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Economic Growth and Poverty Incidence in Nigeria

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Abstract

The study examined the effect of economic growth on poverty incidence in Nigeria. Specifically, the study sought to; ascertain the impact of economic growth on poverty incidence in Nigeria; ascertain the impact of unemployment rate on poverty incidence in Nigeria, and to determine the impact of government capital expenditure on poverty incidence in Nigeria for the period: 1996 to 2021. The variables consist of Gross Domestic Product (GDP), Government Capital Expenditure (GCE), Unemployment rate (UNEM) and Poverty Incidence (POVR). The technique of data analysis was the autoregressive distributed lag (ARDL) model. The variables LGDP and LGCE made statistical significant impacts on poverty incidence in the

short run but did not do so in the long run. Only the variable UNEMP made statistical significant impact in both the short and the long run periods at the 5% level of significance. The study recommended the creation of more jobs by both private and public sectors through the increase in government capital expenditures especially that of primary infrastructures like education and healthcare by building more schools and hospitals and recruiting more staff. Furthermore, government should strengthen its regulatory frameworks like the anti-graft agencies as well as the judiciary and other institutions like the police force, civil defense corps, etc. for the execution and enforcement of contracts in the country.

Keywords: Poverty Incidence, Economic Growth, Unemployment

1. Introduction

1.1 Background to the Study

Economic growth can be measured in terms of increase in national productivity or output, national income or value added (utility created) within a period, usually one year. It is the positive and sustained increase in aggregate goods and services produced in an economy within a given time period. Economic growth can also be stated in nominal or in real terms. Hence, when the increase in the aggregate level of goods and services is deflated by the rate of inflation, we have the real economic growth. Otherwise when measured without deflating, it is simply termed nominal economic growth (Awoyemi, 2015) ^[6]. Godwin (2017) defined economic growth in terms of increase in real gross domestic product (RGDP). That is, gross domestic product adjusted for inflation. The researcher noted that growth can either be positive or negative. Negative growth means that the economy is shrinking. This is characterized with economic recession and economic depression. Various authors agree that Nigeria has mostly recorded growth (in nominal terms) during the past decades (Aigbokhan, 2016; Godwin, 2017). However, the mere increase in the aggregate level of production of goods and services in an economy tells us nothing about the “quality of life” of the citizens, given the threats of global pollution, abysmal lop-sided distribution of aggregate output and income, environmental degradation, prevalence of chronic and deadly disease, abject poverty and the absence of freedom and justice. Poverty is the state of being in lack. It is the inability to meet basic needs. Poverty 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 or no access to education and other essential amenities, shortage or unavailability of productive resources for sustainable livelihood, malnutrition, ill-health, homelessness (Ijaiya, 2019). Traditionally, the concept of poverty is viewed in terms of insufficient income required to meet basic human necessities of life such as food, clothing, shelter and other productive resources. However, the multi-dimensional nature of the concept of poverty has revealed that poverty is more in-depth than lack of essential amenities. Poverty is multidimensional; it is lack of development. According to World Bank reports (2022), poverty is hunger, lack of shelter, being sick and unable to visit the hospital to see a doctor, absence or limited access to school, not knowing how to read, joblessness, and fear for the future (World Bank, 2022).

The poor also lack participation in decision making in social and cultural life and the society as a whole. Poverty can also mean a state of being extremely poor, insufficient in amount, and inferior in quality (World Bank, 2022; United Nations, 2022). Hence, being poor limits one's public expression and perception. However, the widespread of poverty as a concept is not fully understood. Conventionally, the poor were seen in relative terms as people who fell below a certain level of income and self-sufficiency, but the advent of globalization reviewed this overarching measure of poverty. Recent statistics categorized people living on less than a dollar (US\$1) per day as being "Extremely Poor", while those less than 2 dollars (US\$2) per day as being "Poor". Hence, income poverty does not adequately reflect poverty as it is widely understood. Poverty has been a major socioeconomic problem which is predominant across the globe.

The Nigerian economy is consistently faced with a high level of extreme and absolute poverty with a constant rate of over 50 percent annually. For instance, the poverty headcount ratio at \$1.90 poverty line in 1985 was 53.3percent, rose to 57.1percent in 1992 and to 63.5 percent just four years later. This continued as in 2010, it was 69.2 percent. It grew and stood at 72 percent in 2014. In 2015, it further increased to 89.5% but stood at 72% in 2016. It continued to increase further to 90.8% in 2018 and beyond. This has led to a lot of concerns and controversies among economists; hence the trend of poverty in Nigeria has been described as "odd" given the country's economic size and growth (World Bank, 2022). According to the World Bank (2022), the number of poor Nigerians is projected to hit 95.1 million in 2022. The Bank made this known in its poverty assessment report titled 'A Better Future for All Nigerians: 2022 Nigerian Poverty Assessment'. A recent poverty survey by the Nigerian Living Standards Survey (NLSS) revealed that the reality of poverty in the land is by far more than the World Bank forecast.

