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## Article

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## **Inequality, Poverty and Economic Growth in Nigeria**

**P. I. Nwosa<sup>1</sup>, C. Ehinomen<sup>2</sup>**

**Abstract:** This study examined the relationship among income inequality, poverty and economic growth in Nigeria over the period 1981 to 2018. Specifically, the study examined: (i) the impact of income inequality and poverty on economic growth, (ii) the role of poverty in the link between inequality and economic growth, and (iii) the interactive effect of income inequality and poverty on economic growth. Using the autoregressive distributed lag technique, the study observed that inequality had positive and significant impact on economic growth while poverty had an insignificant impact on economic growth. More so, it was observed that poverty is insignificant in the relationship between income inequality and economic growth while income inequality played a significant role in the relationship between poverty and economic growth. Finally, the study found that the interactive impact of inequality and poverty on economic growth is significant. Drawing from the above, the study concluded that: (i) in the absence of poverty, income inequality had a positive and significant impact on economic growth, (ii) in the absence of income inequality, poverty had an insignificant impact on economic growth, (iii) poverty does not influence the relationship between income inequality and economic growth, and (iii) income inequality influence the relationship between poverty and economic growth.

**Keywords:** Income Inequality; Poverty; Economic Growth; ARDL; Nigeria

**JEL Classification:** D63; EO15; O40

### **1. Introduction**

Income distribution and the level of poverty are critical indicators of economic development (Silve, 2013; Bowley, 1923). Countries with improve income distribution with low poverty rate are described as developed countries while those with highly skewed or uneven income distribution and high poverty rate are term underdeveloped or developing countries. Income inequality and poverty has remained topical discussion at the local and international scenario owing the consequence of widens income inequality on the economic, political and social stability. This is equally apparent in the United Nation Sustainable Development Goals which include among others the eradication of poverty and boosting the income of the bottom 40% of developing countries. Also, the International Monetary Fund (IMF) stressed the importance of income distribution as a cause and consequence of economic growth (Ostry et al, 2014).

The relationship between income distribution and economic growth has received quite a lot of attention in the policy circle and the press in recent times. The link between income inequality and economic growth has been discussed along three strands of theoretical literature. The classical theorist notes that

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inequality promotes economic growth (Bourguignon, 1981; Kaldor, 1957). The classical stresses that the marginal propensity to save is higher for the rich than the poor, thereby suggesting that higher initial inequality promotes higher savings, which in turn increases capital accumulation culminating in economic growth. Furthermore, the classical emphasizes that a certain degree of inequality reflects that economic agents are paid according to merit, thereby creating incentives for hard work, which is expected to translate to improved growth (Angelsen & Wunder, 2006). At the other extreme, the modern approach emphasizes that inequality impairs economic growth through four channels: (a) unequal societies are more prone to political instability which has a high tendency to reduce or slow economic progress; (b) inequality encourages rent seeking activities which reduce the security of property rights; (c) high inequality increases the demand for income redistribution which may lead to higher taxes and other measures which have a negative impact on real income, savings, investment and eventually on economic growth; and (d) in the presence of an imperfect credit market, the poor are largely unable to invest in the development of human and physical capital which affects or impairs economic growth in the long term (Angelsen & Wunder, 2006). Taking an intermediate position between the classical and modern debates, Galor (2000) argued that in the short run or at the early stages of development, inequality promotes economic growth while in the long run income inequality contributes insignificantly to economic growth.

