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Poverty and Economic Growth Nexus in Nigeria

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Abstract

The poverty situation in Nigeria has continued to attract the attention of the general public and various successive governments in the country over the years. It is worrisome that the poverty rate in the country has continued to rise despite the rising GDP. This study examined the impact of rising GDP on poverty reduction in Nigeria for the period 1982-2019. This is to identify whether the growth in Nigerian economy is pro-poor. Annual time series data on poverty rate, GDP growth rate, Gini coefficient (which measures inequality) and gross fixed capital formation (for domestic investment) are the variables used for the analysis. A dummy variable for democracy is also constructed to test for the impact of governance on poverty reduction in Nigeria. Autoregressive Distributed Lag (ARDL) model is adopted in the estimation procedure. The empirical results show that GDP growth rate, which measures economic growth, has negative and significant impact on poverty rate in the short run. However, its impact on poverty rate is positive and significant in the long run. Inequality has positive and significant impact on poverty rate both in the short run and in the long run. Thus, increase in inequality dampens the impact of growth on poverty reduction in Nigeria. Gross fixed capital formation has negative and significant impact in poverty rate both in the short run and in the long run. Democracy has negative and significant impact on poverty rate in the short run while in the long run, its impacts becomes positive and significant. The implication is that growth in Nigeria is not pro-poor. Based on the findings, it is recommended that the poverty reduction initiatives by the government should be geared towards providing jobs opportunities for the poor in order to boost their income.
Keywords: *Poverty, Gross Domestic Product, Inequality, Democracy, wellbeing.*

Introduction

The poverty situation in Nigeria has continued to attract the attention of the general public and various successive governments over the past four decades. It is worrisome that the poverty rate in the country has continued to rise in the mist of rising growth rate of real GDP. The growth rate of real Gross Domestic Product (GDP), which is used to measure the growth of the economy, is necessary for poverty reduction. However, the paradox in Nigeria is that as the country gets richer, more of its citizens live in poverty (Kolawole, Omobitan & Yaqub, 2015; Nwobi, 2003). Thus, the poverty indices present an image that is totally at variance with the outlook of the economy.

Before the implementation of the Structural Adjustment Programme (SAP) in 1986, various successive governments in the country have implemented poverty reduction programmes. Such programmes include, Operation Feed the Nation (OFN) in 1977, Green

Revolution in 1980 and low cost housing scheme in 1980; OFN and green revolution were set up to boost agricultural production and improve the general performance of the sector.

Following the introduction and implementation of SAP in 1986, the Federal government of Nigeria implemented many poverty alleviation programmes between 1986 and 1993. Such programmes include: Directorate of Food, Road and Rural Infrastructure (DFRRI) in 1986, National Directorate of Employment (NDE) in 1986, Better Life Programme (BLP) in 1989, and Community Bank (CB) in 1990. Under the guided deregulation that spanned 1993 – 1998, more poverty reduction programmes were introduced. They include Family Support Programme (FSP) in 1994 and Family Economic Advancement Programme (FEAP) in 1997.

Following the present democratic governance in the country, which was inaugurated in 1999, more poverty alleviation programmes were introduced. In the year 2000, Poverty Alleviation Programme (PAP) was introduced as an interim poverty measure. Specifically, PAP was aimed at providing jobs for 200,000 unemployed people; creating credit delivery system from which the farmers would have access to credit facilities, increasing literacy rate from 50 percent to 70 percent by the year 2003; shooting up health care delivery system from 40 percent to 70 percent by the year 2003; embarking on training and settlement of at least 60 percent of tertiary institutions graduates and developing small-scale industries.

Following the failure of PAP in achieving the above objectives, the government came up with the National Poverty Eradication Programme (NAPEP) in 2001. NAPEP was targeted to wipe out poverty completely by the year 2010.

However, in spite of all these measures, poverty head count ratio in Nigeria has continued to rise. It is against this background that this research is being carried out.