1.2 Statement of the Problem

Economic growth is vital for poverty reduction generally. However, the extent of the effect of economic growth on the reduction of extreme poverty is a factor of the economic situation prevalent in the country. Despite the yearly increase in Nigeria nominal GDP growth rate, poverty has persisted. With average GDP growth rate of about 3.90 percent for Nigeria, just like many other Sub-Saharan African countries, over half of the country's population is still considered poor. Hence, Nigeria is still categorized as an impoverished country (IMF, 2022). The significance of economic growth on poverty depends highly on the inequalities that are prevailing in an economy. Conversely, it is expected that an increase in the growth level of the economy results in a decrease in poverty rate. Although, this is dependent on a lot of factors like the size of the labour force, unemployment rate, aggregate productivity level, government spending, wealth and income distribution among others (IMF, 2022). Since poverty is one of the primary obstacles to growth and development in Nigeria (Gangas, 2017) and is deep within the country, it is paradoxical as Nigeria has the full potential for growth and development, given its abundant resources. Why is the economic growth in Nigeria not resulting in poverty reduction? Also, how could a country with the size and wealth of Nigeria have a very high rate of poverty? Several

scholars have empirically found that there is a relationship between economic growth and poverty reduction, but it is an exceptional case for Nigeria. The slope of the relationship between these two economic variables is controversial and inconclusive. While some scholars agreed that there is a positive relationship between them, though with disagreement on the causality direction (Godwin, 2017; Agrawal, 2018; Hassan, 2019), others found that the relationship between GDP and poverty is more or less, indeterminate, or that poor quality data makes it difficult to determine their relationship (EPAR, 2016; Gangas, 2017; Ijaiya, 2018). Therefore, standing on these existing works of literature, and given the fact that growth has not significantly reduced poverty incidence in Nigeria (Hassan, 2019), there is therefore, the need to examine the effects of economic growth on poverty incidence in Nigeria. Therefore, following the statement of the problem, this study examines the relationship between economic growth and poverty incidence in Nigeria from 1996 to 2021.

1.3 Objectives of the Study

The main objective of the study is to examine the effect of economic growth on poverty incidence in Nigeria. The specific objectives of the study are:

1. To ascertain the impact of economic growth on poverty incidence in Nigeria.
2. To ascertain the impact of unemployment rate on poverty incidence in Nigeria.
3. To determine the impact of government capital expenditure on poverty incidence in Nigeria.

1.4 Research Hypotheses

The following hypotheses are relevant for our study:

H₀₁: Economic Growth has no significant impact on poverty incidence in Nigeria.

H₀₂: Unemployment rate has no significant impact on poverty incidence in Nigeria.

H₀₃: There is no significant impact of government capital expenditure on poverty incidence in Nigeria.

1.5 Significance of the Study

It is anticipated therefore, that this study would be a great deal of interest to the investors, government, academics, policy makers, researchers and the general public in the following ways.

This study would be vital for government and policy makers in the sense that it would provide information on the level of poverty in Nigeria and would also help them to analyze and implement policies that will reduce the level of poverty in Nigeria.

This study would be helpful to the government in shaping, designing and implementing fiscal policies, and at the same time would help the government to think about new and better ways of doing things.

This study would impact knowledge to academics in the area of poverty incidence and its impact on economic growth in Nigeria.

The study would help the policy makers in the country to better plan and address issues and come up with solutions.

This study would enable the researchers to investigate and understand trends and relationships of variables involved in this study and probably build on it in their studies on poverty incidence and economic growth.

2. Literature Review

2.1 Conceptual Literature

2.1.1 Economic Growth

The term economic growth is described as the positive and sustained increase in aggregate goods and services produced in an economy within a given time period. When measured with the population of a given country, then economic growth can be stated in terms of per capita income whereby the aggregate production of goods and services in a given year is divided by the population of the country in the given period. Economic growth can also be stated in nominal or in real terms. Hence, when the increase in the aggregate level of goods and services is deflated by the rate of inflation, we have the real economic growth, otherwise when measured without deflating, it is called nominal economic growth (Dynam, 2018).

Aigbokhan (2016) described economic growth as an increase in the average rate of output produced per person usually measured on a per annum basis. It is also the rate of change in national output or income in a given period. Economic growth is the increase of per capita gross domestic product (GDP) or other measure of aggregate income. It is often measured as the rate of change in real GDP. Economic growth refers only to the quantity of goods and services produced. Godwin (2007) defined economic growth as an increase in real gross domestic product (GDP). That is, gross domestic product adjusted for inflation. The growth can either be positive or negative. Negative growth means that the economy is shrinking. This is characterized by economic recession and economic depression. Ullah and Rauf (2017) noted that whenever there is an increase in real GDP of a country, it boosts the overall output and is referred to as economic growth. Economic growth is accompanied by increase in income, reduction of unemployment rate and increase in the provision of public goods and services.

