# **Income Inequality and Poverty in Nigeria: An Empirical Analysis**

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**Abstract:** The study assessed the impact of income inequality on poverty in Nigeria spanning the period of 1986 to 2018. The Autoregressive Distributed Lag (ARDL) model was used to carry out this objective. Findings from the study revealed that income inequality significantly contributed to the rising poverty in Nigeria, increasing poverty by 75%. Similarly, unemployment and the rising inflation exacerbated the poverty situation in the country. Conversely, growth in per capita income dampened the negative effect of poverty over the period of study. To tackle the pervasive income inequality, the study recommended improved distribution of human capital, a well-targeted social protection, while expanding the coverage of the government's social investment program to capture more unemployed people.

Keywords: Income inequality, Poverty, Per Capita Income, Unemployment, Nigeria.

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#### I. Introduction

Globally, there has been widespread concerns that economic growth is not being shared fairly. In Africa, income inequality and poverty are two related and mutually reinforcing developmental challenges. Oxfam (2019) noted that the continent remains afflicted by an alarmingly high and rising inequality and an entrenched poverty. Furthermore, Chancel, Cogneau, Gethin and Myczkowski (2019) stated that despite strong economic growth in many African countries, human development and poverty indicators have not progressed as expected, fueling a renewed interest in the study of inequality as it is seen as one of the main causes of the weak poverty-alleviation elasticity of growth.

In Nigeria, the scale of inequality is quite extreme. Oxfam (2017) particularly noted that the paradox of growth in Nigeria is such that as the country gets richer, only a few benefit, while the majority continue to suffer from poverty and deprivation. Now dubbed the poverty capital of the world, recent data according to Quartz Africa (2018) reveals that 86.9 million Nigerians now live in extreme poverty representing nearly 50% of its estimated 180 million population- Nigeria is multi-dimensionally poor.

Furthermore, the Oxfam (2019) report of ranking of African nations by their commitment to tackling inequality ranked Nigeria as the 45<sup>th</sup> out of 45 countries, stating that Nigeria has the unenviable distinction of being at the bottom of the African ranking, as well as its global ranking for two years running. Government's indifference to inequality in the country portends a serious challenge.

## 1.1 Problem Statement

Adverse income inequality is detrimental to achieving inclusive growth. The resurgence of empirical attention on income inequality stems from the fact that it provides an unfavourable environment for development. Consequently, Yunqian (2017) submitted that it is in fact possible to be concerned about poverty but to be indifferent to inequality, stating that tackling poverty also requires policies to reduce inequality. Accordingly, the need to be concerned about income inequality cannot be understated because inequality matters greatly for poverty. This is so because for a given level of average income, increased inequality will almost always imply higher levels of poverty.

Similarly, with rising poverty, redistribution towards the poor will not only require higher levels of growth to lift people out of poverty, but also development policies that address the problem of pervasive income inequality, thereby providing a basis for this study which spans the period covering 1986 to 2018.

The central problem of this study is that despite past policy interventions (such as the National Poverty Eradication Programme, Family Economic Advancement Programme, Family Support Programme, among others) to achieve inclusive growth, characterized by increased GDP vis-à-vis a reduction in inequality and by extension, poverty, the problem of poverty still persists, necessitating a critical evaluation of how inequality affects poverty.

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#### 1.2 Objectives of the Study

As a major objective, this study sought to assess the impact of the rich-poor divide on the worsening poverty situation in the country. In addition, it also examined how GDP growth, the unemployment situation, and the rising cost of commodities affects poverty in the country.

#### **II.** Literature Review

#### 2.1 Conceptual Literature

**2.1.1 Poverty**-According to Haughton and Khandker (2009) poverty is defined as a 'pronounced deprivation in well-being'. Depending on how well-being is understood, it can be defined narrowly or more broadly.

*Narrow definitions of well-being-* Are typically linked to commodities, i.e. whether households or individuals have enough resources to meet their needs. In this case poverty is seen largely in monetary terms in relation to household income or consumption (Haughton & Khandker, 2009).