Statement of the Problem

The poverty level in Nigeria contradicts the country's abundant wealth of both human and material resources. For instance, the annual time series data, published by the Central Bank of Nigeria (CBN, 2019) in collaboration with the National Bureau of Statistics (NBS) in 2019, indicate that the growth rate of real GDP in 1986 is 1.90 percent. This increased to 4.05 per cent in 1996 (a period of ten years). It further increased to 6.73 per cent in 2006. Although it recorded a negative growth rate of -1.58 per cent in 2016, it increased further to 2.21 per cent in 2019.

Similarly, poverty rate in the country has continued to rise in the mist of the rising GDP. In 1986, the poverty rate in Nigeria, from the Word Development Indicator (WDI, 2019), stood at 46.3 per cent. It increased to 63.5 per cent in 1996, 53.12 per cent in 2006 and then, 57.2 per

cent in 2016 and 61.2 per cent in 2017. Although it declined to 39.1 per cent in 2018, it increased further to 40.1 per cent in 2019.

The above problem of rising poverty rate in the mist of rising GDP in the country is a source of serious concern. This is because the growth in real GDP, which coincides with the growth in income levels, is expected to reduce poverty. It is this problem that provoked and motivated this study.

Objectives of The Study

The broad objective of this study is to examine the impact economic growth (measured by GDP growth) on poverty reduction in Nigeria. Specifically, the study intends to analyse:

(i) The impact of growth of real GDP on poverty reduction in Nigeria; and

(ii) Identify whether the growth in GDP in Nigeria is pro-poor.

This study covers the period 1982 – 2019. The choice of this period is guided by data availability and harmonization of GDP to the same base year (2010 constant price).

This paper is divided into five sections. Section one above is the introductory section. Section two focuses on the literature review. Section three is the methodology while section four is on the presentation and discussion of results. The last section, section five, presents the summary of the findings, conclusion and recommendations.

Theoretical Background

Conceptual Issues

Yang (2017) notes that the analysis of poverty consists of two basic stages namely: identifying who is poor and summarizing this individual-level information into measures of poverty for the whole society. In Nigeria, poverty has many manifestations and dimensions which include, joblessness, over indebtedness, economic dependence, and lack of freedom, inability to provide the basic needs of life for self and family, lack of access to land and credit, and inability to save and own assets (National Planning Commission, 2004).

Following the multidimensional nature of the concept, poverty can be viewed as an absolute or relative concept, depending on how the poverty threshold is defined. Thus, there have been a long standing debate about whether an absolute or relative threshold should be used to decide who is poor or not (Gordon, 2006; Ravallion, 2010). Absolute poverty refers to a level of resources that does not change as the general living standard changes over time. The World Bank (2000) defines absolute poverty as a condition of life degraded by diseases, deprivation, and squalor. The concept of relative poverty is usually credited to Peter Townsend

(1979). According to Townsend (1979), individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the type of diet, participate in the activities, and have the living conditions and amenities which are customary, or at least widely encouraged or approved in the societies to which they belong. This means that poverty can be described as relative deprivation (Bradshaw, 2006). However, Rocha (1998) notes that the deprivation of basic needs makes absolute poverty the obvious priority in terms of definition, measurement and political action from the international point of view.

This study sees poverty as an absolute concept because the measures of access to material goods and services have a more direct relationship to the quality of life which people are able to attain.

Theoretical Literature

Amis and Grant (2001), assert that economic growth can reduce urban poverty through the generation of economic opportunities and employment. They conclude that for this to be achieved, municipal governments must play key role in the process.

Dollar and Kraay (2002), note that although the world economy grew well during the 1990s, there is intense debate over the extent to which the poor benefits from this growth. In line with Dollar and Kraay (2002), Heshmati (2004) argues that although the aggregate growth is both necessary and sufficient for reducing poverty, the issue is that the benefits of growth is not usually equally distributed across different segments, sections and regions of the society. Hence, in analyzing the impact of economic growth on poverty reduction, the level and distributional impacts of growth on each of those strata needs to be taken into consideration. Thus, the distributional impact of growth on the poor is discussed under the pro-poor growth presented below.