2.1.2 Poverty Incidence

Poverty incidence is the proportion of individuals or families with per capita income/expenditure less than the per capita poverty threshold to the total population (PSA, 2020). It is simply the proportion of the population that bear the burden of poverty. It is different from the term subsistence poverty which is the cost of minimum basic needs (food and non-food). Subsistence incidence of poverty is the proportion of individuals or families with per capita income less than the per capita food threshold to the total population. Put differently, it is simply the proportion of food available to the poor. Omonona (2019) stated that the major causes of Nigeria's poverty go beyond low income, low savings, and low growth - which are usually associated with the features of developing countries. In Nigeria, causes of poverty include high level of inequality attributable to unequal access to income opportunities, basic infrastructure, poor education and health status. Moreover, it is an established fact that Nigeria is among the most endowed countries in terms of human, material and mineral resources in the world but yet is rated as one of the poorest countries world-wide (Omonona, 2019). According to Abiola and Olaopa (2008), the scourge of poverty in Nigeria is an incontrovertible fact, which results in hunger, ignorance, malnutrition, disease, unemployment, poor access to credit facilities, and low life expectancy as well as a general level of human hopelessness.

2.1.3 Poverty and Economic Growth

The relationship between poverty and economic growth has been investigated by various studies. Empirical evidences show that countries that have reduced poverty are the ones that have grown the fastest. Poverty, on the other hand, has grown fastest in countries that have stagnated economically. Clark (2016)^[8], stated that it is difficult to argue that sustained poverty reduction can be achieved alongside economic stagnation or decline, the debate over pro-growth versus pro-poor strategies, hinges on the extent to which the average relationship between growth and income distribution conceals important variations that may, ultimately be addressed by public policy. Fosu (2017)^[10], provided global evidence on how economic growth translated into poverty reduction among developing countries.

2.2 Theoretical Literature

2.2.1 Pro -poor growth Theory

The Pro-poor growth theory was propounded by Robert Solow and Trevor Swan (1956). It is expected that as an economy grows, one would see a sinking effect as an improvement in welfare of its citizenry. Meaning that, the growth of a country should have a huge positive impact on its level of poverty. The controversy centers on whether a country should focus on achieving growth and thereafter ensure that the pattern of its growth is pro-poor or focus on reducing poverty by ensuring that this will lead to growth. However, poverty can be viewed as a barrier to growth in the sense that a country will not grow if they are poor. This line of thought has opened the door to the existence of poverty trap where poverty and growth interact in a vicious circle. Meaning that a high poverty level will lead to low growth and low growth will also lead to high poverty level. The summary of the theory is that it is imperative for any economy experiencing a poverty trap to maintain a focused strategic macroeconomic policy that would rely either on pro-growth or pro-poor since there is a bidirectional link between growth and poverty. In addition, it will be difficult to experience growth if the conditions of the poor are not addressed and also poverty will not decline if there is no growth.

New Growth Theories (Endogenous growth)

Endogenous growth models developed by Paul Romer and Robert Lucas placed greater emphasis on the concept of human capital. It argues that workers with greater knowledge, education and training can help to increase rates of technological advancement. The authors placed greater importance on the need for governments to actively encourage technological innovation. They argued that in the free market classical view, firms may have no incentive to invest in new technologies because they will struggle to benefit in competitive markets. The model laid emphasis on increasing both capital and labour productivity maintaining that economies with increasing labour productivity does not have diminishing returns, but, may have increasing returns. They argued that increasing capital does not necessarily lead to diminishing returns as Solow predicted. Rather, increased importance of spill-over benefits from a knowledge-based economy. Emphasis is laid on free-markets, reducing regulation and subsidies. The main argument is that economies be kept open to the forces of change.

2.3 Empirical Review

Adigun (2018) ^[2] analyzed income growth and inequality elasticities of poverty in Nigeria over a period of time. Using a secondary data obtained from National Consumer Survey of 1996 and 2003/2004 on Nigeria Living Standard Survey. The study used changes in mean per capita expenditure as a yardstick of economic growth and adopted a simple but powerful ratio estimates of Economic Growth and Inequality elasticities of poverty. The result indicated that 1 percent increase in income growth led to 0.624 percent reduction in poverty. The inequality elasticity of poverty shows that a decrease of inequality by 1 percent would have decreased poverty by just 0.34 percent. The result implied that what matters for poverty reduction is mainly accelerated economic growth, redistribution and reductions in inequality.

Ijaiya (2018) examined the impact of economic growth on poverty reduction in Nigeria by taking into consideration a time subscript and a difference-in-difference estimator that described poverty reduction as a function of changes in economic growth. Using a multiple regression analysis and OLS technique, the result obtained indicated that the initial level of economic growth is not prone to poverty reduction, while a positive change in economic growth is prone to poverty reduction. The study suggested the implementation of stable macroeconomic policies, huge investment in agriculture, infrastructural development and good governance in order to improve and sustain the rate of economic growth in Nigeria from which poverty could be reduced.

Ayala and Jurado (2020) examined the impact of economic growth and poverty reduction in Nigeria. They used data from the Spanish Family Budget Surveys for various years to estimate growth incidence curves, decomposition models of poverty changes, and of poverty curves. They used OLS approach. Their result showed that while economic growth in the long-term has meant an improvement of the lower income percentiles in Spain, this improvement is not uniform in the different regions.

