Economic Growth, Income Inequality and Poverty in Nigeria

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Abstract
Evidence from the literature is that increased growth rate is expected to reduce poverty. As a result, there are two schools of thought in the nexus between growth and poverty. First, growth generated by the labour intensive sector, such as agriculture and manufacturing, is more poverty-reducing than growth from extractive sector. Second, high income inequality affects the poverty-reducing effect of growth. Given the level of increase in growth rate in Nigeria in the last 2 decades, the incidence of poverty is still on the increase. The aim of this paper is to establish the validity or otherwise of the 2 hypotheses and determine the level of inequality above, which inequality will affect the poverty-reducing ability of growth in Nigeria between 1980 and 2017. Given the set objectives, Autoregressive Distributive Lag (ARDL) technique is employed for the first and the Threshold Regression Approach is used for the second. Results show the interaction of inequality and growth adversely affects poverty in both periods under investigation but the effect is statistically insignificant, while inequality has a positive and significant effect on poverty in both periods. At the threshold value of 0.45, the result reveals a statistically significant direct association between poverty and growth at an inequality value above the threshold value while at an inequality value below the threshold value; the relationship is negative but statistically insignificant. The results imply that the nature of growth in Nigeria is from the mineral-based (extractive) sector not the labour-intensive sector, thus, its inability to lessen poverty in the long period. The paper recommends promotion of labour-intensive sector as against the mineral-based sector. That is, there is a need for diversification.

Keywords: Poverty, Economic Growth, Inequality, and Human Capital

JEL Classifications*: I3, O47*

Introduction

The period of 1970s to the late 1990s is considered a dark period in Africa. This is because the period was characterised by serious governance failures; significant macroeconomic imbalances; structural trade deficits and depleted infrastructure which in turn affected the growth prospect of the region. Recently (in the year 2000 and above), African economy experienced a boom which was due to some factors such as technology; better targeted social policy; urbanisation enhanced macroeconomic policy; demographic growth; higher regional cooperation and integration; and substantial rises in the quality of governance and institutions.

Nigeria is not left out in this process as the country has been experiencing increased growth lately. The average growth rate in Nigeria increased from -1.43% between 1980 and 1990 to 0.23% between 1990 and 2000. Between 2000 and 2010, the average growth rate increased to 4.33% and later decreased to 3.83% between 2010 and 2017. However, even though Nigeria is known to be one of the fastest-growing economies in the region, poverty, which is a measure of economic development, remains a prominent feature of the economy. Recent estimates show that 66.12% of the Nigerian populace is living below one dollar a day in 2012. This increased to 67.7% in 2017 (NBS, 2017). In addition, the World Poverty Clock (2018) shows that Nigeria has overtaken India as the poorest country in the world. Going by the Clock, 6 people enter into the poverty line in every minute, showing the extent to which the country wallow in abject poverty even in the face of improved economic growth.

Coming from the literature is the fact that the increased growth rate will reduce poverty. Evidence from Nigeria has been showing otherwise, given her rate of growth, over the last two decades. To this end, there are two (2) schools of thought in the economic growth-poverty nexus. The first school of thought opined that growth from the labour-intensive sector such as agriculture and manufacturing sector would help in reducing poverty more than growth from the extractive sector. In contrast, the second school believed that high-income inequality hindered growth in reducing the extent of poverty.

Going by the second school of thought, income inequality is defined as the extent to which incomes are unevenly distributed among the population. It ranges from 0 (perfect equality) to 1 (perfect inequality) as measured by the

Gini Coefficient. Income inequality is said to be prevalent in developing nations when compared to the developed nations. The greater level of inequality in the developing countries comes from their low level of average per capita income (Kuznets, 1955). To support this fact, OXFAM (2017) argued that Nigeria has been witnessing increased inequality as its value increased from 36% in 1980 to 56% in 2000 and later fell to 53% in 2001. In 2005, the figure further fell to 41% and then increased from 42% in 2006 to 48% in 2017.