*Broader definitions of well-being-* Includes items such as physical and mental health, close relationships, agency and participation, social connections, competence and self-worth, and values and meaning (Wellbeing & Poverty Pathways, 2013).

**2.1.2** Income Inequality- Kopp (2019) defines income inequality as "an extreme disparity of income distribution with a high concentration of income usually in the hands of a small percentage of a population". When income inequality thus occurs, there is a large gap between the wealth of one population segment in comparison to another.

Income inequality and income disparity segregations can be analyzed through a variety of segmentations such as occupation, historical income, male vs. female, ethnicity, and geographic location. Segmentations of income disparity analysis are used for analyzing different types of income distributions, as such, income distributions by demographic segmentation forms the basis for studying income inequality and income disparity.

## 2.2 Theoretical Literature

2.2.1 Social Capital Theory- Theorized by Bourdieu (1983) and Coleman (1988), the social capital theory contends that social relationships are resources that can lead to the development and accumulation of human capital. Social capital is a broad term encompassing the 'norms and networks facilitating collective actions for mutual benefits'. Consequently, Portes (1998) submitted that this broad definition of social capital makes it susceptible to multiple interpretations and usage spanning multiple theoretical traditions. While Mohan and Mohan (2002) sees it based on the premise that social relations have potential to facilitate the accrual of economic or non-economic benefits to individuals, Coleman (1988) on the other posited that social capital can be seen to reside in the relations and not in the individuals themselves. Following Mohan and Mohan's (2002) submission, the theory is relevant because it emphasizes how social capital affects an agent's economic fortune. 2.2.2 Social Exclusion Theory-Popularized in the 1960's, the concept finds its root in the economic crisis of France at the time (Silver, 1994). Social exclusion is conceived as multi-dimensional, operationalized as a combination of material deprivation, insufficient access to social rights, a low degree of social participation and a lack of normative integration (Jehoel-Gijsbers & Vrooman, 2007). The theory emphasizes the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas. The relevance of the theory stems from the fact that income inequality could result to social exclusion which exacerbates poverty.

## 2.3 Empirical Literature

Assessing government's interventionist program in bridging the rich-poor divide, Kennedy (2019) examined the effect of governance on income distribution and income inequality in Nigeria, using the federal government social intervention policy programme of *Trader Moni*. Employing content analysis, the study analyzed the scheme between 2018 and 2019. It found that the implementation of the *Trader Moni* social intervention policy failed to address its aim of income re-distribution, stating that it was skewed in such a way to generate vote for the ruling party during the Osun governorship and 2019 general elections.

Chancel *et al* (2019) estimated the evolution of income inequality in Africa from 1990 to 2017 using content analysis that combined surveys, tax data and national accounts in a systematic manner. Findings suggests that income inequality in Africa is quite high, standing at par with Latin America or India. It revealed that Southern and Central Africa are particularly unequal. In addition, the bulk of the continent-wide income inequality comes from the within country component, while the between country component was slightly reduced in the last two decades, resulting from a higher growth in poorer countries. Furthermore, inequality was rather stable over the period, with the exception of Southern Africa. Lastly, dualism between agriculture and other sectors which includes mining rents were important determinants of inequality.

Similarly, Fosu (2018) in a literature study and also employing content analysis assessed the economic structure, growth, and evolution of inequality and poverty in Africa. His study found from literatures that the recent relatively impressive growth in Africa does not seem sustainable considering the economic structure.

That accompanying the recent growth record has been improving agricultural labor productivity, a reduction of the agricultural labor share and increasing manufacturing employment. It found that while the efficacy of translating growth into poverty reduction remains lower for Africa than elsewhere, there is evidence of poverty convergence recently in Africa, contrary to that for developing countries generally. The study showed the dominant importance, on average, of growth for poverty reduction in Africa, but also underscores the critical role of inequality, especially for certain countries. Exploring why inequality is particularly high in Africa, it revealed that ethnic fractionalization, limited tertiary education, and poor governance as major culprits, and inequality of opportunity as the dominant component. The study identifies the dual-economy nature of colonial arrangements as the genesis for Africa's high inequality, while proposing an enhanced pro-poor Lewis-type modern-sector enlargement as a potential solution.