The Theory of Pro-Poor Growth

The Pro-poor growth debate has its roots in the pro-distribution arguments by Chenery and Ahluwhalia in the 1970s. Hence, Chenery and Ahluwhalia's (1974) model of redistribution with growth can be regarded as the inception of the whole debate on pro-poor growth.

Pro-poor growth is categorized in terms of relative or absolute pro-poor growth. Relative pro-poor growth occurs when economic growth benefits the poor proportionally more than the non-poor. This implies that while growth reduces poverty, it also improves relative inequality. On the other hand, absolute pro-poor growth occurs when the poor receive the absolute benefits of growth equal to or more than the absolute benefits received by the non-poor. Thus, absolute

approach sets out the strongest requirement for achieving pro-poor growth (Kakwani, Khandker, & Son, 2004).

Empirical Literature

The nexus between economic growth and poverty reduction has been conducted at national and international levels, involving cross-country and country-specific studies. In a cross-country study, Fosu (2009) examines the extent to which inequality affects the impact of income growth on the rate of poverty changes between sub-Saharan African (SSA) countries and non sub-Saharan African countries (non-SSA). The results show that the impact of GDP growth on poverty reduction is a decreasing function of initial inequality. The results also reveal that income growth elasticity is substantially less for SSA. This implies relatively low poverty reduction sensitivity to growth compared with the rest of the developing countries.

In another cross country study, Perera and Lee (2013) examine the effects of economic growth and institutional quality on poverty and income inequality in nine developing Asian countries (China, Indonesia, Malaysia, the Philippines, Thailand, Bangladash, India, Pakistan and Sri Lanta) over the period 1985 – 2009. Employing the system generalized method of moments (GMM) estimation technique, the results show that economic growth did not have much impact on income inequality, which implies that improvements in government stability, law and order are found to reduce poverty.

Similarly, Fosu (2017) investigates the nexus between growth, inequality and poverty reduction in developing countries. Applying both regional and country-specific data with USD 1.25 and USD 2.50 as base line for poverty, the empirical results shows that income growth plays a major role in reducing and increasing poverty in developing countries sampled.

Besides the cross country studies reviewed above, country-specific studies have equally been conducted by scholars. In a study on economic growth and poverty reduction in Kazakhstan, Agrawal (2008), using provincial data, finds that provinces with higher growth rates achieved a faster decline in poverty. Ijaiya, Ijaiya, Bello and Ajayi (2011), in a study on economic growth and poverty reduction in Nigeria, find that although the initial level of economic growth was not enough to reduce poverty, sustainability in economic growth is crucial in the long run.

Akanbi and DuToit (2011) developed macroeconometric modeling for Nigerian economy to analyse growth-poverty gap for the period 1970-2006. Employing Engle and Granger (1987) two-step cointegration techniques, it is found that improved productivity is essential for accelerated growth and poverty reduction.

Muloka, Kogida, Asida and Lilya (2012), attempt to determine the empirical relationship and importance of growth for poverty reduction in Malaysia for the period 1970 – 2009. The results show that growth explains much, but not all, about the evolution of poverty. The conclusion drawn is that economic growth is necessary but not sufficient for poverty reduction.

Kolawole, Omobitan and Yaqub (2015) examine the relationship among poverty, inequality and economic growth in Nigeria for the period 1980-2012. Using time series data on GDP growth rate, per capita income, literacy rate, government expenditures on education and health, ordinary least squares (OLS) was used in the estimation. The OLS results reveal that GDP growth rate increases inequality, but reduces poverty in the country.

Ebunoluwa and Yusuf (2018) examine the effects of economic growth on poverty reduction in Nigeria for the period 1980-2016. Using cointegration technique, the empirical result shows that economic growth has significant effect on poverty reduction in Nigeria.