Several studies have examined the economic growth – poverty nexus (see Dollar and Kraay, 2002; Fosu, 2017), while some looked at inequality and growth nexus (see Tabassum and Majeed, 2008; Akpoilih and Farayibi, 2012). Also, some studies investigated the relationship among growth, inequality, and poverty in a panel and country-specific studies. However, the interactive effect of economic growth and inequality on poverty and the threshold effect of inequality in the growth-poverty nexus are missing in the literature. Consequently, this study aims at contributing to the extant literature by investigating first, the interactive effect of economic growth and income inequality on poverty in Nigeria using Autoregressive Distributed Lag technique and second, determine the threshold value of income inequality below which economic growth will reduce poverty and above which economic growth will aggravate poverty level in the country using threshold regression.

Apart from this introductory section, review of previous literature is examined in the second section; the methodology used is discussed in the third section, while section four presents and discusses the empirical findings. Lastly, section five gives the conclusion of the study.

Literature Review

Theoretically, an increase in GDP is expected to propel a reduction in poverty. This was evidenced in most Asian countries in which rapid growth substantially reduced poverty. Similarly, empirical literature alluded to the fact that economic growth is important for poverty reduction. Starting from the findings of Dollar and Kraay (2002), economic growth is seen as the main factor of poverty reduction. The study concluded that the benefits of economic growth trickle down to the poor in the economy. Other studies such as Datt and Ravillion (2002), Adams (2004), Akpoilih and Farayibi (2012), Adigun and Awoyemi (2014), Dursun and Ogunleye (2016), and Fosu (2017) confirmed that improved economic growth would help in alleviating poverty. For example,

Adigun and Awoyemi (2014) studied the nexus among economic growth, income redistribution, and poverty in Nigeria, with a particular focus on the rural areas. Obtaining data from the National Consumer Survey of 1996 and the National Living Standard Survey of 2004, the authors decomposed poverty into growth and income redistribution components using the Shapley Decomposition approach. The study found that growth with income redistribution significantly contributes to poverty alleviation in Nigeria.

Moreover, evidence abounds that sub-Saharan African countries, including Nigeria, have been witnessing tremendous growth in terms of increase in their gross domestic product (Fosu, 2010; Fosu, 2017; Ojeyinka and Adebayo, 2017; Aigbokhan, 2017; Young, 2018). However, inequality and poverty indices have also simultaneously increased during these periods. In particular, Aigbokhan (2017) noted that, since the 1990s, inequality has been rising in Nigeria despite the country's impressive growth. This paradoxical relation has motivated this present study to determine the nexus among economic growth, income inequality, and poverty reduction in Nigeria. One major factor identified in the literature as responsible for this negative performance is high-income inequality which grossly characterised most sub-Saharan African countries, Nigeria inclusive. For instance, Fosu (2010) analysed the significance of inequality in growth – poverty nexus among the African countries. The author used 1990s data from both the rural and urban sector and found that inequality weakens the potency of growth in alleviating poverty in Africa. In addition, the study revealed that poverty is more sensitive to inequality than to income growth in a typical African country. Due to the pervasiveness of high inequality in the region, the author concluded that higher economic growth is essential to attain a substantial reduction in poverty. Similarly, Akpoilih and Farayibi (2012) investigated the association between income inequality and economic growth using Nigeria as a case study. The author used trend analysis as a technique of analysis, the study identified decrease in investment and government inefficiency as major channels through which inequality impedes growth in Nigeria.

Dursun and Ogunleye (2016) investigated the dynamic interaction among economic growth, employment, and poverty reduction in seven West African countries including Nigeria. Adopting the Dynamic Ordinary Least Square (DOLS) and Fully Modified Ordinary Least Square (FMOLS) techniques on

panel data between 1991 and 2010, the study found a significant negative relationship between economic growth and poverty reduction for all the West African countries. Specifically, the result revealed that one unit rise in economic growth reduced poverty by 0.86 unit. However, the authors observed that the effect of employment on poverty alleviation is insignificant in the region. The author, then, concluded that policymakers in these countries should pay more attention to the quality of employment in the countries to experience a lower level of poverty via employment generation.

