Effect of Economic Growth on Poverty in Nigeria

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Abstract

The study explored the relationship between economic growth and poverty in Nigeria by identifying components that influence economic growth in various sectors of the economy. Ex post facto research design was used and the Harrod-Domar model formed the basis for the theoretical underpinning of the study. In order to address the problem, the study modelled selected macroeconomic variables such as poverty, agricultural output, investment, capital formation, and social services in Nigeria. Time series data covering the period 1990 to 2023 was used to estimate the variables in the model. Augmented Dickey Fuller (ADF) stationarity test, and Cointegration test were conducted, while Autoregressive Distributed Lag (ARDL) model was used to estimate the regression equation. The findings of this study revealed that there was significant economic growth over the period under consideration, but economic growth does not contribute to poverty reduction in the long-run. It was found that gross capital formation has negative and insignificant impact on poverty reduction. This indicates the need for continuous investment in capital formation to boost economic growth. The study found that economic growth has negative and significant impact on poverty reduction both in the short run and long run. Based on the findings, it was recommended that poverty reduction policies that enhance economic growth by expanding employment opportunities, raising productivity, and improving the living standard of households should be encouraged in the country.

Keywords: Poverty, economic growth, ARDL model

JEL Codes: C22, I32, O40, P36

1. Introduction

Economic growth is often seen as a means to poverty reduction. When economies grow, they create more opportunities for employment, income generation, and access to essential services, thereby reducing poverty levels. However, the relationship between economic growth and poverty reduction is complex and not always straightforward. The benefits of economic growth may not reach everyone equally, leading to disparities and pockets of persistent poverty. According to Todaro & Smith (2013) economic growth has been identified as one of the most important tool for poverty reduction. The pursuit of rapid and sustainable long-term economic growth through the combination of policies that support macroeconomic stability is the cornerstones of any successful effort towards reducing poverty. Economic growth has proven to

be a powerful force in the fight against poverty across the world. Yosra, Mohamed & Anis (2023) posit that over the last few decades, many economies in sub-Saharan Africa have experienced much faster economic growth than other parts of the world. However, many of these economies have not experienced significant poverty reduction. Several factors such as the quality of governance may limit the expected effects of economic growth on poverty.

According to National Bureau of Statistics (NBS) multidimensional poverty index (MPI) 2022 report, 63% representing 133 million people in Nigeria are living below the poverty line. In general, the incidence of income poverty is lower than the incidence of multidimensional poverty across most states in the country (NBS, 2022). The rising poverty level in Nigeria has constituted a menace to the overall performance of the economy, and cannot be ignored if meaningful development is desired.

The study was informed by the rising poverty level in Nigeria. Despite Nigeria's plenty agricultural resources and oil wealth, poverty is widespread in the country and has been increasing for several decades. The situation is pathetic for a country that is faced with high rate of poverty, which needs economic growth to enhance its capacity. The irony of growth in the face of poverty has led to the assessment of other factors such as agricultural sector output, investment, capital formation and social services that could mediate the effect of economic growth on poverty reduction. Hence, this study intends to uncover the impact of economic growth on poverty reduction in Nigeria.

2. Literature Review

According to Jhingan (2016) economic growth refers to a quantitative and sustained increase in a country's per capita output or income accompanied by expansion in its labour force, consumption, capital and volume of trade and welfare. He assert that economic growth involves the provision of inputs that lead to greater outputs and improvements in the quality of life of the people. Economic growth is defined as an increase in the production of goods and services in a country. Because economic growth measures the value of the goods being produced, rather than just the quantity, metrics like Gross Domestic Product (GDP) are often used. Economic growth is defined to be the general rise in the gross domestic product which results from the value rise of total production or total revenue for a state (Angelsen & Wunder, 2006).

Economic growth can also be seen as the increase in the inflation adjusted market value of the goods and services produced by an economy over time. It is conventionally measured as the percentage of increase in real gross domestic product, or real GDP usually in per capita terms. It is

an increase in the capacity of an economy to produce goods and services, compared from one period of time to another.