Dada and Fanowopo (2020) analyse the role of institutions in the nexus between economic growth and poverty reduction in Nigeria over the period 1984-2018. The study employs two institutional quality variables, namely, corruption control and political stability. In the study, economic growth is proxied by per capita income while poverty is measured using household consumption. Applying Autoregressive Distributed Lag (ARDL) approach to cointegration, the results show that economic growth and institutions have positive effects on per household consumption in both the short run and long run. This implies that as institutions and economic growth increase, per household consumption also increases, while poverty decreases. The conclusion drawn is that sound institutions and sound economic growth are important in combating poverty.

Method

This research adopted Autoregressive Distributed lag (ARDL) model, applying bounds testing procedure in estimating the data set. This model by Pesaran, Shin and Smith (2001) was chosen because it is applied when the variables have mixed order of integration, that is, I (0) and I (1). Most importantly, the model has the advantage of generating the short run and long run results simultaneously.

Model Specification

This study adopted the model by Dada and Fanowopo (2020) with some modifications; inequality is included and dummy variable for stable democracy in Nigeria is also included in

the present model. The long run relationship between poverty rate (the dependent variable) and independent variables (GDP_r, GINI, LGFCF and DEMO) is specified below:

$$POVR_t = \beta_0 + \beta_1 GDP_{rt} + \beta_2 GINI_t + \beta_3 LGFCF_t + \beta_5 DEMO_t + \mu_t \quad (1).$$

Where, POVR, GDPr, GINI, GFCF and DEMO are as defined in section 3.2 below. β_0 is the constant intercept, β_1-β_4 are the coefficients of the variables respectively, μ is the error term and t is the period. GFCF is in logarithm (L) to ensure uniformity of data.

Data, Definition of Variables and Sources.

The variables used in this study are:

Poverty Rate (POVR). This is the dependent variable. Poverty head count ratio is used. This is the most popular measure of poverty by most developing and transition countries (Jeanneney & Kpodar, 2008; Isiwu, 2019).

*Growth Rate of Real GDP (GDPr***).** This measures the growth of the economy.

Gini Coefficient (GINI). This measures inequality.

Gross fixed capital formation (GFCF). This measures domestic investment.

Democratic Stability (DEMO). This measures institution or governance. A dummy variable is constructed for DEMO; it takes the values of 1 for period of democracy (1999-2019) and zero for other years (1982-1998). Data for GDPr and GFCF were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin, 2019 edition while the data for POVR and GINI were sourced from World Development Indicator (WDI) by the World Bank.

Economic a Priori of the Variables

The coefficient of growth rate of real GDP (β_1) is expected to be negative; an increase in GDPr will lead to poverty reduction and vice versa. The coefficient of inequality (GINI) (β_2) is expected to be positive; increase in inequality increases poverty and vice versa. The coefficient of domestic investment (β_3) is expected to be negative; increase in domestic investment will lead to poverty reduction and vice versa. The coefficient of democracy (β_4) is expected to be negative; political stability will attract investment which will lead to a reduction in poverty.

Estimation Techniques

To avoid the problem of spurious regression, which is associated with time series data, Augmented Dickey and Fuller (1979) and Phillips and Perron (1988) unit root tests were conducted. These tests were conducted before the application of ARDL approach to

cointegration to ensure that none of the variables is integrated into order two, 1 (2), which is the condition for the application of ARDL Model.

Following Pesaran et al (2001), the ARDL format of equation (1) above becomes:

$$\Delta POVRt = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta POVR_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta GDPr_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta GINI_{t-i} + \sum_{i=1}^{p} \beta_4 \Delta LGFCF_{t-i} + \sum_{i=1}^{p} \beta_5 \Delta DEMO_{t-i} + \lambda_1 POVR_t + \lambda_2 GDPr_t + \lambda_3 GINI_t + \lambda_4 GFCT_t + \lambda_5 DEMO_t + \varepsilon_t \quad (2)$$

Where, t is the period, Δ is the first different operator; β_0 is the constant, β_1-β_5, with the summation signs, represent the short run dynamics. λ_1 - λ_5 represent the long run coefficients respectively. Ps are the optimum Lags order selected by Akaike information criteria, Ɛ is the error term that satisfies the stochastic assumptions of OLS and t is the period.