Along the above theoretical views, empirical findings on inequality and economic growth are equally divided. On the one hand, Breunig and Majeed (2020), Brueckner and Lederman (2015), Panizza (2002), Perotti (1996), Clarke (1995), Galor and Zeira (1993) and Alesina and Rodrik (1994) provide credence for a negative link between income inequality and economic growth while Ostry et al. (2014) and Forbes (2000) provide credence for a positive relationship between income inequality and growth. Besides the ambiguity in empirical literatures, studies have argued that poverty rate influences the link between inequality and economic growth. In this regard, Breunig and Majeed (2020) noted that economic growth regression models which control for inequality but not for poverty, may fail to capture the disadvantages that harm growth. Thus, by including poverty in the model, the study controls for the concentration of disadvantages in the population. Specifically, Breunig and Majeed (2020) found an inverse relationship between inequality and economic growth in the presence of rising incidence of poverty. Also, Stiglitz (2013) noted that inequality may undermine the institution that spreads well-being to all members of the society. Hence, the above studies largely suggest that the interaction of inequality and poverty may negatively impact economic growth. Drawing from the above, this study seeks to address the following research questions. (a) What is the impact of inequality on economic growth in Nigeria? (b) What is the impact of poverty on economic growth in Nigeria? (c) What is the role of poverty in the link between inequality and economic growth? (d) What is the interactive effect of inequality and poverty on economic growth in Nigeria.

From the above-mentioned studies on inequality and economic growth, it is evidenced that previous studies have focused largely on other developing countries while country specific studies on the Nigerian economy are lacking. The few related indigenous studies only focused on the impact of economic growth on poverty rate and income inequality (see Nwosa, 2019; Nuruddeen & Ibrahim, 2014). The lack of literature on this issue makes this study worthy of investigation. Thus, the objectives of this study are to: (i) examine the impact of income inequality on economic growth in Nigeria, (ii) examine the impact of poverty on economic growth in Nigeria, (iii) examine the role of poverty in the

link between inequality and economic growth, and (iv) examine the interactive effect of income inequality and poverty on economic growth in Nigeria. In addition to the introductory section, the remaining parts of this article is as follows: section two provides the literature review, section three discussed the research methods, section four presents the data analysis and discussion while section five concludes the article with policy recommendation based on the findings of this study.

## **2. Literature Review**

The theoretical perspectives on the link between inequality and economic growth involve the monetary, modern and the intermediate proposition by Galor (2000). The classical approach stressed that inequality leads to economic growth while the modern approach argued that inequality impairs economic growth. Galor (200) argued that inequality may increase economic growth in the short run while in the long term the impact of inequality on economic growth may be insignificant. With respect to empirical literature, Breunig and Majeed (2020) examined the relationship among inequality, poverty and economic growth. Using system GMM estimation technique, the study observed that inequality had a negative impact on economic growth. Accounting for both inequality and poverty in the same model, the study found that the negative effect of inequality on economic growth appeared more concentrated amongst countries with high poverty incidence. Nwosa (2019) examined the impact of economic growth on inequality in Nigeria for the period 1981 to 2017. Utilizing an Auto-regressive Distributed lag (ARDL) technique, the study observed that economic growth had positive but insignificant impact on income inequality in Nigeria. Akanbi (2016) examined the link among economic growth, poverty and inequality for a group of 9 South African provinces over the period 1995 to 2012. In the study, poverty was proxy by income poverty and non-income poverty while inequality was proxy by income inequality, education inequality and land inequality. Evidences from the study showed the existence of a long-run relationship among growth, poverty and inequality. The causality estimate showed a unidirectional causation from income inequality to economic growth while no causation was observed from economic growth to income inequality. More so, unidirectional causation was observed from income poverty to income inequality while a unidirectional causation was equally observed from income inequality to non-income poverty. Duada (2017) appraised the paradoxical link between rising poverty rate in the midst of high growth in Nigeria. The study noted that the rationale for the paradox includes jobless growth, lack of pro-poor growth agenda, and failure of poverty alleviation initiatives/programs to address structural transformation issues required for employment generation, sustainable growth, and closing the income gap in the economy.

Fosu (2015) examined the relationship among economic growth, inequality and poverty in Sub-Saharan Africa (SSA). The study used recent World Bank data and observed that recent progress on poverty reduction has been considerable, in contrast to the 1980s and 1990s period. Specifically, the study noted that income growth was the main driver of poverty reduction in SSA. However, the study acknowledged that from a global perspective, the low levels of growth inhibited the effectiveness of growth and inequality improvements in reducing poverty in many African countries. Nurudeen and Ibrahim (2014) examined the relationship among poverty, inequality and economic growth in Nigeria for the period 2000 to 2012. The study used both the Auto-regressive Distributed Lag (ARDL) and the granger causality techniques. The ARDL co-integration estimate showed no evidence of a long run relationship

among the variables while the causality estimate showed unidirectional causation from economic growth to poverty rate in Nigeria. Moges (2013) examined the relationship among economic growth, inequality and poverty in developing countries. Utilizing a new and nationally representative dataset on household survey, the study found that economic growth and income inequality have significant impact on poverty reduction. The study suggested the need for developing countries to pursue both economic growth and income distribution policy objectives to bring about reduction in poverty because a one-sided approach would have limited effectiveness for sustainable poverty alleviation.