Accounting for credit market imperfection, Tabassum and Majeed (2008) examined the nexus between income inequality and economic growth in 69 developing countries. The study adopted a fixed effect technique on the panel between 1965 and 2003. It was found that a significant negative relationship exists between income inequality and economic growth in the long-run for sub-Saharan African countries which confirmed the Kuznets' Hypothesis of 1955. Furthermore, the author observed that rapid economic growth would not cause poverty to reduce in an economy with high level of inequality, especially in the long-run. The study, therefore, concluded that any pro-poor policy must be geared towards a reduction in income inequality to achieve its desired result. In addition, Khemili and Belloumi (2018) employed Toda-Yamamoto causality test and ARDL technique to examine the causal relation among economic growth, inequality, and poverty rate in Tunisia. The study covered the period between 1970 and 2013 using consumption per capita as a measure of poverty. The study found that economic growth witnessed in the country had no noticeable effect on poverty. However, the study further revealed that income inequality exerted a significant negative influence on consumption per capita. Alternatively, the outcome of the study suggested that the level of income inequality is critical for any significant reduction in poverty to be achieved.

Additionally, Ojeyinka (2018) investigated the nexus between institutional quality, economic growth, and poverty level in Nigeria between 1981 and 2015. The author employed the ARDL with Bound Cointegration test. In consonant with Khemili and Belloumi (2018), the study used household consumption expenditure per capita to proxy poverty level. Findings from the study showed that the magnitude of economic growth on poverty though negative was not significant. However, when institutional quality was integrated with economic growth, the effect of growth on poverty became significant. Conclusively, the

study opined that the level of institution in an economy is imperative for the benefit of growth to affect the poor.

Fosu (2017) investigated the process by which economic growth transforms to poverty reduction among 80 developing countries of Asia, sub-Saharan Africa, and Latin America. The author also observed the role of income inequality in the nexus between economic growth and poverty reduction. Annual data on poverty headcounts, using the international poverty line of $1.25 and $2.50 per day, Gini coefficient and GDP were obtained from World Bank PovcalNet data. Findings emanating from the study revealed that income growth significantly contributed to poverty reduction in most of the studied countries. Also, the study found that lower inequality and high income substantially reduced poverty in all the regions. The study concluded that high-income inequality dampens the effect of economic growth on poverty reduction. Employing ARDL Technique, Nwosa (2019) explored the link between economic growth and inequality in Nigeria over the period of 1981-2017. The author found that higher economic growth widens income inequality in Nigeria. However the effect of economic growth on inequality was insignificant. In addition, focusing on the Northern Region of Nigeria, Shaba, Obanja, Magaji and Yelwa (2018) examined the influence of income inequality on poverty level. The authors surveyed 600 households in the region and the results revealed that poverty in the region was closely associated with increase in income inequality as income differences accounted for significant variations in poverty level in the Northern Region of Nigeria.

Ojeyinka and Adebayo (2017) examined the link among government expenditure, economic growth, and poverty in Nigeria from 1980 to 2014. Using vector autoregressive model, it was discovered that economic growth witnessed by the country did not translate to poverty reduction over the study period. The study failed to support the trickle-down hypothesis between economic growth and the level of poverty in Nigeria. However, the findings from the study were in tandem with an earlier study on Nigeria by Bakare and Ilemobayo (2013) and Aigbokhan (2017). The study advised that the country should look beyond economic growth and focus on the quality of growth to achieve a substantial reduction in the poverty level. This, further, raises concerns on the source of growth in Nigeria. Majorly, the bulk of Nigerian revenue comes from extractive industries such as oil which is majorly capital

intensive, unlike non-oil sectors which depend heavily on the labour-intensive method of production.

While investigating the trickle-down hypothesis in Nigeria, Young (2019) examined the impact of economic growth on poverty in Nigeria. The author adopted Bound test and ARDL technique and found that the impressive economic growth recorded in the country had not been beneficial to the poor thereby invalidating the trickle-down theory in Nigeria. Another shocking outcome from the study was that gross fixed capital and employment level had crucial effect on the extent of poverty level in Nigeria. The study concluded that reduction in extent of poverty in Nigeria is conditional to the way and manner in which the benefit of economic growth is distributed. Buttressing the conclusion of Ojeyinka and Adebayo (2017), the author identified economic growth that emphases labour-intensive technique as the most effective way of reducing poverty in Nigeria. In line with this, Aylward et al (2016) identified income inequality and total reliance on non-labour intensive sectors as major factors limiting the growth impact on poverty level in Nigeria.

