

Determinants of Multidimensional Poverty in Nigeria: Using OLS Regression

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Abstract

The study investigated the determinants of poverty in Nigeria using annual time for twenty-six years (2000-2025). The study sought to specifically evaluate the impact of corruption, unemployment, economic instability, and population growth rate on poverty in Nigeria. Secondary data were collated from the CBN statistical bulletin and the World Bank indicator for the period used in the study. Employing the ordinary least square (OLS) regression technique and ex-post facto research design for the statistical computations. The findings of the correlation test carried out, discovered that the all the selected determinants (corruption, unemployment, economic instability and population growth) have a significant positive correlation on poverty levels in Nigeria. The findings indicated the other factors not included in the model might also influence poverty. The OLS regression model employed in this study shows that the regression model concludes that corruption, economic instability, unemployment rate and population growth rate are positively associated with poverty level. Based on the finding of the study, it was concluded that efforts should be made to reduce corruption and manage population growth rates to curb poverty levels. This could be-achieved through implementing strict anti-corruption measures and promoting good governance practices.

Keywords: poverty, corruption, unemployment, economic instability, population growth rate

1. Introduction

Poverty, in its broadest sense, refers to a state of deprivation characterized by a lack of access to basic necessities such as food, shelter, clean water, education, and healthcare. However, poverty is not solely an economic issue. It also encompasses social, political, and cultural dimensions, perpetuated by systemic inequalities, discrimination, and exclusion. Poverty is a multidimensional and complex phenomenon (United Nations, 2014; Deinne & Ajayi, 2018; Fonta et al., 2018; Ozughalu & Ogwumike, 2018; Chen, Leu & Wang 2019; Oyekale, Aboaba, Adewuyi & Dada, 2019; Gallardo, 2019; Khan, Saboor, Rizwan & Ahmad, 2020). This attribute has over time created difficulty in reaching a definition that is bereft of biasedness and universally accepted. More specifically, there exist little agreement among researchers and policy makers on the definition of poverty (Laderchi, Saith & Stewart, 2023).

Although generally accepted definition is lacking, narrow and broader perspectives of poverty exist in the literature with variations linked to diverse perceptions of well-being (Rohwerder, 2016). From a narrow perspective, Watts (1964) viewed poverty as the relative shortage of goods and services resulting from extreme income constraints. Similarly, Gavillion (1992) defined poverty as the inability to meet minimum needs that are deemed reasonable by the standard of the society. From a broader perspective, Chen et al. (2019), perceived poverty as a set of interrelated forces which are limited resources, need, pattern of deprivation, lack of

entitlement and basic security, exclusion, dependency, social class, inequality, economic position and unacceptable hardship. To Alkire et al. (2015), poverty is powerlessness, insecurity, low self-confidence, malnutrition, inadequate health facilities and low social relations. Broadly speaking, poverty has been conceptualized into four categories: lack of access to basic needs; lack of access to productive resources; inability to use common resources and as well as a result of exclusion mechanism (Olayemi, 2012).

Poverty is a difficult cycle to break and often passes from one generation to the next. It is often determined by socioeconomic status, ethnicity, gender, and geography. Many people are born into poverty and have little hope of overcoming it. Others may fall into poverty because of negative economic conditions, natural disasters, or surging living costs, as well as drug addiction, depression, and mental health issues (Chen, 2022). Access to good schools, healthcare, electricity, clean drinking water, and other critical services remains elusive for many and is often determined by socioeconomic status, gender, ethnicity, and geography. Other root causes of poverty include: Limited to no job growth, Poor infrastructure, Conflict and war, High cost of living, Social barriers and Lack of government support (Chen, 2022). However, understanding the root causes of poverty is essential in developing effective strategies for eradication. While the factors contributing to poverty are complex and multifaceted, they can be broadly categorized into structural, systemic, and individual determinants. Structural determinants include policies, economic structures, and societal norms that perpetuate inequality. Lack of access to education, healthcare, and job opportunities are all structural barriers that hinder individuals and communities from breaking free from the cycle of poverty whereas the systemic determinants encompass issues like discrimination, corruption, and political instability.

Discrimination based on race, gender, or social class can lead to unequal distribution of resources and opportunities, exacerbating poverty. In the same vein, individual determinants include those factors that relate to personal circumstances and choices, but they are often influenced by the larger social and economic environment. Factors such as health, education level, and family structure can significantly impact an individual's ability to escape poverty (Vo, 2020). The World Commission on Environment and Development (WCED) views sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Oyeshola, 2008). Emphasis in this perspective is on sustainable development. There is the need to preserve both finite and non-finite resources in the pursuit of development. Therefore, it behooves on all to engage in socio-economic activities which are compatible with the preservation of the environment.