When cointegrtion between poverty rate and the independent variables exists, the error correction model (ECM), which measures the short run dynamics or adjustment of cointegrated variables towards their equilibrium values is estimated. The general error correction representation of equation (2) becomes:

$$\Delta POVRt = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta POVR_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta GDPr_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta GINI_{t-i} + \sum_{i=1}^{p} \beta_4 \Delta LGFCF_{t-i} + \sum_{i=1}^{p} \beta_5 \Delta DEMO_{t-i} + \Theta ECM_{t-1} + \varepsilon_t \quad (3)$$

For a stable system, the coefficient of ECM (Θ), which measures the speed of adjustment of the dependent variable to the value implied by the long run relationship, is expected to be fractional, negative and significant.

To test for the existence of cointegration, the null hypothesis of no cointegration among the variables, defined by

Ho: $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$ is tested against the alternative

Hi : $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 \neq 0$

The F test was used for the bound test. This test has two sets of critical values; one set assumes that all variables are of order I (0) while the other set assumes that they are I (1). If the computed F statistic falls above the upper critical values, which corresponds to I (1), the null hypothesis of no cointegration is rejected. If it falls below the lower bound, which corresponds I(0), the null hypothesis is not rejected. If it falls between the two bounds, the result is inconclusive. The order of Lag was selected by the Akaike information criteria.

Post Estimation Tests

The post estimation tests conducted for the robustness of the model include, Ramsey Reset test for model specification, Breusch-Pagan-Godfrey test for heteroscedasticity, Jarque-

Bera for normality and Breush-Godfrey Lagrange Multiplier (LM) for serial correlation. Econometric software used in the processing of data is E view 9.

Presentation and Discussion of Results

Descriptive Statistics

Table1: Result of Descriptive Statistics

Variables	Mean	Median	Standard deviation	Skewness	Kurtosis	Observations
POVR	53.892	54.000	6.673	-0.043	2.492	38
GDPr	4.274	4.630	4.322	-0.064	3.232	38
GINI	44.224	43.450	5.278	0.571	2.545	38
LGFCF	6.145	5.861	2.619	0.070	1.740	38

Source: Authors' computation from E-view 9

The result of descriptive statistics is presented in Table 1 above. The result shows that poverty rate (POVR) has the highest mean of 53.892. This is followed by inequality (GINI), with the mean of 44.224, domestic investment (LGFCF) with the mean of 6.145. Economic growth (GDPr) has the least mean (4.274). Poverty also has the highest standard deviation of 6.673. A higher standard deviation indicates that the variable is highly variable. Inequality also has the standard deviation of 5.278, followed by economic growth (4.322). Domestic investment is less variable with the least standard deviation of 2.619. Poverty and GDP growth rate are negatively skewed while inequality and domestic investment are positively skewed. The values of the Skewness and kurtosis for all the variables are different from zero (0) and 3 respectively. This is an indication of non-normal distribution which might have accounted for non stationary of most of the series.

Unit Root Tests

Unit root tests were conducted for each of the variable. This is to avoid the problem of spurious regression, which is associated with time series variables. Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test statistics were adopted for the tests. The results of these tests are presented in tables 2 and 3 below.

Table 2: Result of ADF and PP unit root tests @ level

	ADF@Level	PP@ Level

Variables	Intercept	With Trend	Intercept	With Trend
POVR	-1.758143 (0.3947)	-1.035069 (0.9264)	-1.758143 (0.3947)	-1.035069 (0.9264)
GDPr	-3.428298(0.0162)**	-3.338765 (0.0758)	-3.428298 (0.0162)**	-3.338765 (0.0758)
GINI	-2.345209 (0.1641)	-2.004376 (0.5793)	-2.345209 (0.1641)	-2.004376 (0.5793)
LGFCF	-0.742705 (0.9915)	-4.036588 (0.0159)**	-0.742705 (0.9915)	-4.036588 (0.0159)**