Meanwhile a number of studies have explored the contribution of sectoral growth to poverty reduction. The emphasis here is to demystify the differential impact of labour-intensive and capital-intensive sectors on poverty reduction. For instance, Loayza and Raddatz (2010) observed that labour-intensive manufacturing sector had significant effect on poverty reduction. In the same way, Berardi and Marzo (2015) noted that labour-oriented agricultural and manufacturing sectors have the largest impact on poverty reduction among the selected African countries. Using a Computable General Equilibrium (CGE), Dorosh and Thurlow (2016) investigated the effect of sectoral growth elasticities on poverty reduction of five low-income African countries of Malawi, Mozambique, Tanzania, Uganda and Zambia. The study found that agriculture-led growth significantly reduced poverty in all the countries examined than the non-agriculture led sector. Similarly, Ivanic and Martin (2017) discovered that productivity in the agricultural sector had larger poverty-reducing effect on poverty in India and Pakistan.

The above review clearly shows that inequality is crucial in the economic growth - poverty nexus. While previous studies have documented that a high level of inequality affects the efficacy of growth in achieving poverty reduction, Kuznets (1955) concluded that the connection between economic growth and

income inequality can be best captured as "inverted U-shape". One major question that has remained unanswered is that what is the optimal level of inequality that is desirable for economic growth to reduce poverty? Alternatively, at what level of income inequality will economic growth fail to alleviate poverty in Nigeria? This is the major gap this present study intends to address.

Methodology

This study adapts Fosu's (2008) model as stated in Fosu (2010). According to the model, the rate at which income growth will reduce poverty reduction depends on the inequality level. This is because the reduction in poverty can be achieved from a given rate of growth if inequality is higher. Based on this argument, we formulate our model as:

$$Pov_t = \alpha_1 + \alpha_2 Gro + \alpha_3 Ineq_t + \alpha_4 V + \mu_t \quad (1)$$

Where Pov_t is the poverty level and the endogenous variable. It is measured as Relative Poverty. Gro_t is given as economic growth in period t. $Ineq_t$ is defined as income inequality and it is measured using Gini coefficient. V is defined as a vector of control variables that influence the growth-poverty nexus in Nigeria, while μ_t is error term. For this study, human capital development is the only control variable considered in the study and it is included because of its importance, as argued in the literature. We used “secondary school enrolment” to measure human capital. Based on this argument, V is defined as human capital development. Incorporating human capital into model 1, it becomes:

$$Pov_t = \beta_1 + \beta_2 Gro_t + \beta_3 Ineq_t + \beta_4 Hum_t + \mu_t \quad (2)$$

To determine the interactive effect of growth and inequality on poverty, we interact economic growth and inequality as a variable and incorporate it into equation (2). The equation then becomes:

$$Pov_t = \beta_1 + \beta_2 (Gro * Ineq)_t + \beta_3 Hum_t + \beta_4 Gro + \beta_5 Ineq_t + \mu_t \quad (3)$$

Equation (3) will be estimated using ARDL approach. The condition for using this technique is that there must not be a case of any variable that is stationary

after second difference. The ARDL model of equation (3) is expressed as follows:

$$\Delta Pov_t = \beta_1 + \sum_{i=1}^{q} \beta_2 \Delta Pov_{t-i} + \sum_{i=1}^{j} \beta_3 \Delta (Gro * Ineq)_{t-i} + \sum_{i=0}^{k} \Delta \beta_4 Hum_{t-i} + \sum_{i=0} \beta_5 \Delta Gro_{-i} + \sum_{i=0} \beta_6 \Delta Ineq_{t-i} + \varphi_1 Pov_{t-1} + \varphi_2 (Gro * Ineq)_{t-1} + \varphi_3 Hum_t + \varphi_4 Gro + \varphi_5 Ineq_t + \mu_t \quad (4)$$