Brown and Ogbonna (2018) examined the relationship between income inequality and poverty in Nigeria within the period spanning 1980 to 2017. The study employed the Error Correction Model (ECM) and the Granger Causality techniques, using the variables of inequality, poverty, unemployment, and life expectancy at birth. Findings revealed that national poverty index increased inequality but was however statistically insignificant.

Ajibola, Loto and Enilolobo (2018) empirically examined poverty and inequality in Nigeria with respect to its implications for inclusive growth between 1980 and 2013. The study used Multiple regression and the Granger Causality techniques on the variables of poverty, GDP growth rate, government expenditure on health, inequality (measured by per capita income), government expenditure on education, and unemployment. No causality was found between poverty and inequality, in addition, per capita income had a negative impact on poverty.

Using the Lorenz curve and a descriptive method of analysis, Lucky and Achebelema (2018) examined poverty and income inequality in Nigeria using an NBS 2010 survey. Food poverty line, absolute poverty line, subjective poverty measure and the dollar per day poverty line were used to measure poverty while the Gini coefficient was used to measure income inequality. Findings revealed that significant proportions of the Nigerian population are living below the poverty line. In addition, it also found that there is wide gap between the rich and the poor in Nigeria.

Taking a closer look at the pattern of income distribution on monthly budgetary allocation of households under certain socio-economic characteristics in Akwa Ibom State, Nigeria, Frank, Agom and Obot (2017) used descriptive statistics to analyze respondents selected from high, medium and low-income earners areas of Uyo metropolis. Household's budget was assessed based on occupation, household size, educational and income status. Household income distribution pattern showed that 68% of the households in the study were found to be low income households. Household budgeted expenditure as assessed by different socio-economic characteristics revealed that except for the high-income earners, all other groups spent more than half their income on food.

Ogbeide and Agu (2015) in a study tried to establish whether or not there is a causal relationship between poverty and inequality in Nigeria adopting the Granger causality technique on a data set that covers 1980 to 2010. Variables employed in the analysis were inequality (Gini index), poverty (national poverty index), unemployment rate, and life expectancy rate at birth. Findings revealed that a direct line of causality exist between poverty and inequality as well as an indirect channel through unemployment and low life expectancy on inequality thereby exacerbating poverty in Nigeria.

Mbanasor, Nwachukwu, Agwu, Njoku and Onwumere (2013) analyzed income inequality and poverty dynamics among rural farm households in Abia State, Nigeria between 2010 and 2011. Analytically, the study used the Gini coefficient in the estimation of income distribution while the poverty indicators (using mean household income, headcount ratio and poverty gap index) were used to measure poverty line, poverty incidence and gap. The income distribution showed high level of inequality (Gini index of 0.987), with per capita income falling below the operational national minimum wage. The poverty gap and incidence gave a scary picture of a worsening poverty situation, using the poverty indicators as parameters (head count index of 0.567, and a poverty gap of 0.568).

Cheema and Sial (2012) estimated a set of fixed effect and random effect models to ascertain the long-run relationship existing between growth, income inequality and poverty using a pooled data from 8 household income and expenditure surveys conducted between 1992/'93 and 2007/'08 in Pakistan. The findings showed that growth and inequality play significant roles in affecting poverty, and that the effect of the former is substantially larger than that of the latter. In addition, growth has a significant and positive impact on inequality. Also, the finding also revealed that the absolute magnitude of net growth elasticity of poverty is smaller than that of gross growth elasticity of poverty, suggesting that some of the growth effect on poverty is offset by rise in inequality. Furthermore, the analysis at a regional level showed that both the gross and net growth elasticity of poverty are higher in rural areas than in urban areas, whereas the inequality elasticity of poverty is higher in urban areas than in rural areas.