According to Owan, Ndibe & Anyanwu (2020) economic growth can be simply defined as the sustained aggregate increment in the production activities, vis-à-vis goods and services of an economy across a period, usually measured in years. Economic growth can be presented in real or nominal terms. For instance, an aggregate level of increase in goods and services that are deflated for inflation is regarded as real economic growth, while nominal economic growth occurs when there is an aggregate level of increase in goods and services without deflation.

Omobowale (2014) described poverty as a state where the people are deprived of good things of life and the ability to achieve the desired state of wellbeing and socially acceptable standard of living. Poverty can be viewed as the state of one who lacks a usual or socially acceptable amount of money or material possessions. Poverty is said to exist when people lack the means to satisfy their basic needs. In this context, the identification of poor people first requires a determination of what constitutes basic needs. These may be defined as narrowly as "those necessary for survival" or as broadly as "those reflecting the prevailing standard of living in the community." The first criterion would cover only those people near the borderline of starvation or death from exposure; the second would extend to people whose nutrition, housing, and clothing, though adequate to preserve life, do not measure up to those of the population as a whole (Todaro & Smith, 2013).

Poverty is defined as the state of being in lack. It is the inability to meet basic needs of life. It is also the inadequacy of resources which are essential to meet basic human and economic needs. Poverty is evident in various ways which include among others, lack of income, inadequate food supply, lack of access to education and other essential amenities, shortage or unavailability of productive resources for sustainable livelihood, malnutrition, ill-health, homelessness (Ijaiya, Bello & Ajayi, 2011).

Okoh (1997) asserted that a concise and universally accepted definition of poverty is elusive largely because it affects many aspects of the human conditions, including physical, moral and psychological. Different criteria have, therefore, been used to conceptualize poverty. Most analyses follow the conventional view of poverty as a result of insufficient income for securing basic goods and services. Others view poverty, in part, as a function of education, health, life expectancy, child mortality, etc.

The underlying understanding is that poverty is complex and knowledge about this complexity with how it manifests for different groups of people is fundamental to being able to define effective policy measures and approaches to poverty.

2.3 Theoretical Framework

The Harrod-Domar model and Situational Constraint theory of poverty were adopted due to their relevance to this study. The Harrod-Domar model focuses on two critical aspects of the growth process, which savings and efficiency of capital boost investment. In order to grow, new investments representing net additions to the capital stock are necessary. The rate of growth of the gross national product is determined jointly by the national savings ratio and the national capital-output ratio (Jhingan, 2016). According to Harrod (1939) and Domar (1946) investment leads to the growth of an economy. They posit that, if investors in the economy give themselves to investments, then, there will be expansion in the economy. According to them, investment will encourage aggregate demand and aggregate supply.

The Situational Constraints theory was propounded by Liebow Elliot in 1967. He assert that, the poor are constrained by the fact of their situation, by low income, unemployment and the like, to act the way they do. He further state that, the poor would readily change their behavior in response to new set of circumstances if one of the constraints of poverty were removed. He argued that one is probably more fruitful to think of lower class family reacting in various ways to the fact of their position and to relative isolation rather than the imperatives of lower class culture. The only difference is that they are unable to translate many of thesis values into reality and once the constraints of poverty are removed, the poor will have no difficulties adopting mainstream behavioural patterns and seizing available opportunities.

2.4 Empirical Review

Chinaza & Ikeafe (2022) examined economic growth and poverty in Nigeria for the period 1980 to 2019. The study utilized quantitative data gathered from World Bank Development Indicators and the National Bureau of Statistics (NBS) annual reports. Augmented Dickey-Fuller (ADF) test, Phillips-Quliaris cointegration test and Dynamic Ordinary Least Square (DOLS) were used in the study. Findings revealed that economic growth have an inverse long-run relationship with poverty reduction in Nigeria over the period under study. Accordingly, the result was statistically significant, which conforms to the *a priori* expectation. The study further revealed that unemployment and population growth rate have significant negative impact on poverty in Nigeria. It was found that, while secondary school enrolment and foreign direct investment were

statistically significant, they have positive impact on poverty in Nigeria. This indicates that economic growth has not been influencing the level of poverty in Nigeria.