Akanbi and Du Toit (2019) developed a comprehensive full-sector macro-econometric models for the Nigerian economy with the aim of explaining and providing a long-term solution for the persistent growth-poverty divergence experienced by the country. A review of the historical performances of the Nigerian economy revealed significant socio-economic constraints as the predominant impediments to high and sticky levels of poverty in the economy. As such, a model of the Nigerian economy, suitable for policy analysis needs to capture the long-run supply-side characteristics of the economy. They incorporated price block to specify the price adjustment between the production or supply- side sector and real aggregate demand sector. The institutional characteristics with associated policy behavior are incorporated through a public and monetary sector, whereas the interaction with the rest of the world is presented by a foreign sector, with specific attention given to the oil sector. They estimated the models using time-series data from 1970 to 2006 and using the Engle-Granger two-step cointegration technique, capturing both the long-run and short-run dynamic properties of the economy. They subjected the full-sector models to a series of policy scenarios to evaluate the various options for government to improve the productive capacity of the economy, in order to achieve sustained accelerated growth

and a reduction in poverty in the Nigerian economy.

Agrawal (2018) examined the relation between economic growth and poverty alleviation in the case of Kazakhstan using province-level data. Using Additively Decomposable Poverty Measures, the study showed that provinces with higher growth rates achieved faster decline in poverty. This happened largely through growth, which led to increased employment and higher real wages and contributed significantly to poverty reduction. Rapidly increasing oil revenues since 1998 have helped significantly raise both gross domestic product growth and government revenue in Kazakhstan. Part of the oil fund was used to fund a pension and social protection program that has helped reduce poverty. However, expenditure on other social sectors like education and health has not increased much and needs more support. The empirical result showed that increased government expenditure on social sectors did contribute significantly to poverty alleviation. The study suggested that both rapid economic growth and enhanced government support for the social sectors are helpful in reducing poverty.

Orebiyi (2018) assessed how oil production in the Niger Delta has impoverish the people given the fact that the existing property right regime concedes the ownership of all land and land resources to the federal government, to whom the oil companies are responsible. Using secondary data, the study adopted the OLS method of analysis. The descriptive statistics showed that poverty could be linked to the prevalent property right regime within a system. But there is no consensus regarding the most acceptable regime, which could bring about an acceptable reduction in poverty.

Omer and Jafri (2018) assessed the impact of economic growth on absolute poverty in Pakistan over the last four decades. Their study attempted to answer the relatively ignored basic question: Is economic growth in Pakistan pro-poor? In addition, an attempt has been made to evaluate the distribution of income within poor, a step necessary to determine the sensitivity of different income groups below poverty line, to the economic growth. They used the Growth Incidence Curves—a superior poverty measure—and calculation of the Rate of Pro-Poor Growth (RPPG) and the Ordinary Rate of Growth (ORG). They found that economic growth in Pakistan is not intrinsically pro-poor. Although it was pro-poor in the seventies and is also the same in the current decade and strongly pro-poor in the eighties, a positive growth in the nineties was, however, anti-poor. Their results showed that the first decile is most sensitive to economic growth and most vulnerable to economic shocks.

Hassan (2018) examined the impact of GDP growth rate on poverty reduction in Nigeria using secondary data from 1986-2012. The study employed the OLS regression technique to analyze the relationship between unemployment (which is a proxy for poverty), and the GDP (which is the variable for economic growth), the result showed that there is a weak relationship between unemployment rate and the GDP, instead of an inverse, it was positive. In other words, when the GDP increases, the unemployment rate also increases. When people cannot work and earn income, they remain poor. Hence, growth has not impacted on the poor. This is because job availability and creation in Nigeria lack sufficiency that is enough to reduce the unemployment and incidence of poverty over the period. The study recommended that priority should be placed on key sectors like agriculture and manufacturing,

which are highly effective and capacitated to generate and absorb more labour, thereby solving unemployment problems and reducing poverty incidence on the citizens.

Godwin (2017) examined the relationship between economic growth and poverty reduction in Nigeria using time series secondary data spanning between 1980- 2013. The data was analyzed using the OLS (having checked the time series data for stationary and spurious regression). The result showed that the relationship between poverty index and economic growth is inverse, in other words, a reduction in poverty level increases economic growth. Also, there is a negative relationship between unemployment and GDP in Nigeria; this implies that if unemployment rate increases, it will also lead to increase in poverty level because of unproductive labour. Furthermore, per capita income and economic growth are positively related. The study recommended quality fiscal policies that will promote private investment and productivity among others.

Oyegoke and Wasiu (2018) explored the effect of economic growth on poverty reduction in Nigeria using time series data spanning from 1980-2016. Unit Root and Johansen Cointegration tests were carried out to determine stationarity and long-run relationship among the variables respectively, while the VAR was carried out to determine the effect of Government expenditure, unemployment growth rate and Real GDP on poverty incidence. The result showed that Government expenditure was positively related to poverty incidence. This suggested that the poor are not benefitting from the economy at large, especially from total government expenditure. The GDP coefficient (a proxy for economic growth) conformed to the a-priori expectation, which depicted a negative relationship between economic growth and poverty incidence, while unemployment relates positively to poverty reduction.