In a similar study like that of Mbanasor *et al* (2013), Ogunniyi, Adepoju and Olapade-Ogunwole (2011) carried out a comparative analysis of poverty and income inequality among food crop and livestock farmers in Ilesa Metropolis of Osun State, Nigeria in 2011. Descriptive statistics, poverty indices and Gini coefficient were used in the analysis. Findings revealed that the moderate poverty line are 1,222.86, 1566.45 and 1381.26 for food crop farmers, livestock farmers and farmers that were engaged in mixed farming respectively, while the core poor are 611.43, 783.22 and 690.63 for the three group of farmers respectively. Poverty is most pervasive among the mixed farmers with a value of 21.7 compared to the other categories. Farmers growing food crops recorded the least poverty incidence, depth and also severity. It found that income is most unequally distributed among livestock farmers as represented by a value of 0.04, in addition they had the highest social welfare (7145.24) as a result of their higher mean income.

A complete departure from the previous Nigeria based literatures is the inclusion inflation which captures the increasing cost of living on poverty in the model.

#### III. Methodology

#### 3.1 Type and Source of Data

Secondary data were used for the study. They were obtained from the Annual CBN Statistical Bulletin Database, the National Bureau of Statistics (NBS) Databank, the World Income Inequality Database (WIID) put together by the United Nations Development Programme (UNDP), and the World Bank Database. The data used for the study spanned for the period between 1986 to 2018.

#### 3.2 Method of Analysis

To carry out the objectives of this study the Autoregressive Distributed Bounds test (ARDL) was employed. The adoption of the ARDL technique proposed by Pesaran, Shin, and Smith (2001) stems from the fact that it is superior to conventional co-integration techniques when used on a small sample size, it allows both short-run and long-run relation to be tested simultaneously while giving unbiased results, and the variables are tested irrespective of whether a variable is difference of order zero or order one.

## 3.3 Theoretical Background and Model Specification

The study is hinged on the Social Capital theory which emphasizes that the social relationships are resources that can lead to the development and accumulation of human capital or otherwise. The theory is based on the premise that social relations have potential to facilitate the accrual of economic or non-economic benefits to individuals. The theoretical relevance of the theory is captured by the interaction of social relationships represented here by income inequality, on poverty which represents the state of human capital.

#### 3.4 Model Specification

The study adapted the model of Ajibola, Loto and Enilolobo (2018). As such, it models poverty (POV) as a function of income inequality (INQ), per capita income (PCI), unemployment rate (UNP), and inflation rate (INF). The functional and econometric forms of the model are given in Equations [1] and [2] respectively;

- [1] POV=f(INQ,PCI,UNP,INF)
- [2]  $POV = \alpha_0 + \alpha_1 INQ + \alpha_2 PCI + \alpha_3 UNP + \alpha_4 INF + \varepsilon_t$

A priori Expectation: PCI >0, while INQ, UNP & INF<0

Where,  $\alpha_0$  represents the intercept;  $\alpha_1, \alpha_2, \alpha_3$  and  $\alpha_4$  are the coefficients of the variables;  $\varepsilon_t$  is the error term; POV represents poverty (proxied by the national poverty headcount ratio), INQ stands for inequality (proxied by the Gini index), PCI is the per capita income, UNP represents unemployment rate, while INF represents inflation rate.

#### 3.5 Estimation Procedure

- 3.5.1 Unit Root Test-The Phillips-Perron (PP) unit root test was used to ascertain the unit root properties of the time series data employed in the study. The PP test builds on the Dickey-Fuller test, that is, the null of unit root exists:  $H_0 = \alpha = 0$ , but it proposes a nonparametric approach, which is applicable on wider categories of time series, including ARMA models and moving average models (Phillips & Perron, 1988).
- **3.5.2** The ARDL Approach to Co-integration- The first step after stationarity examines the presence of cointegration using the Bounds tests. Then the coefficient of the long-run relationships are identified in the next step using an appropriate lag selection criterion. The next step is to estimate the short-run dynamic coefficients. This is followed by testing for the stability of the model, by using the CUSUM test. The ARDL model is written as;

