceeds the upper bound critical value at the different levels of significance. This indicated that there exists a long run relationship between the level of inequality and financial development in Nigeria.

- **ARDL short run relationship between poverty level and financial development**

From the above analysis, the short run relationship between the poverty level and financial development was tested. The result revealed positive and significant relationship between the measures of financial access and poverty level. Other measures of financial development such as the measure of depth, efficiency and stability were not significant although bank efficiency and stability exhibited a reductive effect on the level of poverty in Nigeria. Growth rate of GDP per capita reflected a reduction in the growth of poverty and this is consistent with the studies by Keho (2017); Zahonogo, (2016) and Dhrifi (2013). These studies pointed to an increased impact of financial development on poverty growth.

Table 5: ARDL Short run relationship between Poverty level and Financial development

Variable	Coefficient	Std. Error	t-Statistic
C	0.020519	0.014558	1.409459
D(Combank (-1))	1.244572**	1.284287	0.969076
D(privatecredit (-1))	0.01347	0.233296	0.057737
D(Netinterest (-1))	-1.534417	0.998529	1.536678
D(Bankliquidity (-1))	-0.253219	0.205488	-1.232279
D(Gdpercapita (-1))	-0.392993	0.16124	-2.437317
D(Inflation (-1))	0.059818	0.229328	0.260839
D(Corruption (-1))	0.026572*	0.029051	0.914663
R-squared	0.856367		
Adjusted R-squared	0.833146		
F-statistic	2.22766		
Prob(F-statistic)	0.113286		
Durbin-Watson stat	1.776732		

Source: Authors compilation from the E-views13.0 result

The level of corruption in the country is positively significant to poverty. The positive correlation could be attributed to the insignificance of the financial sector to poverty reduction. The rate of GDP growth exerts a negative but inconsequential effect on the level of poverty. The level of inflation over the sample period increases the poverty level in the economy through the increased purchasing power parity. The positive signal of inflation rate deters the efforts of financial development in reducing poverty. The study backs up prior evidences from the MENA region as studied by Neaime and Gaysset, (2017) which noted that high inflationary levels have positive influence on poverty. The variations in the level of poverty can only be explained by 85% of the explained variables.

- **Long run relationship between inequality and financial development**

In explaining the long run relationship between financial development and level of inequality in Nigeria, Table 6 reflects that the number of commercial banks per 100000 adults increases the level of inequality in the economy. This result offers a level of consistency with prior study by Seven and Coksum (2016) who asserts a positive influence of bank development on inequality. Contrarily, the private credit to GDP reduces inequality although the effect was unfelt. The unfelt impact presume majority of the poor are underserved. The net interest margin which is a

measure of financial institution efficiency significantly increases the level of inequality.

Table 6: Long run co- integration between inequality and financial development

Variable	Coefficient	Std. Error	t-Statistic
Combank	0.317357	0.383419	0.827704
Privatecredit	-0.059534	0.155271	0.383417
Netinterest	0.304158***	0.559262	0.543856
Bankliquidity	0.01688	0.056131	0.300729
Gdppercapita	0.154038**	0.336926	0.457187
Inflation	-0.215052	0.393603	-0.546369
Corruption	0.020548*	0.023717	0.866377
C	0.436421	0.046176	9.451261

Note: ***, ** and * Signify significant level at 1%, 5% and 10% respectively.

Source: Authors computation (2018)

This could be the level of corrupt practices in the system favors the elites. The masses are deprived of easy accessibility to financial services and that could widen the gap of income inequality in the system. The positive impact of corruption level confirms implies an inhibiting factor to the achievement of equitable distribution of income. In a similar version, the growth rate of GDP per capita also contributed to the widen income inequality in the Nigerian system.

• Error Correction Model

The speed of adjustment of the short run dynamic relationship between inequality and financial development is presented in table 7. The negative lagged error correction term implies a compliance with the a priori expectation that the relationship will return to convergence.

Table 7: Error Correction Model

Variable	Coefficient	Std. Error	t-Statistic
C	3.70E-05	0.000479	0.077375
D(Combank(-1))	-0.0000782***	0.045106	0.001734
D(Privatecredit(-1))	0.016704**	0.007732	2.160459
D(Netinterest(-1))	0.037671**	0.032761	1.149869
D(Bankliquidity(-1))	-0.007479	0.006845	-1.092561
D(Gdppercapita(-1))	0.004407	0.006058	0.727414

Variable	Coefficient	Std. Error	t-Statistic
D(Inflation(-1))	0.010173**	0.012958	-0.785114
D(Corruption(-1))	0.001222*	0.001118	1.092981
ECM(-1)	-0.355145	0.347318	1.022535
R-squared			0.940921
Adjusted R-squared			0.928406
Durbin-Watson stat			2.059307

Note: ***, ** and * Signify significant level at 1%, 5% and 10% respectively.

Sources: Author's Compilation (2018)

The ECM value of -0.355 infers a long run causality running from the explanatory variables to the explained variable. The disequilibrium experienced in the previous periods converges back to the equilibrium long run in the current year with a 94% speed of adjustment. In correspondence to the positive and statistical significance of the level of inflation and corruption in the long run, the level of inequality explains the insignificance in the impact of financial development indicators.

- **Diagnostic results:**

The diagnostic test was performed to examine the robustness of the ARDL model in establishing the relationship between financial development, poverty and inequality. The serial correlation and stability test was carried out through the Breusch pagan Godfrey serial correlation LM test and the CUSUM test respectively.