Ihenetu & Iwo (2021) investigated the effect of economic growth on poverty reduction in Nigeria covering the period 1995 to 2019. Ordinary least square regression was used to analyze the data after conducting stationarity test through Augumented Dicky Fuller (ADF) unit root test. The findings showed that gross domestic product (GDP), gross national product (GNP) and per capita income (PCI) has no significant effect on poverty reduction in Nigeria.

Ngubane, Mndebele & Kaseeram (2023) examined economic growth, unemployment and poverty using linear and non-linear evidence from South Africa. The study identified economic growth as the main hurdles to reducing poverty, while unemployment is one of the mutual friends with poverty. Therefore, unemployment and economic growth were included as explanatory variables, while poverty was used as the dependent variable. To understand how unemployment and economic growth affect poverty, Autoregressive Distributed Lags (ARDL) and non-linear Autoregressive Distributed Lags (NARDL) models were used through the time series data from 2000Q1 to 2021Q4. Based on linear evidence, the findings of the study supported the idea that economic growth reduces poverty in the long-run, while unemployment inflates poverty in the long-run. The asymmetric evidence confirmed that although negative shocks of economic growth reduce the poverty rate, the positive shocks of the former reduce the poverty rate. On the other hand, poverty rates rise concurrently as a result of both positive and negative shocks of unemployment rates.

Siwu, Azike & Ngwu (2021) examined the impact of rising GDP on poverty reduction in Nigeria for the period 1982 to 2019. The study aimed to identify whether the growth in Nigerian economy is pro-poor. Annual time series data on poverty rate, GDP growth rate, and gross fixed capital formation were 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 was 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.

Yosra, Mohamed & Anis (2023) examined the triangular relationship between extreme poverty, governance quality, and economic growth for the sub-Saharan African countries over the period 2010 to 2019. The novelty of the research lies in using the Panel Threshold Regression (PTR) and Panel Smooth Transition Regression (PSTR) models to determine the optimal level of governance index, which once attained, will make extreme poverty decrease with economic growth and governance quality. It was found that the nexus between the variables is nonlinear. Besides, the

results show that there exists a statistically negative relationship between governance and extreme poverty above the threshold level of 0.314 for the Global Governance Index (GGI) and 66.9 for the Ibrahim Index of African Governance (IIAG), above which governance quality decreases extreme poverty. The results showed that the economic growth would begin to reduce extreme poverty once governance reaches a threshold level of 0.367 for GGI and 63.2 for IIAG. It study revealed that better performance of governance also appears to improve economic growth and reduces poverty.

Dauda (2020) investigated the linkage between economic growth and poverty surge in Nigeria. The study used Pearson Correlation, Granger Causality test, and the impulse response function (IRF) for the period 1981 to 2019. The Granger causality test and impulse response function conducted supported the findings since it reveals that growth is pro-poor, while the latter reveals that unemployment and poverty do not respond to shocks in economic growth. In line with the findings, the study concludes that output growth is exclusive of the poor.

Dada & Fanowopo (2020) examined 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.

Nwosa (2019) examined the relationship between poverty and economic growth in Nigeria and its implication for economic development. The study covered the period 1981 to 2018 and employed the autoregressive distributed lag estimation model. Utilizing Auto-regressive Distributed lag (ARDL) technique, the study observed that economic growth have positive but insignificant impact on income povery in Nigeria. Finally, the study found that the interactive impact of inequality and poverty on economic growth is significant.

3. Methodology

3.1 Research Design

In this study, ex post facto research design was used, which involves impact analysis and periodic measurement of variables on a group before and after treatment. The ex-post facto research design

was preferred to other research designs based on the fact that it does not provide the researcher with the opportunity to control the variables mainly, because they are considered to have already occurred and cannot be manipulated.