[3] 
$$Y_t = \alpha_0 + \phi_t Y_{t-1} + \beta_t X_{t-1} + \varepsilon_t$$

where,  $Y_{t-1}$  and  $X_{t-1}$  are time series variables,  $\mathcal{E}_t$  is the vector of the stochastic error term. Generally, the model can also be defined as ARDL (p, q) the p and q are lag of the parameter forming Equation [4];

[4] 
$$y_t = \alpha_0 + \sum_{i=0}^{p} \phi_i y_{t-1} + \sum_{i=0}^{q} \beta_i x_{t-1} + \varepsilon_t$$

In view of the above explanation, the ARDL model used in this study is given as:

[5] 
$$\Delta POV_{t} = \alpha_{0} + \sum_{t=0}^{p} \phi_{1} \Delta POV_{t-1} + \sum_{t=0}^{p} \phi_{2} \Delta INQ_{t-1} + \sum_{t=0}^{p} \phi_{3} \Delta PCI_{t-1} + \sum_{t=0}^{p} \phi_{4} \Delta UNP_{t-1}$$

$$+\sum_{t=0}^{p}\phi_{5}\Delta INF_{t-1} + \alpha_{1}POV_{t-1} + \alpha_{2}INQ_{t-1} + \alpha_{3}PCI_{t-1} + \alpha_{4}UNP_{t-1} + \alpha_{5}INF_{t-1} + \varepsilon_{t}INF_{t-1} + \varepsilon_{t}IN$$

where,  $\alpha_0$  is intercept, t is the time dimension while  $\Delta$  is difference operator and  $\mathcal{E}_t$  is the error term. The long-run co-integration is estimated using Equation [6];

[6] 
$$\Delta POV_{t} = \alpha_{0} + \sum_{t=0}^{p} \phi_{1} POV_{t-1} + \sum_{t=0}^{p} \phi_{2} \Delta INQ_{t-1} + \sum_{t=0}^{p} \phi_{3} \Delta PCI_{t-1} + \sum_{t=0}^{p} \phi_{4} \Delta UNP_{t-1}$$

$$+\sum_{t=0}^{p}\phi_{5}\Delta INF_{t-1}+\varepsilon_{t}$$

The selection of the ARDL maximum lag (p q) is based on the automatic lag length selection. The study derived the short-run dynamic parameter from the Error Correction Model (ECM) estimation associated with the long-run estimate as in Equation [7].

[7] 
$$\Delta POV_{t} = \alpha_{0} + \sum_{t=0}^{p} \phi_{1} \Delta POV_{t-1} + \sum_{t=0}^{p} \phi_{2} \Delta INQ_{t-1} + \sum_{t=0}^{p} \phi_{3} \Delta PCI_{t-1} + \sum_{t=0}^{p} \phi_{4} \Delta UNP_{t-1}$$

$$+\sum_{t=0}^{p}\phi_{5}\Delta INF_{t-1}+\varphi ECM_{t-1}+\varepsilon_{t}$$

In Equation [7],  $\phi_1$ ,  $\phi_2$ ,  $\phi_3$ ,  $\phi_4$  and  $\phi_5$  are short-run dynamic coefficients converging to long-run equilibrium while  $\varphi$  is the speed of adjustment parameter and error correction model originating from the estimated equilibrium relationship.

3.5.3 Bound Test-The Bound test normally models the ARDL equation by the use of least square procedure, in order to investigate the existence of long-run relationship among the variables, the F-statistics test is conducted for the joint significance of the coefficient of lagged variables,  $H_0: \phi_1 = \phi_2 = \phi_3 = \phi_4 = \phi_5 = 0$  against the alternative  $H_0: \phi_1 \neq \phi_2 \neq \phi_3 \neq \phi_4 \neq \phi_5 \neq 0$ . The calculated F-statistics is compared to the critical value. If the F-statistics value lies above the upper bound of critical values, the null hypothesis is rejected. If the F-statistic value falls below the lower bound of critical value, the null hypotheses would not be rejected that is, there is no long-run relationship among the variables, however, if the F-statistic value lies within the bound test the result is inconclusive.