All variables are expressed in logarithmic form, except Gini coefficient. From equation (2), β_3, β_4 and β_5 are the coefficients of interest. Based on apriori expectation, β_2 is expected to be negative, β_3 is expected to be positive and β_4 is also expected to be negative. The apriori expectation of the interactive term β_3 from equation (3) is expected to be negative. This is because as economic growth rises, the negative effect of income inequality is expected to reduce. Δ is the first difference operator. Data on all variables are sourced from World Development Indicator (online version). The long-run model for equation (4) will be estimated as:

$$Pov_t = \beta_1 + \beta_1 + \sum_{i=1}^{q} \beta_2 \Delta Pov_{t-i} + \sum_{i=1}^{j} \beta_3 \Delta (Gro * Ineq)_{t-i} + \sum_{i=0}^{k} \Delta \beta_4 Hum_{t-i} + \sum_{i=0} \beta_5 \Delta Gro_{-i} + \sum_{i=0} \beta_6 \Delta Ineq_{t-i} + \varphi_1 \quad (5)$$

The short-run dynamics are specified as:

$$\Delta Pov_t = \beta_1 + \sum_{i=1}^{l} \beta_2 \Delta Pov_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta (Gro * Ineq)_{t-i} + \sum_{i=0}^{q} \Delta \beta_4 Hum_{t-i} + \sum_{i=0}^{j} \beta_5 \Delta Gro_{-i} + \sum_{i=0}^{k} \beta_6 \Delta Ineq_{t-i} + \varphi_1 \vartheta ecm_{t-1} + \mu_t \quad (6)$$

The ECM is defined as follows:

$$ECM = \Delta Pov_t - \beta_1 + \sum_{i=1}^{l} \beta_2 \Delta Pov_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta (Gro * Ineq)_{t-i} + \sum_{i=0}^{q} \Delta \beta_4 Hum_{t-i} + \sum_{i=0}^{j} \beta_5 \Delta Gro_{-i} + \sum_{i=0}^{k} \beta_6 \Delta Ineq_{t-i} + \varphi_1 \quad (7)$$

The second objective of the study is to estimate the threshold quantity of income inequality above which the ability of economic growth to reduce poverty will decrease and below which poverty-reducing ability of economic growth will be effective. To achieve this objective, the study adopts threshold regression as proposed by Bai and Perron (1998, 2003). The major advantage of this method over all other approaches is that the determination of threshold value is using this approach objective. This implies data, and not the researcher, determines the threshold value. The threshold regression model is given as:

$$Pov_t = \beta_1 + \vartheta_1 Gro + \varepsilon_t \quad for\ \tau \leq ineq_t < \tau$$

Where $Poverty_t$ is the dependent variable, $Growth_t$ is the independent variable, τ is the threshold value, $income\ inequality_t$ is the threshold variable, t is time and ε_t is the error term.

Results and Discussion of Findings

In achieving the aims of this study, we first estimate the descriptive statistics and the correlation matrix of all the considered variables. The descriptive statistics (see Table 1), which include the mean, median, minimum value, maximum value, and standard deviation, summarise the data series, while the correlation matrix (see Table 2) shows the degree of the association among the variables of interest. Results show that the series displayed a high level of consistency as the values of their mean and median lie within the minimum and maximum values. Also, results indicate that the GDP growth rate is very low throughout the study period as the mean value stands at 0.47%. The mean value of poverty is 1.72% which reveals that the average growth rate of poverty is minimal. The mean value of school enrolment is 1.46% which also reveals school enrolment within the study period is low. The standard deviation which measures the level of variation or the degree of dispersion of the variables from their mean is relatively very low for all the series; indicating that the deviations of actual data from their mean values are very small.

Table 1: Descriptive Statistics

Statistic	Pov	Gro	Ineq	Hum
Mean	1.7271	0.4739	0.4419	1.4603
Median	1.7325	0.6009	0.4345	1.4451
Maximum	1.8254	1.5281	0.5600	1.6418
Minimum	1.6042	-0.3628	0.3620	1.1335
Std. Dev.	0.0565	0.4476	0.0531	0.1151
Observations	38	38	38	38

Source: *Authors' Computation (2019)*

Table 2 shows the result of the correlation matrix. The test is conducted to ascertain the degree of causation among the variables and also to determine the nature of the relationship among them. This is important so as to avoid the problem of multicollinearity that may arise as a result of a strong correlation among the explanatory variables. Results in table 2 show that all the explanatory variables have a direct association with poverty, the dependent variable. Also, an indirect association exists between inequality and growth. In the aspect of the degree of causation, there is no case of a strong relationship among the explanatory variables. However, results show that inequality and poverty are strongly correlated. Results of the degree of causation imply, our analysis is free from the problem of multicollinearity as a weak correlation exists among the explanatory variables.