3.2 Model for the Study

The study adopted Autoregressive Distributed Lag (ARDL) model to measure the objectives of the study. This method was used by Pesaran, Shin & Smith (2001). The ARDL model which accommodates both I(0) and I(1) variables as long as none of the variables is above I(1). This method requires a cointegration approach based on bounds test, which utilizes *F*-statistics to validate the existence of long-run equilibrium. This study used the Autoregressive Distributed Lag (ARDL) bounds testing approach for cointegration by Pesaran, Shin & Smith (2001) to check for the long-run movement of the variables as well as to consider the robustness of the results.

3.3 Model Specification

To conduct an empirical assessment of such a relationship, the econometric forms of the equation are expressed below:

$POV_t = f(AGR, INV, GCF, SCS)$ - - - - - - (3.1)

The function captures the relationship between the dependent variable and the independent variables. This study incorporate poverty rate as proxy for poverty.

$POV_t = \alpha + \beta_1 AGR_t + \beta_2 INV_t + \beta_3 GCF_t + \beta_4 SCS_t + U_t$ - - - - (3.2)

Where: POV = Poverty; AGR = Agricultural Output; INV = Investment; GCF = Gross Capital Formation; SCS = Social Services; u_t = Error term; and α = Intercept

β_1 , β_2 , β_3 , β_4 = The slopes of the parameters estimates in the model

The respective optimal lagged differences of lnPOV, lnAGR, lnINV, lnGCF and lnSCS. Given that the appropriate Autoregressive Distributed Lag (ARDL) model is specified, adding the lagged level of variables into equation (3.3) yields the suitable equation for testing cointegration relation among the variables.

The short-run and long-run impact of economic growth on poverty can be specified in Autoregressive Distributed Lag (ARDL) model as follows:

$$\Delta POV_t - \alpha_0 + \sum_{i=1}^{k} \rho_i \Delta lnPOVR_{t-1} + \sum_{i=1}^{s} \sigma_i \Delta lnAGR_{t-i} + \sum_{i=1}^{m} \beta_i \Delta lnINV_{t-i} + \sum_{i=1}^{q} \varphi_i \Delta lnGCF + \sum_{i=1}^{d} \lambda_i \Delta lnSCSF_{t-i} + \pi_1 lnPOV_{t-1} + \pi_2 lnAGR_{t-1} + \pi_3 lnINV_{t-1} + \pi_4 lnGCF_{t-1} + \pi_5 lnSCS_{t-1} + \varepsilon_t \quad (3.3)$$

Where Δ represents change and it is the short-run movement, π_n (i = 1, 2, 3, … , n) represents the long-run movement, while k, s, m, q, d, and r, are the maximum lags selected using the Akaike Information Criterion. The study used the Autoregressive Distributed Lag (ARDL) model which accommodates both I(0) and I(1) variables as long as none of the variables is above I(1). This method requires a cointegration approach based on bound test, which utilizes *F*-statistics to validate the existence of long-run equilibrium. Since the sampled period is relatively small (1990 - 2023), the study used the critical values as reported by Narayan (2004) and Dada & Fanowopo (2020).

The *a priori* expectation criteria which is based on the signs and magnitudes of the coefficients of the variables under investigation are given as follows:

$\alpha>0$; $\beta_1>0$; $\beta_2>0$; $\beta_3>0$; $\beta_4>0$;

The data for the study were sourced from the National Bureau of Statistic (NBS), Central Bank of Nigeria (CBN) Statistical Bulletin, World Bank (World Development Indicators). The data were time series in nature covering the period 1990 to 2023.

4. Empirical Analysis

4.1 Stationarity (Unit Root) Test Results

Table 1: Augmented Dickey-Fuller (ADF) Test Results

Variables	Level	Critical Value	1st Difference	Critical Value	Remarks
POV	-1.912265	-3.552973	-4.270107	-3.574244	I(1)
AGR	1.945235	-3.562882	-4.383249	-3.557759	I(1)
INV	0.075211	-3.552973	-4.788665	-3.580623	I(1)
GCF	0.382506	-3.574244	-4.496546	-3.574244	I(1)
SCS	-2.124634	-3.557759	-4.248672	-3.580623	I(1)

Source: Computed by the Researcher (2024)
Notes: (a) Critical values are at 5% significance level.
(b) The lags were selected automatically based on the optimal lag length selection of the Akaike Information Criterion (AIC).