Relatedly, development can be seen as a process in which the natural resource base is not allowed to deteriorate. In recent times, concerns over the feverish search and exploitation of both finite and non-finite resources have been expressed alongside the crisis and conflict they generate between oil bearing communities and merchants of these resources (Olojede et al, 2000; PEFS 2004; Onimode, 2007). These developments particularly in the 80s and 90s intensified underdevelopment and poverty in less developed areas of the World. This is why radical scholars see under-development as part of the process that produced development. Development and underdevelopment therefore, become two sides of the same coin (Nigeria Economic Society, 1980). The development of the North is part of the dialectic process in which the South is underdeveloped. Development is often assumedly socio-economic, political, science and technology biased. Arguably, the concept of development is a complex one. Its difficulty is not only in terms of definition/description but also in terms of measurement. Is development to be measured by Gross National Product per capital (GNP), by the GDP, or the Physical Quality of Life Index (POLI)? If GDP were to be the measurement as a mean average, it does not say anything about the distribution of total income of its country. Literally it may be affirmed that poverty and development are two sides to a coin; one presupposes and challenges the other. Generally, in the West, it is the manifestation of poverty, constraints, disease or accidents that propels it for progress. This is the story behind inventions and technology.

2. Theoretical Framework

Structural theories have a long history, and may be the most subscribed to theory in sociology (O'Connor, 2001, 2016). This theory attributes poverty to individual deficiencies propounded by Gwartney & McCaleb (1985). Proponents of this theory do not view individuals as the source of poverty but economic, political and social distortions as well as discrimination, which limit opportunities and resources to create wealth and overcome poverty. This theory focuses on poverty in geographical perspective e.g. rural poverty, ghetto poverty, southern poverty, third world poverty etc. The concept of poverty has been redefined and broadened in recent years to cover other spheres of human existence.

3. Literature Review

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, consequently, been used to conceptualize poverty. Maximum analyses follow the traditional view of poverty as a result of insufficient

profits for securing basic goods and services. Others view poverty, in element, as a characteristic of training, fitness, life expectancy, baby mortality etc. Blackwood and Lynch (1994), become aware of the bad, using the criteria of the tiers of intake and expenditure. As this empirical assessment ambitions to bring forth a clean perception of the understudied topic, firstly, findings via Sinnathurai and Brezinova (2011) help the empirical proof that access to market and infrastructure substantially and negatively affect poverty in the actual estate area of Sri Lanka. Fantastically, Adeyemi et al. (2009) in their evaluation of determinants of poverty in Sub-Sahara Africa discovered that lack of get right of entry to to fitness care service is not essential as a determinant of poverty. At the affect of place variable (rural or aurban) and of zone of employment on poverty prevalence, Geda et al. (2005) found proof that poverty status is strongly related to engagement in agricultural hobby. This is just like the findings of Dawood et al. (2008) with the recommendation of productivity stimulating funding in Pakistan agricultural region. Rodriguez (2011) also determined similar proof that being an agricultural, home, transportation, manufacturing (casual labour) or income employee is definitely linked with the probability of being negative. Sinnathurai and Brezinova (2011) noted that agricultural employment has a terrible however insignificant effect on poverty prevalence in Sri Lanka and this finding was corroborated via Ojimba (2012) who observed that poverty prevalence spreads greater with agricultural employment.

4. Methodology

The study utilized a research design known as ex-post research design and time series data.

The ex-post facto research plan is commonly utilized in instances wherein it's far critical to analyze occasion which have already befall and to research historical data that is often secondary information the studies diagram used is suitable for this subject matter. This type of sketch is non-experimental, that means that the researcher can't control the variable being studied. due to the nature of the concern be counted, secondary assets have been consulted.

Model Specification

The theoretical framework for analyzing the determinant of poverty in Nigeria is given with the aid of

$$POV = f(COR, UEMP, EISTB, POGROW)$$

$$POV = 0 + \alpha_1 COR + \alpha_2 UEMP + \alpha_3 EISTB + \alpha_4 POGROW$$

where

POV = Poverty

COR = Corruption

UEMP = stage of unemployment

EISTB = economic instability

POGROW = population boom

In econometric structure, the version is particular as follows

$$POV = \alpha_0 + \alpha_1 COR + \alpha_2 UEMP + \alpha_3 EISTB + \alpha_4 POGROW$$

Introducing the error time period, we have

$$POV = 0 + \alpha_1 COR + \alpha_2 UEMP + \alpha_3 EISTB + \alpha_4 POGROW + E_0$$

in which

POV = Dependence variable

COR, UEMP, EISTB, POGROW = Independence variable

α_0 , = Regression regular

α_1 - α_4 = Efficiencies of independent variable

E_0 = blunders term

Descriptive records had been utilized for reading the data, whilst the number one method of information analysis worried using normal least squares (OLS) and a couple of regression techniques.