Table 2: Correlation Matrix

Variable	Pov	Gro	Ineq	Hum
Pov	1.0000			
Gro	0.0708	1.0000		
Ineq	0.9070	-0.0948	1.0000	
Hum	0.3722	0.3348	0.1825	1.0000

Source: *Authors' Computation (2019)*

The next step is to consider the stationarity property of the variable of interest. The non-stationarity implies the mean and variance of the data are not constant over the study period. The estimates from such data will give a spurious result and will not be useful in decision making. To overcome this problem, the unit root test is used in an econometric analysis to solve the problem of non-stationarity. In this study, we employ Augmented Dickey-Fuller (ADF) and Philip Peron (PP) techniques to test for the unit root. The results are presented in Table 3. From the table, it can be deduced that inequality and poverty are stationary at I(1), while enrolment and growth are stationary at levels. This result is consistent under the two techniques used. It further implies the mean and variance of all the variables are constant. Therefore, the estimates will not be spurious.

Table 3: Unit Root Test results

	ADF Test			PP Test		
Variable	Levels	First difference	Remarks	levels	First difference	remarks
Pov	-2.0380	-6.1807	I(1)	-2.0345	-6.1807	I(0)
Gro	-3.8744	-	I(0)	-3.8678	-	I(0)
Ineq	-2.4141	-3.0625	I(1)	-1.8184	-2.8038	I(1)
Hum	-2.9950	-Critical	I(0)	-2.7704	-	I(0)
	1%	-3.6210	5%	-2.9434	10%	-2.6102
Values						

Source: *Authors' Computation (2019)*

To determine the long-run relationship among the variables, the ARDL bound test approach is used. The result is presented in table 4. Results show that our F-statistic is greater than the lower and the upper bounds. This implies the null hypothesis of no cointegration is rejected at all levels of significance and the alternative hypothesis of the existence of a long-run relationship is accepted.

Therefore, we conclude that there is a long-run relationship among the variables.

Table 4: ARDL Bound Test Result

Test Statistic	Value	K
F-statistic	6.3185	3
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: *Authors' Computation (2019)*

To verify the nature of economic growth in Nigeria and to see whether it can reduce poverty, the ARDL approach is employed. This is because the unit root results show a mixture of levels and order one. The ARDL result is presented under model 1 in Table 5. Results indicate that growth has an adverse effect on poverty both in the long-run and short-run periods. As economic growth increases, poverty is expected to reduce. This follows economic theory. However, the coefficients of growth in the long-run and short-run periods are very small (0.2% and 0.5% respectively) and statistically insignificant. Inequality has positive effects on poverty both in the short-run and long-run periods. In the short-run, a point rise in income inequality will increase poverty by 0.45 in the long-run, a point increase in inequality will increase poverty by 0.96. These results are significant at 1% level of significance. This implies that inequality is a major determinant of poverty in Nigeria. The results confirmed the studies by Young (2019) for Nigeria and Khemili and Belloumi (2018) for Tunisia that the level of inequality matters for poverty alleviation in an economy. Based on this result, we can conclude that the nature of growth in Nigeria is that of the extractive sector as its ability to reduce poverty is very low and insignificant.

For robustness check, we generate the CUSUM and CUSUM squares. We generate the two tests to confirm the stability of our model. Results are presented in Figures 1 and 2.