Ncube, Anyanwu, and Hausken (2013) examined the effect of income inequality on economic growth and poverty in Middle East and North African (MENA) countries for the period 1985 to 2009. The study observed that income inequality had negative effect on economic growth while inequality had positive effect on poverty in the region. Fosu (2009) examined the role of inequality in the relationship between economic growth and poverty in Sub-Saharan Africa (SSA) compared to non-SSA. The study employed an unbalanced panel data for 86 countries over the period 1977 to 2004. The study observed that the impact of economic growth on poverty reduction is a decreasing function of initial inequality. Fanta and Upadhyay (2009) examined the link among economic growth, inequality and poverty for a group of 16 African countries based on household budget surveys. The result of the study showed that economic growth contributes to poverty reduction with the estimated elasticity ranging between  $-0.5$  and  $-1.10$ . Yao (1999) examined the relationship among economic growth, income inequality and poverty employing both secondary and household survey data. The results of the study showed that: (a) urban/rural divide and spatial inequality are two major factors accounting for overall income inequality; (b) non-wage and non-farm incomes are more unequally distributed than wage and farm incomes; (c) and the incidence of poverty is very sensitive to the changes in per capita income and inequality.

Adams (2004) examined the relationship between economic growth and poverty reduction. The study utilized new data set of 126 intervals from 60 developing countries and the study observed that economic growth contributes to poverty reduction. However, the study cautioned that, the rate of poverty reduction depends very much on how economic growth is defined. Earlier study by Adams (2003) on economic growth, poverty and inequality for 50 developing countries, showed that economic growth is a significant determinant of poverty reduction in the developing countries. From the above reviewed literature, it was evident that findings on the impact of income inequality on economic growth still remained an unsettled issue in the literature. Furthermore, it was evident that there exists paucity of knowledge on the impact of income inequality on economic growth in Nigeria as the few related studies only focused on the impact of economic growth on income inequality, thereby providing further justification for this study.

### 3. Methodology

To examine the relationship among inequality, poverty and economic growth in Nigeria, this study specifies a Cobb-Douglas production function as:

$$Y_t = f(L, K) \quad 1$$

In equation (1), “Y” is output, “L” is labor and “K” is capital stock. Introducing the independent variables into the equation (1) becomes:

$$Y_t = f(L_t, K_t, INQ_t, POV_t, INQ * POV) \quad 2$$

Incorporating other control variables identified in the literature as determinants of economic growth (see Iradian, 2005). Equation (2) becomes:

$$Y_t = f(L_t, K_t, INQ_t, POV_t, INQ * POV_t, OIL_t, INF_t) \quad 3$$

In econometric form, equation (1) is specified as:

$$Y_t = \delta_0 + \delta_1 LAB_t + \delta_2 KAP + \delta_3 INQ_t + \delta_4 POV_t + \delta_5 INQ * POV_t + \delta_6 OIL_t + \delta_7 INF_t + \mu_t \quad 4$$

Equation (4) is the base line model for this study and based of objectives of the study four versions of equation (4) is estimated. The first version of the model is estimated with respect to objective one which is to examine the separate impact of inequality on economic growth without poverty (POV) and the interactive term (INQPOV). The second version of the model is estimated with respect to objective two which is to examine the separate impact of poverty on economic growth without inequality (INQ) and the interactive term (INQPOV). The third version of the model is estimated with respect to objective three which is to examine the role of poverty in the relationship between inequality and economic growth without the interactive term (INQPOV); and the fourth version of the model is estimated with respect to objective four which is to examine the interactive impact of inequality and poverty (INQPOV) on economic growth.