The result presented in Table 1 indicate that all the variables in the model are stationary at first difference i.e. I(1), while none of the variables were stationary at level i.e. I(0), which implies that all the variables in the model are stationary. This indicates that the series variables in the model are stationary at 1%, 5% and 10% asymptotic critical values of significance.

4.2 Cointegration Test

The Autoregressive Distributed Lag (ARDL) bounds test approach was adopted to test for cointegration long-run relationship among the variables in the model. To conduct the ARDL bounds test, the suitable lag selection is paramount.

Table 2: ARDL Bounds Cointegration Test

F-Bounds Test	Null Hypothesis (H_0): No long-run relationship			
Test Statistic	**Critical Value**	**Significance Level**	**I(0)**	**I(1)**
F-Statistics	5.030378	1%	3.93	5.23
k = 5		5%	3.12	4.25
		10%	2.75	3.79

Source: Computed by the Researcher (2024)
Notes: (a) Critical values are at 5% significance level
(b) The lags were selected automatically based on the optimal lag length selection of the Akaike Information Criterion (AIC)

In the ARDL bounds cointegration test result presented in Table 2 above, the critical value of the *F*-statistics for all the variables in the model, that is 5.030378 is greater than the upper and lower bounds critical values at 1%, 5% and 10% significance level, which suggest the existence of cointegration among the variables in the model.

Table 3: Autoregressive Distributed Lag (ARDL) Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.94070	62.62023	3.208878	0.0051
AGR	-0.008446	0.003693	-2.287140	0.0353
INV	0.008197	0.003379	2.426091	0.0267
GCF	-0.001577	0.001843	-0.855816	0.4040
SCS	-0.130047	0.058918	-2.207266	0.0413
R-squared = 0.967401				
Adjusted R-squared = 0.931338				
Durbin Watson (DW) Stat. = 2.130779				
F-Statistic = 14.90509		Prob.(F-statistic) = 0.001119		

Source: Computed by the Researcher (2024)

From equation 3.10, the estimated equation is presented as follows:

$$POV_t = \alpha + \beta_1 AGR_t + \beta_2 INV_t + \beta_3 GCF_t + \beta_4 SCS_t + U_t$$

$$POV = 20.9407 - 0.0084AGR + 0.0082INV - 0.0016GCF - 0.1301SCS \quad \text{---------- (4.1)}$$

(3.2089) (-2.2871) (2.426091) (-0.8558) (-2.2073)

The coefficient of agricultural growth (AGR) is negative and significant. It is not in line with the *a priori* expectation. This implies that there is negative relationship between agricultural growth and poverty reduction. The coefficient of investment (INV) is positive, which implies that there is positive relationship between investment and poverty reduction. The result revealed that investment contribute positively and significantly to poverty reduction in Nigeria. The coefficient of gross capital formation (GCF) is negative, and it is not in line with the *a priori* expectation. The coefficient is not statistically significant. The coefficient of social services (SCS) is negative, and it is not in line with the *a priori* expectation. The coefficient is statistically significant with the probability value of 0.0413 which is less than 0.05 level of significance.

The long-run result of Autoregressive Distributed Lag (ARDL) model in Table 3 showed that the R-squared value is 0.9674 which indicates that there is good-fit (goodness-of-fit) in the model. The R-squared shows that 96.74% of the variations in the dependent variable is explained by the explanatory (independent) variables, which is a good-fit in the model. The Durbin-Watson (DW) statistics value is 2.13, which indicates the absence of the problem of autocorrelation or serial correlation in the model. The *F*-statistic value of 14.90509 and its probability value of 0.001119 is less than 0.05 shows the overall significance of the model, which is also a good-fit and can be relied upon in forecasting the trend of poverty and economic growth in Nigeria. The *F*-statistics confirmed the joint statistical significance of the explanatory variables with the dependent variables. The Akaike Information Criterion (AIC) value of 6.724904 which is the minimum value showed the selection criterion of the estimated model.