Table 5: ARDL Regression Results

	Endogenous Variable: Pov			
	Model 1 Short-Run Coefficients		Model 2 Short-Run Coefficients	
Exogenous Variable	Coefficient	Probability	Coefficient	Probability
D(Gro)	-0.0028	0.6765	0.0045	0.9328
D(Ineq)	0.4543***	0.0000	0.4632***	0.0002
D(Hum)	0.0457	0.1086	0.0456	0.1152
D(Ineq * Gro)	-	-	-0.0166	0.8911
Ecm(-1)	-0.4697	0.0000***	-0.4730***	0.0000
	Long-Run Coefficients		Long-Run Coefficients	
Gro	-0.0059	0.6857	0.0855	0.9324
Ineq	0.9673***	0.0000	7.1894***	0.0000
Hum	0.0973**	0.0966	1.6705	0.1049
Gro*Ineq	-	-	-0.0351	0.8904
C	1.1662	0.0000	1.1621***	0.0000

Note * and ** represent 1% and 5% level of significance**
Source: *Authors' Computation (2019)*

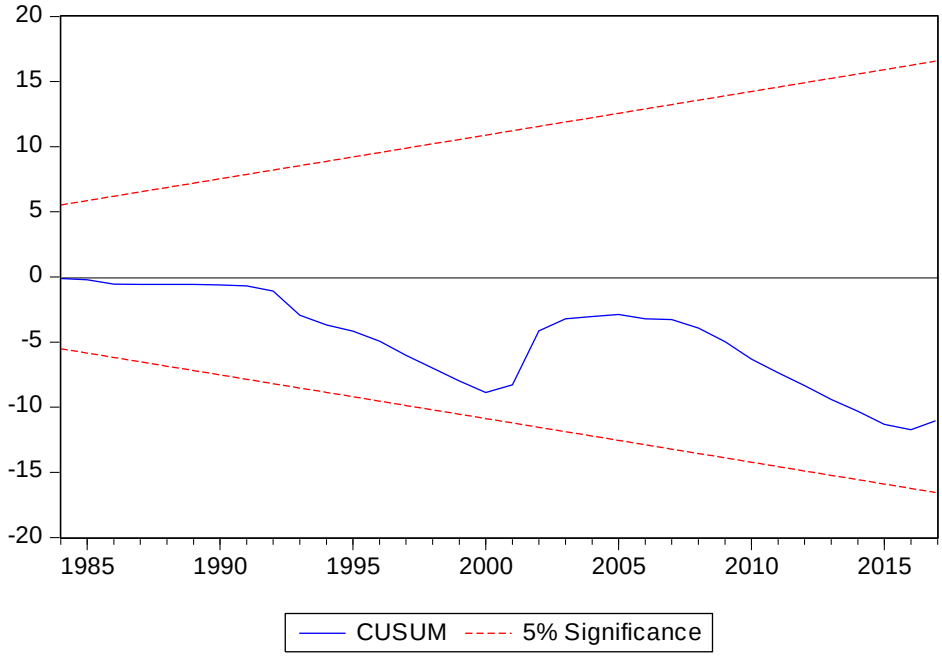

Figure 1: Cumulative Sum stability test
Source: *Authors' Computation (2019)*

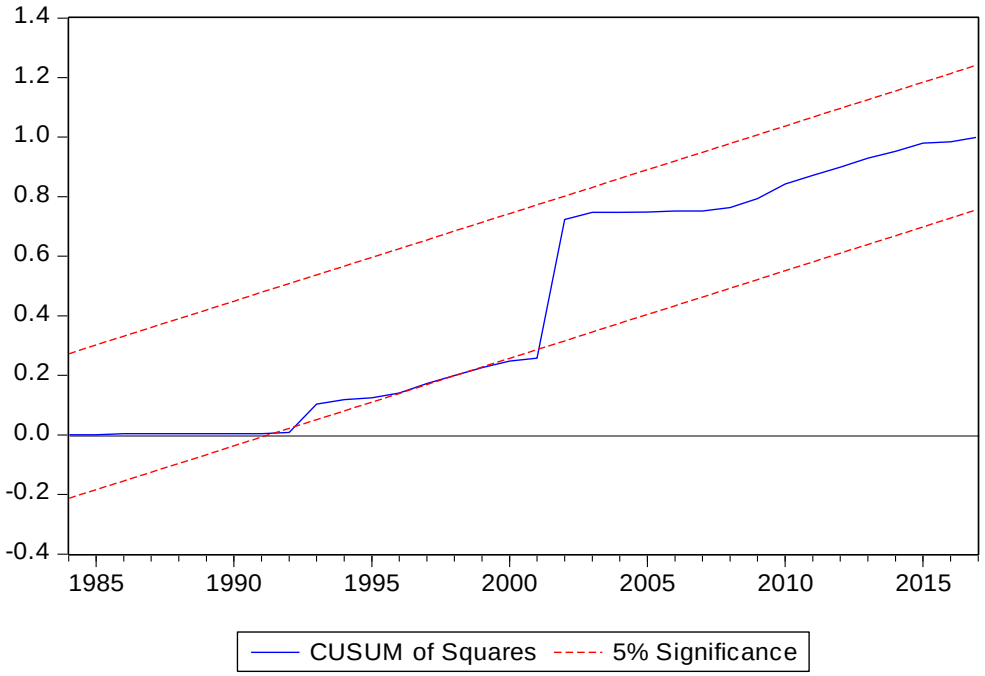

Figure 2: Cumulative Sum of Squares stability test
Source: *Authors' Computation (2019)*

Moreover, to verify the validity or otherwise of the second hypothesis that high-income inequality affects the poverty-reducing effect of growth, we interact inequality and growth and examine the effect of this variable on poverty, both in the long-run and short-run periods. The result is presented under Model 2 of Table 5. It can be deduced that the interactive term has a negative effect on poverty and this aligns with the theory, both in the short-run and long-run periods. In the short-run, the coefficient is small (0.02) and relatively big in the long-run (0.29). However, both are statistically insignificant. We can then conclude that for Nigeria, inequality reduces the poverty-reducing effect of growth.

Our last objective is to establish the threshold value above which inequality will become inimical to the poverty-growth nexus in Nigeria. To achieve this, we employ the threshold regression approach. The result is presented in Table 6. Results show that the threshold value is 0.45. When inequality is less than the threshold value, growth will reduce poverty and when inequality is greater than

and equal to the threshold value, the poverty-reducing ability of growth will reduce.

Table 6: Threshold Regression Result

Variable	Coefficient	Probability
Ineq < 0.4507 -- 22 obs		
Gro	-0.0079	0.6847
0.4507 <= Ineq -- 16 obs		
Gro	0.0890	0.0063
Non-Threshold Variables		
C	1.7156	0.0000
R-squared	0.2399	
Adjusted R-squared	0.1964	
F-statistic	5.5218	