Note: The figures in Parentheses are the probability values respectively *and ** imply significant @ 1% and 5% respectively. **Source: Authors' computation from E-View 9**

Table 2 above presents the results of ADF and PP unit root tests at level. From the result, growth rate of real GDP and gross fixed capital formation are stationary at level. In other words, they are I(0) process, which implies that they do not contain unit root. Conversely, poverty rate and inequality are not stationary at level, that is, they contain unit root. Hence, they have to be differenced in order to achieve stationarity.

Table 3 below shows the results of both ADF and PP unit root tests for al the variables.

Table 3: Result of ADF and PP unit root tests @ first difference

Variables	ADF @ First difference		PP@ First difference	
	Intercept	With Trend	Intercept	With Trend
POVR	-5.0435923 (0.0001)*	-5.952469 (0.0001)	-5.435923 (0.0001)*	-5.952469 (0.0001)*
GDPr	-7.899302 (0.0000)*	-8.037739 (0.0000)*	-7.899302 (0.00000)*	-8.037739 (0.0000)*
GINI	-3.215890 (0.0272)**	-3.465967(0.0586)	-3.215890 (0.0272)**	-3.465967 (0.0586)
LGFCF	-5.742674 (0.000)*	-6.628851 (0.0003)*	-5.742674 (0.0000)*	-5.628801 (0.0003)*

Note: The figures in parentheses are the probability values respectively *and ** imply significant @ 1% and 5% respectively

Source: Authors' computation from E-View 9

Tables 3 above presents that poverty rate and inequality are stationary at first difference. In other words, they are I(1) process. The presence of unit root in some of the variables necessitates further investigation on the nature of the long run relationship among the variables. Hence, the next step is to test for cointegration among the variables.

Cointegration Test

It has been identified from the unit root tests conducted that the variables have mixed order of integration. In other words, they are I(0) and I(1) variables. Therefore Autoregressive

Distributed Lag (ARDL) model, applying bounds test, becomes the most appropriate procedure for testing for cointegration between the dependent variable (poverty rate) and independent variables (growth rate of real GDP, inequality, domestic investment and democracy). The result of ARDL is presented in Table 4 below.

Table 4: Result of bounds test

ARDL Bounds Test

Date: 06/27/21 Time: 21:43

Sample: 1984 2019

Included observations: 36

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	6.926791	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Authors' computation from E-view 9

To conduct the ARDL bounds test, optimal lag length based on Akaike information criteria was selected. The optimal lag order selected is 2.

The result of ARDL bounds test presented above shows that the value of F statistic is 6.926791. Since this value is higher than the upper bounds, I (1) at 5 percent and 1 percent respectively, the null hypothesis of no cointegration is rejected. This means that there is cointegration between the dependent variable and independent variables. The existence of cointegration among the variables necessitates further tests on the short run and long run impact of growth rate of the economy (measured by real GDP growth) on poverty reduction in Nigeria during the period covered by the study.

Presentation and Discussion of ARDL Short run and Long run Results.

Table 5: Results of ARDL short run and long run.

ARDL Cointegrating And Long Run Form
Dependent Variable: POVR
Selected Model: ARDL(1, 2, 0, 0, 2)
Date: 06/27/21 Time: 21:51
Sample: 1982 2019
Included observations: 36

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPR)	0.221844	0.103246	2.148703	0.0411
D(GDPR(-1))	-0.250882	0.082641	-3.035790	0.0054
D(GINI)	1.074328	0.103446	10.385446	0.0000
D(LGFCF)	-0.802129	0.281623	-2.848233	0.0085
D(DEMO)	-2.162190	1.904779	-1.135139	0.2667
D(DEMO(-1))	-7.173678	2.275561	-3.152488	0.0041
CointEq(-1)	-0.752804	0.083507	-9.014881	0.0000