2.4 Gaps in Empirical Literature

The observed gap in literature is mainly in terms of focus as well as contradictory evidence and methodological gap. Majority of the works reviewed, for instance Ijaiya (2018); Agrawal (2018), focused on the relationship between poverty reduction and economic growth but not on poverty incidence. Also, Adigun (2021) focused on poverty and inequality of income or income elasticities rather than economic growth and poverty incidence. Agrawal (2018) was for Kazakhstan; Omer and Jafri (2018) focused on Pakistan. The works on economic growth and poverty did not focus on incidence of poverty. Emphasis was mainly on poverty reduction or alleviation strategies. This work is able to capture poverty incidence using appropriate proxies. These gaps listed above necessitated this current study.

3. Methodology

This study adopted the ex post facto research design. The study variables consist of Gross Domestic Product (GDP), Government Capital Expenditure (GCE) and Unemployment rate (UNEM) and Poverty Incidence (POVR) for a period of 1996 - 2021 as defined in our model specification and were sourced from the Central Bank of Nigeria's (CBN) statistical bulletin for various years. The data collected was subjected to descriptive statistic, correlation matrix, Augmented Dickey-Fuller Unit Root test, Johansen

cointegration test, Heteroscedasticity White Test, Ramsey Reset, Jarque Bera, Breuch-Godfrey Serial Correlation LM Test. The method of data analysis was the ARDL.

3.1 Model Specification

In this research, Gross domestic product, Government capital expenditure, unemployment rate and per capita income will serve as the independent variables while poverty incidence measured with growth rate of POVR will serve as the dependent variable. The variable is specified thus:

$$POVR = \beta_0 + \beta_1 \log GDP + \beta_2 \log GCE + \beta_3 UNEM + \mu \quad (3.1)$$

Where: POVR = Poverty Rate; Log GDP = Log of Gross Domestic Product; Log GCE = Log of Government capital expenditure and UNEM = Unemployment rate μ = Stochastic Error Term

3.2 Description of Variables and Justification

Variables	Measurement & Description	Sources
POVR	Poverty rate	CBN Bulletin (2022)
GDP	Gross Domestic Product	CBN Bulletin (2022)
GCE	Government capital expenditure	CBN Bulletin (2022)
UNEM	Unemployment rate	CBN Bulletin (2022)

The justification for the use of these variables is that RGDP, GCE and UNEM are necessary growth determinants to measure poverty incidence. This is in line with traditional economic thoughts that emphasize the role of capital and labour in economic development.

3.3 Error Correction Mechanism (ECM)

The error correction analysis is an econometric analysis carried out if the variables under investigation are seen to be cointegrated. The Error Correction Mechanism (ECM) will be used to estimate the speed of adjustment of the short-run dynamics of the variables and timing to long run convergence. The ECM is given by the equation:

$$\Delta POVR_t = \beta_0 + \Delta\beta_1 GDP_t + \Delta\beta_2 GCE_t + \Delta\beta_3 UNEM_t + ECM_{t-1} + \mu_t \quad (3.5)$$

Where Δ = First Difference Operator and denotes the first difference value of the time series in the function, $t - 1$ denotes Lag one, β denotes coefficient of independent variables. The coefficient of Error correction term (ϵ ct -1) is used to measure the speed of adjustment back from the short-term to the long-term equilibrium.

Decision Rule

If the ECM coefficient is > 0.50 , then we conclude that the speed of adjustment is high but if the ECM coefficient is less than 0.50 , we conclude that the speed of adjustment is low.

4. Results

4.1 Result Presentation and Analysis

The results of the various tests specified in the previous chapter are presented here. It is also in this chapter that we can address the research hypothesis and test them against the alternatives.

4.1.1 Descriptive Statistics

	GCE	GDP	POVR	UNEM
Mean	9019.504	10.37030	200.5130	12.38908
Median	8912.861	10.41405	172.3088	13.23750
Maximum	11445.86	11.05440	404.1797	16.20000
Minimum	6860.444	9.862600	22.35066	5.092000
Std. Dev.	1246.000	0.397366	180.1242	2.991791
Skewness	0.176290	0.216583	0.021828	-0.878949
Kurtosis	1.943809	1.677035	1.026546	3.080084
Jarque-Bera	1.343173	2.099359	4.221129	3.354673
Probability	0.510897	0.350050	0.121170	0.186871
Sum	234507.1	269.6279	5213.337	322.1160
Sum Sq. Dev.	38812905	3.947485	811118.6	223.7704
Observations	26	26	26	26