## 3.5.4 Residual Diagnostic Tests

To validate the results of ARDL model the Breusch-Godfrey serial correlation LM test and the cumulative sum of recursive residuals (CUSUM) were employed to test for serial correlation and stability respectively in the model.

## IV. Data Analysis And Discussion Of Results

## 4.1 Unit Root Test

Using the Philips-Perron (PP) test which was conducted at the 5% level, the unit root test result on Table 1 revealed that the time series data of *POV*, *INQ*, *PCI* and *INF* were stationary at 1<sup>st</sup> difference, while that of UNP was stationary at levels. All variable met the stationarity condition.

Table 1: PP Unit Root Tests Results

Variable	Order	PP Calculated	Critical Value	Conclusion
POV	At levels	-2.400247	-3.557759	1(1)
	1 <sup>st</sup> difference	-7.474978	-3.562882	
INQ	At levels	-1.622213	-3.557759	1(1)
	1 <sup>st</sup> difference	-4.784166	-3.562882	
PCI	At levels	-0.143543	-3.557759	1(1)
	1 <sup>st</sup> difference	-4.158154	-3.562882	
UNP	At levels	-8.252426	-3.557759	1(0)
	1 <sup>st</sup> difference	-2.252753	-3.435487	
INF	At levels	-3.200397	-3.557759	
	1 <sup>st</sup> difference	-6.584488	-3.562882	1(1)

**Source:** Authors computation using E-views 10.0

## 4.2 The ARDL Bound Test

After establishing the ARDL optimal model which gave a lag structure of (4, 4, 3, 3, 4), the result of the ARDL Bound test which establishes the existence of co-integration in the model is presented on Table 2.

Table 2: ARDL Bound Test Result

F-Bounds Test		$H_{\theta}$ : No levels relationship		
Test Statistic	Value	Signif.	<b>I</b> (0)	I(1)
F-statistic	4.674935	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

**Source:** Authors computation using E-views 10.0

The Bounds test result above gave an F-statistics value of 4.67. This value is greater than the upper bound critical values of I(1) at all the levels of significance, confirming the existence of long-run relationship in the model, and as such the study proceeded to conduct the short-run and long-run forms of the ARDL analysis.

### 4.3 The Long/Short run ARDL Estimation

On Table 3 and 4 are presented the ARDL long and short-run results respectively.

Table 3: ARDL Long-run Result

14010 0 11112 2 2013 1 111 1100111					
Coefficient	Std. Error	t-Statistic	Prob.		
0.754538	0.082493	9.146710	0.0001		
-2.84E-05	7.84E-06	-3.615936	0.0112		
1.500959	0.387447	3.873973	0.0082		
0.061520	0.037516	1.639809	0.1522		
14.91815	3.393707	4.395828	0.0046		
	0.754538 -2.84E-05 1.500959 0.061520	0.754538       0.082493         -2.84E-05       7.84E-06         1.500959       0.387447         0.061520       0.037516	0.754538       0.082493       9.146710         -2.84E-05       7.84E-06       -3.615936         1.500959       0.387447       3.873973         0.061520       0.037516       1.639809		

**Source:** Authors computation using E-views 10.0

Table 4: ARDL Short-run Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INQ)	1.044997	0.261560	3.995251	0.0072
D(PCI)	-8.90E-06	4.56E-05	-0.195386	0.8515
D(UNP)	0.406406	0.284146	1.430272	0.2026
D(INF) $CointEq(-1)*$	0.116429 -2.497914	0.039025 0.348332	2.983450 -7.171073	0.0245 0.0004

Source: Authors computation using E-views

The long-run result revealed that income inequality significantly increased poverty by 75% in the model. Similarly, in line with *apriori* expectation both unemployment and inflation rate contributed to the rise in poverty in Nigeria, however, only unemployment recorded a significant impact. On the other hand, the growth variable captured by per capita income significantly reduced poverty in the country by 2.84 units.