Durbin-Watson stat	0.3415	

Source: *Authors' Computation (2019)*

Conclusion

The study examines the nature of growth in Nigeria as well as the role of inequality in the poverty-growth nexus by testing the two emergent hypotheses in the literature between 1980 and 2017. The first hypothesis states that growth generated by the labour-intensive sector is more poverty-reducing than growth from the extractive sector while the second hypothesis states that high-income inequality affects the poverty-reducing effect of growth. The study employs ARDL and threshold regression to investigate the two hypotheses. Results show that growth has a negative effect on poverty in both the short-run and long-run periods. As economic growth increases, poverty is expected to reduce. This follows economic theory. However, the coefficients of growth in the long-run and short-run periods are statistically insignificant. This could be due to the fact that economic growth experienced in Nigeria is majorly as a result of investment in the extractive sector as against some studies where labour-intensive sector is said to be significantly reducing the level of poverty. In addition, we interact inequality and growth and examine the effect of this variable on poverty in both the short-run and long-run periods. Results show that the interactive term has a negative effect on poverty both in the short-run and long-run periods. This implies that an inequality with an improved level of growth will help in poverty reduction. This narration comes from the classical theory where a high level of inequality makes the rich to save more than the

poor, thus leading to faster accumulation of capital and improved economic growth which would help in lessen the level of poverty. Lastly, the threshold regression result shows that the threshold value is 0.45. When inequality is less than the threshold value, growth will reduce poverty and when inequality is greater than and equal to the threshold value, the poverty-reducing ability of growth will reduce. The study concludes that the nature of growth in Nigeria is from the mineral-based (extractive) sector and not the labour-intensive sector, thus, its inability to reduce poverty. The study, therefore, suggests that Nigeria should focus more on the labour-intensive sector than the mineral-based sector. That is, there is a need for diversification.

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