The Table 1 shows the detail account of the summary statistics for the explained and explanatory variables respectively. The average poverty rate is about 200.5130 with standard deviation of 180.1242. In respect of government capital expenditure, the mean value is 9019.504 with a standard deviation of 1246. The analysis of gross domestic product shows a mean value of 10.37030 with the value of standard deviation of 0.397. Finally, the mean value of unemployment is 12.38908 with standard deviations of 2.991791. Skewness is a measure of asymmetry of the distribution of the series around its mean. Furthermore, the skewness of a normal distribution is zero. Positive skewness implies that the distribution has a long right tail and negative skewness implies that the distribution has a long left tail. From the above table we observe that POVR, GCE and GDP all have positive skewness except UNEMP and as such they have long right tails. Similarly, kurtosis measures the peakedness or flatness of the distribution of the series. If the kurtosis is above three, the distribution is peaked or leptokurtic relative to the normal and if the kurtosis is less than three, the distribution is flat or platykurtic relative to normal. From Table 1 above, it is observed that POVR, GCE and GDP are all below three therefore this suggest that these variables are platykurtic while UNEMP is above three therefore this suggest that the variable is leptokurtic. Finally, Jarque-Bera is a test statistic to test for normal distribution of the series. From the Table 1 above, the Jarque-Bera for POVR, GCE, GDP, UNEMP are 1.34, 2.09, 4.22 and 3.35 respectively.

4.1.2 Unit Root Test

The variables of interest were subjected to unit root test in order to ensure stationarity of the series. Four techniques were used for testing the stationarity qualities of the data. We begin with Table 4.1 which shows that result of Augmented Dickey-Fuller Stationarity tests.

Table 4.1: Result of ADF unit root test of the variables

	ADF Test Statistic Value	5% Critical Value	Prob. Value	
GCE	-5.113006	-3.612199	0.0021	I(0)
GDP	-4.783445	-3.612199	0.0043	I(1)
POVR	-4.658799	-3.612199	0.0056	I(1)
UNEMP	-5.056133	-3.622033	0.0026	I(1)

Source: Eviews 9 Output for the Result of ADF unit root test

Table 4.1 above presents the result of the ADF unit root tests of stationarity of the time series data. The results show that data on GCE is stationary at level form (I(0)) whereas

all the times series data are stationary at first difference I(1), namely GDP, POVR and UNEMP. As a result of this, the study goes ahead to test and determine if there is a long run relationship among the time series variables using the ARDL Bounds Test for Co-integration as presented in Table 4.2.

Table 4.2: Result of ARDL Bounds Test for Cointegration

ARDL Bounds Test		
Date: 01/15/23 Time: 03:29		
Sample: 2000 2021		
Included observations: 22		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	7.213911	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: Eviews 9 Output for the Result of Bounds test

Table 4.2 above the F-statistic value of 7.213911 which is above both the lower [I(0)] and the upper [I(1)] bounds of 3.23 and 4.35 respectively at the 5% level of significance show that there is co integration among the variables. These results suggest that there is co-integration or long-run relationship among the variables employed in this study.

4.2 Regression Results

Furthermore, the study goes ahead to estimate the regression parameters using a cointegration technique that takes care of heterogeneity of the explanatory variables. We use the ARDL approach.

Table 4.3: ARDL Cointegrating and Long Run Form

ARDL Cointegrating And Long Run Form				
Dependent Variable: LPOVR				
Selected Model: ARDL(4, 3, 4, 4)				
Date: 01/15/23 Time: 03:30				
Sample: 1996 2021				
Included observations: 22				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LPOVR(-1))	2.533808	0.549417	4.611816	0.0192
D(LPOVR(-2))	2.465956	0.567413	4.345966	0.0225
D(LPOVR(-3))	1.837824	0.455716	4.032828	0.0274
D(LGDP)	-37.41593	11.154928	-3.354206	0.0439
D(LGDP(-1))	27.80649	11.957470	2.325447	0.1026
D(LGDP(-2))	-79.32701	28.604361	-2.773250	0.0694
D(UNEM)	-0.629993	0.151009	-4.171886	0.0251
D(UNEM(-1))	0.483774	0.118603	4.078923	0.0266
D(UNEM(-2))	-0.003678	0.060159	-0.061138	0.9551
D(UNEM(-3))	-0.234843	0.062294	-3.769897	0.0327
D(LGCE)	-7.774174	1.702623	-4.565999	0.0197
D(LGCE(-1))	-3.127208	2.015071	-1.551909	0.2185
D(LGCE(-2))	-12.20792	2.070517	-5.896100	0.0097
D(LGCE(-3))	-5.508278	2.370682	-2.323499	0.1028
CointEq(-1)	-3.196140	0.728469	-4.387478	0.0219
Cointeq = LPOVR - (-3.6803*LGDP -0.3807*UNEM + 4.3327*LGCE-21.2649)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDP	-3.680319	6.512844	-0.565086	0.6115
UNEM	-0.380693	0.030521	-12.472974	0.0011
LGCE	4.332676	2.159422	2.006405	0.1385
C	-21.26491	7.109691	-2.990978	0.0581