Cointeq = POVR - (0.4342*GDPR + 1.4271*GINI - 1.0655*LGFCF + 5.2161 *DEMO -6.9541)

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPR	0.434197	0.158669	2.736495	0.0110
GINI	1.427102	0.110668	12.895328	0.0000
LGFCF	-1.065521	0.392963	-2.711506	0.0117
DEMO	5.216080	2.116899	2.464020	0.0207
C	-6.954108	4.459213	-1.559492	0.1310

The ARDL result presented above shows that in the short run, growth in real GDP has negative and significant impact on poverty rate both in the current period and in the immediate past period, with the probability values of 0.0411 and 0.0054 respectively. This implies that increase in GDP growth leads to poverty reduction. However, in the long run, its impact on poverty rate becomes positive and significant, with the probability value of 0.0110. This is a deviation in the expectation. The result also indicates that inequality, measured by GINI coefficient, has positive and significant impact on poverty rate both in the short run and long run. This is in line with the expectation because increase in inequality leads to increase in

poverty. Similarly, the empirical result also shows that gross fixed capital formation, which is a proxy for domestic investment, has negative and significant impact on poverty reduction both in the short run and in the long run. This is in line with the a priori expectation because an increase in domestic investment leads to poverty reduction in an economy. With respect to democratic stability, the impact of its current value is negative and insignificant but its immediate paste value is also negative and significant. However, in the long run, the impact of democratic stability on poverty reduction appears positive and significant. This implies that democratic stability leads to poverty reduction in the short run while in the long run, it increases poverty. This indicates policy discontinuity in the implementation of poverty reduction strategies adopted by the successive governments in Nigeria over the years.

The error correction term, which measures the speed by which short term deviations in poverty rate converges back to, or diverges from its long run equilibrium, is -0.752804. It is correctly signed, fractional and significant with the probability value of 0.0000. This implies that the model employed is stable. The short term deviations converge to long run equilibrium at an annual speed rate of 75.28 percent. This shows a high speed of adjustment to equilibrium after a shock.

Post Estimation Tests

The results of post estimation tests conducted for the robustness of the model includes, Ramsey Reset test for model specification, Breusch-Pagan-Godfrey test for heteroscedasticity, Breusch-Godfrey LM test for serial correlation and Jarque-Bera test for normality

Table 6: Diagnostic tests results.

Ramsey RESET Test
Equation: UNTITLED
Specification: POVR POVR(-1) GDPR GDPR(-1) GDPR(-2) GINI LGFCF
DEMO DEMO(-1) DEMO(-2) C
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.542345	25	0.5924
F-statistic	0.294138	(1, 25)	0.5924

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.376939	Prob. F(9,26)	0.2486
Obs*R-squared	11.62021	Prob. Chi-Square(9)	0.2356
Scaled explained SS	12.77956	Prob. Chi-Square(9)	0.1728

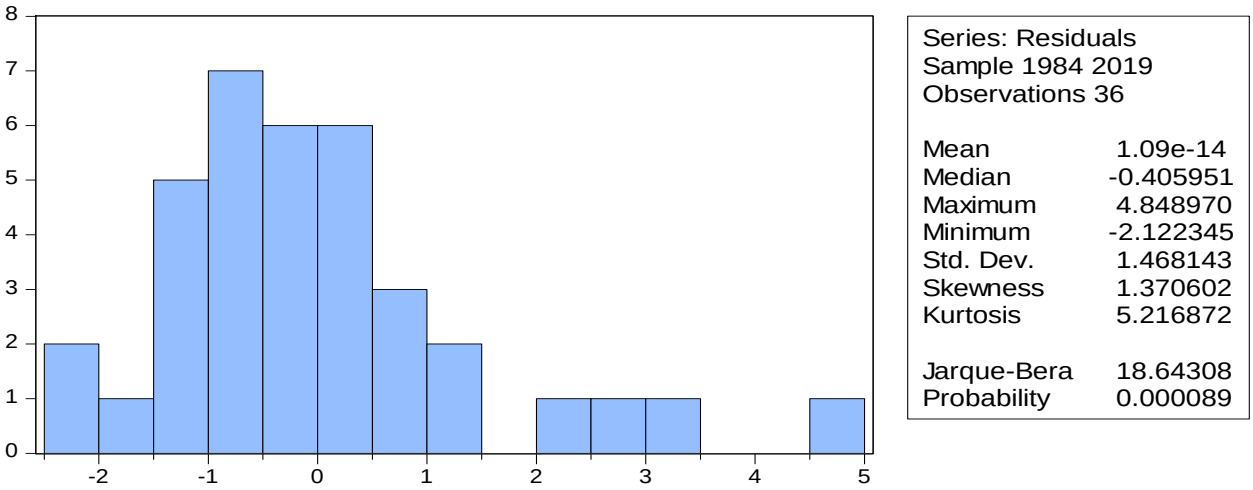
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	4.521402	Prob. F(2,24)	0.0216
Obs*R-squared	9.852097	Prob. Chi-Square(2)	0.0073