From equation (4), “Y” is output which represents economic growth, measured by real gross domestic product, “LAB” represents labor (L) measured by total labor force, “KAP” represent capital stock (K) measured by the ratio of gross fixed capital formation to real gross domestic product, “INQ” represents income inequality measured by the Gini coefficient, “POV” represents poverty rate measured by poverty incidence, “OIL” represents international crude oil measured by the bonny light international crude oil price and “INF” is inflation rate measured by the annual inflation rate. Data on economic growth, capital stock, international oil price and inflation rate are obtained from the Central Bank of Nigeria statistical bulletin 2018 edition while data on labor force is obtained from World Development Indicators (WDI), 2018 edition. Data on income inequality and poverty incidence are obtained from Bloomberg database.

#### 4. Result and Discussion

Table 1 presents the results of the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests which are similar. The unit root tests showed that economic growth (Y), labor force (LAB), inequality (INQ) and poverty (POV) were stationary at first difference indicating that the variables were integrated of order one while other variables such as capital stock (KAP) and inflation rate (INF) were stationary at level, indicating that the variables were I (0) series. The mix in the unit root result suggests the use of bound co-integration technique in conducting the co-integration test among the variables.

**Table 1. Unit Root Test**

Augmented Dickey Fuller (ADF) Test				Phillips-Perron (PP) Test		
Variables	Level	After Differencing	Status	Level	After Differencing	Status
Y	-0.0948	-5.9464	I (1)	-0.0814	-5.9463	I (1)
LAB	-0.2364	-5.9578	I (1)	-0.2289	-5.9577	I (1)
KAP	-8.3970	-	I (0)	-8.2116	-	I (0)
INQ	-2.8143	-5.6464	I (1)	-2.8513	-5.6449	I (1)
POV	-2.5119	-6.4313	I (1)	-2.5310	-7.1008	I (1)
OIL	-1.7259	-7.7344	I (1)	-1.5740	-8.3127	I (1)
INF	-3.1611	-	I (0)	-3.1317	-	I (0)

Source: Authors' computation using E-views 9. Note: and denote 1% and 5% critical values respectively

In the co-integration result presented in Table 2 the values of the F-statistics for all the models were greater than the upper bound critical values at both 1% and 5%, which suggest the existence of co-integration among the variables in models.

**Table 2. The ARDL Bound Co-integration Test.**

Estimated Model	F-Statistics	
Model 1 (INQ Model)	15.45183	
Model 2 (POV Model)	5.548083	
Model 3 (INQ and POV Model)	7.656507	
Model 4 (Interactive (INQPOV Model))	7.729072	
Critical Values	Lower Bound	Upper Bound
1%	3.41	4.68
5%	2.62	3.79

Source: Authors' computation using E-views 9. Note: and denote 1% and 5% critical values respectively

From the regression estimates presented in Table 3, it is observed that labor force (LAB) had negative and significant impact of economic growth while international crude oil price (OIL) had positive and significant impact on economic growth in Nigeria across the estimated models. Also, it was observed that capital stock (KAP) and inflation rate (INF) had insignificant impact on economic growth in all the estimate models with exception to model 3 in which inflation had positive and significant impact on economic growth. The negative impact of labor force on economic growth in Nigeria clearly reflects the rising unemployment rate in Nigeria which has constituted a burden rather than an asset to economic growth while the positive impact of international crude oil price on economic growth in Nigeria reflects the dependence of the Nigerian economy on oil.

With respect to the focused of this study, Model 1 in column 2 focused on objective one which is to examine the impact of inequality on economic growth in Nigeria. From the estimate, it is observed that inequality (INQ) had positive and significant impact on economic growth in Nigeria which is in line classical theory that inequality promotes economic growth. This finding is also in line with Ostry et al. (2014) and Forbes (2000). Model 2 in column 3 focused on objective two which is to examine the impact of poverty on economic growth in Nigeria. From the estimate, it is also observed that poverty had an insignificant impact on economic growth in Nigeria which is in line with Nurudeen and Ibrahim (2014). Model 3 in column 4 focused on objective three which is to examine the role of poverty in the relationship between income inequality and economic growth. From the estimate, it is observed that