The result of the Table 4.3 above shows that all the explanatory variables were statistically significant at 5% in the short run. The LGDP has a coefficient of -37.415923 and probability value of 0.0439 implying that a unit increase in GDP will result in 37.4 percent decrease in poverty incidence. Similarly, the variable UNEMP has a coefficient of -0.629993 and a probability value of 0.0251 implying that a unit increase in unemployment will result in 0.63 percent decrease in poverty incidence. Also, the variable GCE has a coefficient of -7.774174 and probability value of 0.0197, implying that a unit increase in GCE will result in 7.77 percent decrease in poverty incidence. The variables GDP, UNEMP and GCE have long run coefficients of -3.680, -0.38 and 4.33 respectively. However, only the result of unemployment is statistically significant at 5% level of significance. The long run results of GDP and GCE are not statistically significant at 5% level of significance. Also, the coefficient of Error Correction Term ($\text{ect} -1$) which shows speed of adjustment has a normal negative value of -3.19614 and is equally statistically significant with a probability value of 0.0219. This implies that the speed of adjustment of short-run disequilibrium in the long-run is 319.6 percent and therefore very fast.

4.3 Diagnostic Test for the Models

4.3.1 Serial Correlation Test

Figure 4.4: Serial Correlation Test Result

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.21114	Prob. F(2,16)	0.8119
Obs*R-squared	0.64287	Prob. Chi-Square(2)	0.7251

One of the assumptions of OLS regression model is that errors are independent.

Using the Breusch-Godfrey LM test result, Fig. 4.4 above, the F-statistic (Prob) of 0.8119 is > 0.05 . We do not reject the null hypothesis of no serial autocorrelation and conclude that there is no evidence of serial autocorrelation in the model.

4.3.2 Heteroskedasticity Test

Using the Breusch-Pagan-Godfrey test for heteroscedasticity, Fig. 4.5, the F-statistics and the Chi-square probabilities 2.948049 and 0.2028 respectively are > 0.05 .

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	2.948049	Prob. F(18,3)	0.2028
Obs*R-squared	20.82279	Prob. Chi-Square(18)	0.2884
Scaled explained SS	0.351169	Prob. Chi-Square(18)	1.0000

We do not reject the null hypothesis of no heteroskedasticity and conclude that the error variances are constant (Homoskedasticity).

4.3.3 Normality Test

Normality test is essential to ascertain the distribution of the data set in the model. The null hypothesis for this test is that the variables are normally distributed. This is to be rejected if the probability of Jarque-Bera is less than 0.05. Figure 4.1 shows the result of normality test.

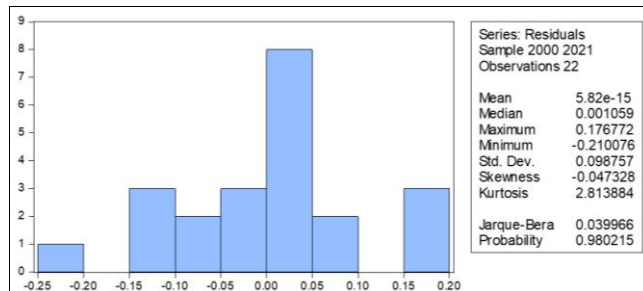


Fig 4.1: Graph of Normal Distribution

It could be seen figure 4.1 that the null hypothesis that the variables are normally distributed is not to be rejected since the probability value of Jarque-Bera ($P(t) = 0.980215$) is greater than 0.05.

4.3.4 Stability Diagnostic Test

Stability of the short run model was tested using CUSUM test. The idea behind this test is to reject the hypothesis of model stability if the blue line lies outside the dotted red lines otherwise, the model is said to be stable. The result of this test is presented in figure 4.2.

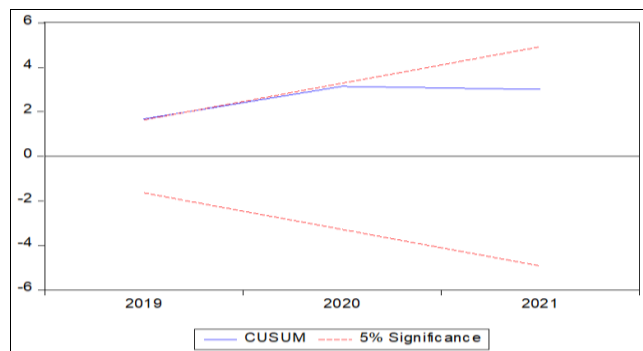


Fig 4.2: CUSUM test

The result of the CUSUM test shows that the blue lines lies inside the dotted red line which indicates that the model is dynamically stable.

4.4 Evaluation of Research Hypotheses

Hypothesis 1 (H₀₁): Economic Growth has no significance impact on poverty incidence in Nigeria. The result presented in Tables 4.3 shows probability value of the t-statistic for economic growth (LGDP – $P(t) = 0.6115$) to be greater than 0.05. It is concluded that gross domestic product does not have significant impact on poverty rate in Nigeria over the period under study.

Hypothesis 2 (H₀₂): Unemployment rate has no significant impact on poverty incidence in Nigeria. The result presented in Tables 4.3 shows the probability value of the t-statistic for Unemployment (LUNEM – $P(t) = 0.0011$) is not greater than 0.05. It is concluded that Unemployment has a significant impact on poverty rate in Nigeria over the period under study.