The findings showed that income inequality had a significant detrimental effect by exacerbating poverty in Nigeria. The same applies to the unemployment rate and the cost of living captured by the inflation

rate which entrenched poverty. In addition, while the growth in per capita income expectedly mitigated poverty, the absolute magnitude of net growth elasticity of poverty was quite small.

The parsimonious form of the short-run result also had a similar result as the long-run estimation, with income inequality, unemployment and inflation rate positively contributing to the growing poverty rate. Per capita income though not significant in the short-run, however, helped to check poverty. The error correction term  $(CointEq(-1)^*)$  which shows how quickly variables adjust to shock and return to equilibrium had an estimated coefficient of -2.5 and it was highly statistically significant, indicating that deviations in the model were corrected by 2.5 units annually.

## 4.4 Residual Diagnostic Tests

The results of the Breusch-Godfrey serial correlation LM test and the CUSUM stability tests are presented on Table 5 and Figure 1 respectively.

Table 5: Breusch-Godfrey Serial Correlation LM Test Result

F-statistic	0.686316	Prob. F(2,15)	0.5186
Obs*R-squared	2.766621	Prob. Chi-Square(2)	0.2507

Source: Authors computation using E-views

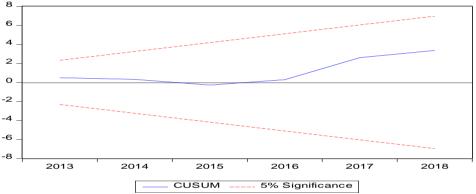


Figure 1: CUSUM Plot

The result of the Breusch-Godfrey serial correlation LM test given on Table 6 accepted the null hypothesis of no serial correlation in the residual, because the probability of the F-statistics was greater than the 5% level. As such the ARDL model was free from the problem of serial autocorrelation. Similarly, the result of the CUSUM test presented on Figure 1 had plots all within the two straight line indicating that the ARDL model was stable.

#### 4.5 Discussion of Results and Policy Implications

The ARDL long and short-run results revealed that income inequality significantly increased poverty by 75% in the model. This implies that income inequality had a significant detrimental effect by exacerbating poverty in Nigeria. This conformed with the empirical study of Lucky and Achebelema (2018) which revealed that a significant proportions of the Nigerian population are living below the poverty line, which counts as a result of the wide gap between the rich and the poor in Nigeria.

Similarly, the ARDL long-run result revealed that both unemployment and inflation rate contributed to the rise in poverty in Nigeria. On the other hand, the growth variable captured by per capita income significantly reduced poverty in the country by 2.84 units. This implies that unemployment rate and the cost of living comes as a result of the high inflation rate in Nigeria which in turn, increases the rate of poverty among the populace in the economy. In addition, the reduction in poverty by the significant growth in per capita income implies that, an increase in per capita income among individuals can reduction poverty rate in the economy. Hence, increasing the growth of per capita income in the economy should be encouraged to bridge the gap between the rich and the poor in Nigeria.

## V. Conclusion And Recommendations

#### 5.1 Conclusion

The study concluded that income inequality significantly contributed to the rising poverty in Nigeria, increasing poverty by 75%. Similarly, unemployment and the rising cost of commodities exacerbated the poverty situation in the country. Conversely, the growth rate dampened the negative effect of poverty over the study period. The study thus concluded that inequality is the main cause of the weak poverty-alleviation

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elasticity of growth, corroborating Chancel et al. (2019) and Fosu (2018), thus, the growth effect on poverty is offset by rise in inequality.

#### 5.2 Recommendations

Based on the findings and policy implications revealed from the analysis, the study therefore recommends the followings:

To lift people out of poverty, redistribution towards the poor will in addition to requiring higher levels of growth, also require development policies that address the acute and pervasive income inequality such as improved distribution of human capital, a well-targeted social protection, better distribution of socio-economic facilities like roads, electricity, schools, hospitals, etc., making the tax structure more progressive, and implementing the increased minimum wage across all the states of the federation.

In addition, the rising inflation rate should be kept at single digit, while the coverage of the government's social investment program should be expanded to capture more unemployed people.

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