both income inequality and poverty had positive and impact on economic growth in Nigeria. The presence of poverty in the model did not change the signed of income inequality in the estimate rather poverty became very significant when income inequality was added to the model. Evidence from the estimate showed that poverty did not influence the link between inequality and economic growth. This result is in contrast to Breunig and Majeed (2020) which found an inverse relationship between inequality and economic growth in the presence of rising poverty. More so, the result showed that income inequality influences the relationship between poverty rate and economic growth, by including income inequality, poverty had positive and significant impact of economic growth, which is in line with Yao (1999) but in contrast to Fosu (2009).

**Table 3. The Regression Estimate**

Independent Variable	Estimated Models			
	Model 1	Model 2	Model 3	Model 4
LAB	-1.9522 (-49.4299)*	-1.0234 (-43.1151)*	-1.0181 (-111.4209)*	-1.0015 (-88.6402)*
KAP	-0.5057 (-1.4644)	-0.8234 (-1.0321)	-0.4055 (-1.9073)	-0.6271 (-1.8211)
INQ	0.0164 (6.5379)*	-	0.0054 (2.3485)**	-
POV	-	0.0111 (2.0061)	0.0095 (4.5260)*	-
INQ*POV	-	-	-	0.3070 (5.3428)*
OIL	0.3473 (10.4045)*	0.1545 (2.1957)**	0.2389 (8.9862)*	0.2607 (8.5902)*
INF	0.0006 (0.9134)	-0.0003 (-0.1462)	0.0021 (3.3077)*	0.0010 (1.0633)
C	15.2409 (52.5326)*	16.6884 (36.9047)*	15.9549 (104.1376)*	14.0690 (30.4316)
<i>ecm-term</i>	-0.1189 (-5.6111)*	0.0875 (-2.5893)**	-0.2164 (-6.3770)*	-0.1515 (-5.6780)*

Source: Authors' computation using E-views 9. Note: \* and \*\* denote 1% and 5% critical values respectively

The estimate from model 4 in column 5 which focused on the interactive impact of income inequality and poverty on economic growth, showed that the interactive term (INQPOV) had positive and significant impact on economic growth in Nigeria. In addition, the error correction terms (*ecm-term*) from the short run ARDL estimates were negative and significant, which suggests the existence of a stable long-run relationship among the variables in the estimated models. The negative sign of the error correction terms indicates a backward movement towards long-run equilibrium.

## 5. Conclusion

This study examined the link among income inequality, poverty and economic growth in Nigeria over the period 1981 to 2018. Owing to contentious issue in the literature, the study seeks to achieve the following research objective: (i) to examine the impact of income inequality on economic growth in Nigeria, (ii) to examine the impact of poverty on economic growth in Nigeria, (iii) to analyze the role of poverty in the link between inequality and economic growth, and (iv) determine the interactive effect of income inequality and poverty on economic growth in Nigeria. Using the autoregressive distributed lag (ARDL) technique, the results showed that income inequality had positive and significant impact on





economic growth while poverty rate had an insignificant impact on economic growth. More so, the results showed that poverty was insignificant in the relationship between income inequality and economic growth while income inequality played a significant role in the relationship between poverty and economic growth. Finally, the study found that the interactive impact of income inequality and poverty on economic growth was positive and significant. Drawing from the above, the study concludes that: (a) in the absence of poverty, income inequality had a positive and significant impact on economic growth, (b) in the absence income inequality, poverty had an insignificant impact economic growth (c) including both variables (income inequality and poverty) in a single equation, they had positive and significant impact on economic growth, suggesting that (i) the presence of poverty in the regression estimate does not change the relationship between income inequality and economic growth as claimed by Breunig and Majeed (2020), and (ii) the presence of income inequality in the regression estimate influence the relationship between poverty and economic growth.

### 5.1. Suggestion for Further Studies

In the light of the findings of this study and the ambiguity of empirical evidences on the relationship among inequality, poverty and economic growth, there is the need for further studies (panel/cross sectional and country specific studies) on this contentious debate.

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