Hypothesis 3 (H₀₃): There is no significant impact of government capital expenditure on poverty incidence in Nigeria. The result presented in Tables 4.3 shows the probability value the t-statistic for Government capital

expenditure ($LGCE - P(t) = 0.0581$) is greater than 0.05. It is concluded that GCE has no significant impact on poverty rate in Nigeria over the period under study.

5. Findings, Conclusion and Recommendations

5.1 Summary of Findings

1. The first specific objective of the research was to ascertain the impact of economic growth on poverty incidence in Nigeria. Result of testing the first hypothesis show that gross domestic product (GDP) which is a proxy for measuring economic growth does not have significant impact on poverty incidence over the research period. In the short run, a unit increase in GDP resulted in 37.4 percent decrease in poverty incidence. On the long run, a unit increase in GDP resulted in 3.68 percent decrease in poverty incidence. This impact was statistically significant during the short run period but statistically insignificant over the long run.
2. The second objective of the research was to ascertain the impact of unemployment rate on poverty incidence in Nigeria. Result of testing the second hypothesis show that unemployment has significant impact on poverty incidence over the research period. In the short run, a unit increase in unemployment rate resulted in 0.63 percent decrease in poverty incidence. On the long run, a unit increase in unemployment rate resulted in 0.38 percent decrease in poverty incidence. This impact was statistically significant in both the short run and long run periods but the signs did not conform to a priori expectation.
3. The third specific objective of the research was to ascertain the impact of government capital expenditure on poverty incidence in Nigeria. Result of testing the third hypothesis shows that government capital expenditure does not have significant impact on poverty incidence over the research period. In the short run, a unit increase in government capital expenditure resulted in 7.77 percent decrease in poverty incidence. On the long run, a unit increase in government capital expenditure resulted in 4.33 percent increase in poverty incidence. The impact in the short run was statistically significant but it was not statistically significant over the long run. The positive sign of long run coefficient of government capital expenditure is anomaly and shows that the impact of government capital expenditures further increases national poverty incidence.

5.2 Conclusion

The following conclusions may be drawn from the findings of this study:

Economic growth in Nigeria measured by growth in GDP has not reduced the burden and incidence of poverty among the Nigerian citizens. This is because mere growth in nominal GDP without accompanying increase in purchasing power does not reduce the poverty situation of people. It rather makes it worse. Hence, GDP growth should be accompanied by better redistribution of wealth and the increase should reflect in the purchasing power of citizens in order to reduce the incidence of poverty in the country. Also, government capital expenditures has not equally reduced the level of poverty among the Nigerian citizens to a significant extent. This is also because government spending that is not monitored by regulatory institutions will

leave the funds in the hands of a few people that have access to the corridors of power. It will further increase the income inequality gap and further worsen the poverty burden among the majority of the populace. Moreover, the positive coefficient of government capital expenditure with a value of 4.33 implies that increased government capital expenditure further increases the incidence of poverty in Nigeria. This means that the segment or composition of the Nigerian populace that bears the burden or incidence of poverty has increased over the review period, following an increase in government capital expenditure. It then follows that the expected gains and returns from government capital expenditures do not reach the intended beneficiaries and hence does not make the desired impact. In terms of Unemployment and its impact on national poverty incidence, it has been established that unemployment and national poverty incidence have negative relationship. This negative relationship implies that increase in unemployment reduces the incidence of poverty in Nigeria. But this does not make economic sense. An increase in unemployment is known to further increase poverty incidence as it deprives more people of the opportunity to earn a living and takes away their purchasing power. This is economic anomaly and could be attributed to the issue of underemployment or ghost worker syndrome. The national unemployment figures may be unrealistic as a result of this ghost worker issue and this could misrepresent the unemployment situation in the country. The unemployment situation in Nigeria, therefore, needs more attention than it is currently getting. It further implies that addressing the issue of unemployment in Nigeria is one of the surest ways to addressing the challenge of poverty and reducing the incidence of poverty among the populace.

5.3 Recommendations

Based on the foregoing findings and conclusions emanating from this study, the following recommendations were made:

1. Government should not base resource allocation on population and land mass but on derivation and contributions to the national treasury. This will motivate more idle people to venture into production process and improve the overall per capita income and purchasing power of citizen thereby reducing the incidence of poverty.
2. Government capital expenditures should be made more realistic. Execution and enforcement of private and government contracts should be well monitored and regulated to ensure that their impacts are felt among the Nigerian citizens. Government regulatory frameworks and institutions such as courts and the security architecture should be strengthened to reduce official corruption among public and private officials that are engaged in carrying out government contracts. Private policing and detective systems should be encouraged by the government for the same reasons stated above.
3. More jobs should be created by both private and public sectors through increase in government capital expenditures especially that of primary infrastructures like education and health by building of more schools and hospitals and recruitment of more staff. Also, more information technology (IT) based jobs should be created using artificial intelligence (AI). This will ensure that all productive resources, both human and material are channeled towards effective production

process and the impact on national poverty and its incidence will be great and significant. This will make the incidence of poverty in the country to take a downward trend.

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