4. Discussion of Findings

This study examined the effect of economic growth on poverty in Nigeria. The Autoregressive Distributed Lag (ARDL) test was used to establish both short-run and long-run equilibrium relationship among the variables in the model. The increase in economic growth implies the increase in all the intervening variables. It was found that gross capital formation has not moved with the growth rate of domestic investment in Nigeria. The findings of this study also revealed that there is significant economic growth over the period under consideration and economic growth does not contribute to poverty reduction in the long-run. This finding is in line with the studies of Ihenetu & Iwo (2021) and Chinaza & Ikeafe (2022) where economic growth did not lead to reduction in poverty, among others, because it was not possible to achieve necessary structural transformations for sustainable growth, employment creation, and enhancing productivity in the economy. The findings is in contrast with the work of Dada & Fanowopo (2020) which revealed that in the long-run, investment and capital formation have positive effect

on poverty, while the interactive effect of the variables on economic growth is negative. This could be further explained on the ground that increase in economic growth is an indication of improvement in productivity of labour force and this translates to the real sector of the economy which would lead to reduction in poverty. This does not agree with earlier findings by Ijaiya, et al. (2011) who found that a positive change in economic growth is prone to poverty reduction.

The study also found that agricultural growth, gross capital formation and social services do not contribute to poverty reduction both in the short-run and long-run. This showed that most of the coefficients of economic growth do not contribute to poverty reduction in Nigeria.

Any country that suffers high poverty level depicts that it has developed into a significant issue such as a risk to survival, stability, and improvement of the human kind. Nigeria is poverty endemic to the extent that even among committee of nations, Nigeria has been categorized as poor using selected world development indicators. The research findings revealed that poverty reduction has been a continuing concern of governance processes in Nigeria, which led to the implementation of several policies, project and programmes. The findings in this study have important policy implications for the Nigerian economy and other developing countries with similar economic structures. The evidence indicates that economic growth is necessary, but not sufficient condition for poverty reduction in Nigerian. Thus, the development of these sectors that constitute the components of economic growth would be beneficial and also contribute significantly to poverty reduction in Nigeria.

The empirical findings from this study depicts a policy implication issue relating to the effect of economic growth on poverty reduction in Nigeria. A major policy implication for the results is that economic growth strategies that will lead to sustainable economic growth in Nigeria should be put in place and embraced. The country should pursue investment increase through improved agricultural productivity, capital formation and provision of adequate social services.

5. Conclusion and Recommendations

The research explored the effect of economic growth on poverty reduction in Nigeria empirically, which the result showed that economic growth is not a vital tool for poverty reduction in Nigeria by maintaining both significant and insignificant negative relationship among most of the variables in the estimated model. Given the inconsistency and non-sustainable economic growth in Nigeria, with respect to the various components of economic growth in this study, the level of poverty in the country continues to rise. This indicates that economic growth over the period of this study has not been responsive to poverty reduction. This disparity raises a lot of concerns for

policy makers about the poor in the country. From the analysis, the findings indicate that the initial level of economic growth is not prone to poverty reduction, which is a situation that can only be sustained and improved upon if certain policy measures are put in place. Therefore, it can be concluded that economic growth does not contribute to reduction poverty in Nigeria.

Based on the findings from this study, the following recommendations were made: The government should focus more on the agricultural sector of the economy in order to drastically reduce poverty. The government should promote job creations by focusing more on the labour -intensive sectors, basically, Agricultural and Industrial sectors. The policy framework that will promote capital formation and encourage economic growth should be formulated and implemented. Agricultural value chain programmes should be enhanced to increase output of agricultural products both in the short-run and long-run. There is need for government to create enabling environment for investment to rise through adoption of macroeconomic policies which will reimburse investment opportunities in the economy, thereby contributing to the economic growth. The policy framework that will promote capital formation and encourage economic growth should be formulated and implemented. The policies and programmes for economic growth should be directed at the poor by providing social services to the poor.

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