Source: Authors' computation from E-view 9

The probability values of Ramsey reset test and Breusch-Pagan-Godfrey test for heteroscedasticity are greater than 0.05 respectively. This shows that the functional form of the model is well specified and that the residuals are homoscedastic. However, there is serial correlation problem since the probability value of LM test, which is 0.0073, is less than 0.05

Fig.1 Jarque-Bera Normality Test



The probability value of Jarque-Bera is less than 0.05. this is not surprising because the presence of unit root in some of the variables might have accounted for this.

Summary, Conclusion and Recommendations

Summary of the Findings and Conclusion

The empirical results of ARDL model presented above show that the growth in real GDP has negative and significant impact on poverty rate in the short run while in the long run, its impact on poverty rate appears positive and significant. This implies that growth in real GDP leads to poverty reduction in the short run while in the long run, it leads to increase in poverty. This indicates policy inconsistency in poverty reduction strategies by successive governments in the country.

The results also show that increase in inequality increases poverty both in the short run and long run. It is also found that increase in domestic investment leads to a reduction in poverty both in the short run and long run. This is in line with the expectation.

The empirical results also show that democratic stability, proxied by democracy dummy, has negative impact on poverty reduction in the short run while in the long run, its impact appears positive and significant. This implies that democracy institution reduces poverty in the short run and increases poverty in the long run.

The conclusion drawn is that growth in Nigeria is not pro-poor. This is because increase in income inequality, which appears positive and significant both in the short run and long run reduces the impact of growth on poverty reduction in Nigeria.

Policy Recommendations

Based on the findings from the above results, the following recommendations are made. The empirical results show that real GDP growth reduces poverty in the short run while in the long run, it increases poverty. The change in sign from negative in the short run to positive in the long run shows policy discontinuity in the implementation of poverty reduction strategies by the successive government in Nigeria, over the years. It is therefore recommended that the poverty eradication programme, Better life for Rural women, etc, which were initiated by the previous regimes should be implemented until success is achieved. This is to ensure policy continuity in governance.

The results also show that increase in inequality increases poverty both in the long run and short run, while at the same time, increase in growth of real GDP increases poverty in the long run. The implication is that increase in inequality in income distribution can increase poverty further despite increase in growth. This implies that growth in Nigeria is not pro-poor. It is recommended that the government should embark on giving interest free loans to small scale farmers, unemployed graduates and organize skill acquisition programmes for the youths to make them gainfully engaged. This will help to reduce unemployment and increase income distribution.

The results also indicate that democracy reduces poverty in the short run while in the long run, it increases poverty. Political stability measures a predictable political environment which attracts investment both internally and externally. The implication of this finding is that the dividends of democracy do not reach the grass root to be able to reduce poverty. It is recommended here that the government should monitor the disbursement of funds aimed at reducing poverty such as school meals programmes, budgetary allocation to education and health, loans to small- scale farmers, etc. This will make people to enjoy the dividends of democracy.

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