Table 8: Breusch-Godfrey Serial Correlation LM Test

Poverty_ financial development model		Inequality_ financial development model	
F-statistic	0.154302	F-statistic	0.124359
Obs*R-squared	0.288718	Obs*R-squared	0.275525
Prob. F (1,10)	0.7027	Prob. F (1,8)	0.7335
Prob. Chi-Square (1)	0.591	Prob. Chi-Square (1)	0.5996

Source: Authors compilation, (2018)

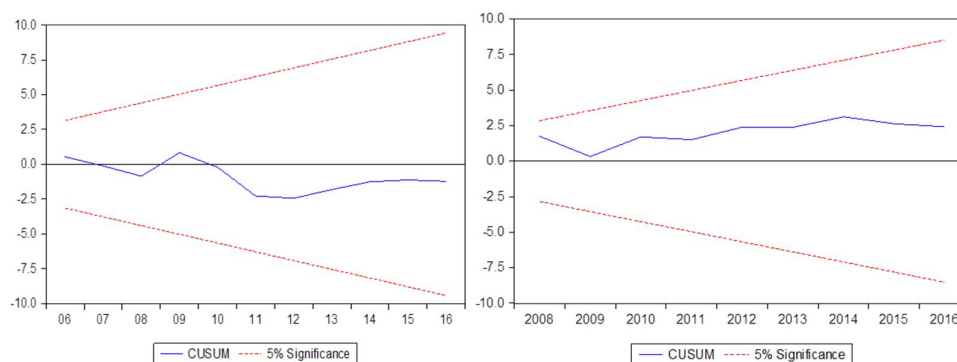
The decision criterion for the acceptance of the serial correlation hypothesis of no serial correlation is that the probability value must be higher than the F- statistics. Therefore, the result of serial correlation test as presented in Table 8 reveals that the probability value of 0.7027 is greater than the F- statistics value of 0.154302. Hence, the poverty- financial development model is not suffering from serial correlation. In a similar vein, the serial correlation test of the inequality- financial

development relationship revealed the presence of no serial correlation between the level of inequality and financial development. The F- Statistics value of 0.124359 is far below the probability level of 0.7335. Hence the null hypothesis of no serial correlation cannot be rejected.

- **Cusum test of stability**

The graph on Fig 1 illustrates the stability of the models. The left hand side graphical illustration depicts that the poverty financial development model lies with the 5% significance level while the right hand graph explains the stability of the inequality-financial development model. In conclusion, the CUSUM line falls within the acceptance region therefor confirming the stability of the models.

Figure 1: CUSUM Test



5. Conclusion and Policy recommendations

This paper studied the implications of financial development on poverty and inequality in Nigeria. The empirical evidences disclose a short run relationship between financial institution development and poverty reduction while a long run link between financial development institution indicators and the level of inequality in Nigeria. The ratio 100,000 adults to commercial bank signified a worsened impact on the reduction of poverty and inequality in Nigeria. The result was as a result of insufficiency in the number of bank branches especially in the rural regions of the economy. The policy makers or authority should restrict the opening of bank branches in the urban areas and encourage more of rural branches so as to encourage increased financial accessibility to the poor. Financial depth as measured by the ratio of private credit by commercial banks to GDP indicated an increasing impact on poverty level. This indicated that although the rate of credit disbursement

is increasing, it does not exert a reductive impact on the level of poverty. In a concise manner, the poor and vulnerable are financially deprived from the access to credit either because of the stringent conditions for accessing the loans or their inability to meet up with the collateral conditions. The long run implications of the financial depth exhibit a narrowing effect on inequality although not significant. The inability of the financial access and depth to significantly intercede in the reduction of poverty and inequality is more influenced by the level of the financial efficiency and stability in the Nigerian economy. Financial efficiency assumes a reductive but non-significant impact on the poverty level while in the long run it further dampens the equitable distribution of income. This is because the financial system is not operating at an optimal level of efficiency and the effect is more reflected among the vulnerable. Furthermore, the in-optimal level of operation of the financial system discourages foreign investors from investing low cost funds into the system. In a likewise manner, the financial institution instability also discourages foreign investment hence it does not support the poverty and inequality reduction in the system. The macroeconomic stability and institutional quality cannot be underemphasized in the prevalence of poverty and inequality in the system as they are both significant and positive in explaining the severity of poverty and inequality in the Nigerian economy.

The study therefore recommends that the authorities should look inwards in addressing the financial institution development as its significance to the reduction of poverty and inequality has been confirmed despite its ability to immediately reduce poverty and inequality levels. There should be more concerted efforts to take financial services to the poor by encouraging the opening of bank branches in the peripheral of the urban regions. The policy makers should provide enabling conditions where business can be done at a least cost manner so as to ensure the efficiency of the system. The institutional qualities should also be addressed by embarking on strategies that reduces financial access bottlenecks.

Conclusively, the government of the Nigerian economy should embark on the development of the semi- formal and the informal financial institutions at the grass-root level, microfinance banking licenses should be issued to states that still have a higher percentage of rural dwellers. This will tend to reduce the transaction cost which erodes the clients profit and impoverish them more rather than liberate them. Also, the operations of the microfinance practitioners should be mainly taking financial services to the pro-poor but it was observed that most of their operations neglect their target audience and focus more on the financially stable clients, the regulatory bodies should apply sanctions to erring micro- finance institutions. Lastly, to effectively capture the role of financial development influence on poverty and income inequality, there should be a micro- finding, i.e conducting an impact assessment analysis of the pro- poor.

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