5. Data Analysis

5.1 Descriptive Statistics

The result the descriptive information is supplied in desk 1. The evaluation depicted that, poverty level stood at a mean price of 19 percent for the twenty 3 years period. This cost is a sign that poverty level in Nigeria was fine. the standard deviation stood at 6 percentage. The descriptive value for corruption indicates its minimal as 12 percent and maximum as 23 percent; with a median price and widespread deviation of 15 percent and 2 percent

respectively. This tested that the corruption deviate an excessive amount of from the suggest. In addition the descriptive records revealed that the imply cost of unemployment charge, monetary instability and populace growth) was 54 percentage, 72419 billion naira and 26 percent for the period with their fashionable deviation of 23.eight percent, 53374 billion naira and 12.12 percentage respectively. As observed from the desk, COR has the bottom imply fee and poverty (POV) has the very best imply fee.

Similarly end result of the descriptive evaluation found out that each one the values without population boom (POGROW) are positively skewed to the proper displaying the symmetry of the histogram even as the kurtosis for all the T values barring corruption (COR) had been and had been observed to be below three. Relative to the ordinary distribution this means that that the distribution is platykurtic. The Jarque-Bera price or corruption with its corresponding probability of much less than or equals to 0S percentage confirms the normality of the collection and suitability for generalization.

Table 1. Summary Statistics of the variables used in the study

	POV	COR	UEMP	EISTB	POGROW
Mean	19.00978	0.153079	6.408130	72419.84	2.617492
Median	18.456000	0.146847	3.899000	63713.86	2.682890
Maximum	30.400000	0.234204	9.864000	170960.3	2.764062
Minimum	11.87100	0.123045	3.700000	7062.751	2.380007
Std. Dev.	5.589043	0.029172	2.381723	53374.42	0.121261
Skewness	0.653517	1.538216	0.982117	0.436810	-0.629968
Kurtosis	2.294127	4.626072	2.159229	1.898906	1.973845
Jarque-Bera	2.114651	11.60402	4.374898	1.893301	2.530416
Probability	0.347384	0.003021	0.012203	0.388038	0.282181
Observations	23	23	23	23	23

Source: E-views 12.0 statistical software.

5.2 Correlation of the Study Variables

The data were subjected to correlation analysis to test for highly correlated variables to avoid the problem of multi-collinearity in the model. This is summarized in the correlation result presented in Table below.

Table 2. Correlation Results

	POV	COR	UEMP	EISTB	POGROW
POV	1.00000				
COR	0.454619	1.00000			
UEMP	0.41702	0.43386	1.00000		
EISTB	0.54839	0.70234	0.89147	1.00000	
POGROW	0.26997	0.30245	0.92947	-0.82832	1.0000

Source: E-views 12.0 statistical software.

As observed in Table 2, the table shows the correlation between all explanatory variables individually and the dependent variable. The results show that the correlation coefficient of incorruption was 0.4546. Thus, as the former increases, poverty decreases. The correlation coefficients between unemployment rates is 0.4170. This is an indication that an increase in unemployment leads to a corresponding increase in poverty in Nigeria. As regard to economic instability, the result showed a correlation of 0.5483 on poverty in Nigeria. Thus, increase in economic instability will result in an increase poverty level. Finally, the result for population growth has a positive correlation on poverty levels. Conclusively, all the results revealed that all the selected explanatory variables indicate no multicollinearity problem.

5.3 Residual and Stability Diagnostic Test

The results of the residual diagnostic tests for Jarque-Bera normality test and CUSUM stability test are presented on Table.

5.4 Normality Test

A Jarque-Bera normality test was conducted to identify whether the data set is well modelled by a normal distribution or to figure out how likely a related random variable is to be normally distributed.

Table 3. VAR lag order selection criteria

Lag formation	AIC	SC	HQ
0	17.68416	17.88312	17.72734
1	8.674766*	9.669548*	8.890658*
2	9.124169	10.91478	9.512777

* indicates lag order selected by the criterion (tested at 5% level each).

Source: E-views 12.0 statistical software.

5.5 Analysis of OLS Regression

From the result presented in Table 4, the coefficient of the constant term (139.73) revealed that poverty level in Nigeria will experience an insignificant decrease when all other variables are held constant. The result further revealed that, the estimated coefficient for corruption (COR) was 64.0616 which was positive, signifying that as corruption increases, poverty level tend to increase by 64%. However, the result does not hold water, as the probability values is greater than 5%, making it statistically insignificant. Further analysis showed that unemployment (UEMP) has an estimated positive coefficient of 0.8665 and a corresponding probability value of 0.0389. This result provides sufficient evidence and support empirical literatures that accretion in unemployment will lead to an increase in poverty. Thus, a unit increase in unemployment will lead to a corresponding increase of 0.86% in poverty. Also, the coefficient of economic instability (EISTB) was (0.00014) and the probability value shows a significant impact on poverty at 5% level of significance. Thus, economic instability would have an increase of poverty in Nigeria. Finally, population growth shows a positive and significant impact on poverty level. The regression coefficient of 51.133 revealed that a unit increase in population growth will cause a corresponding percent increase to poverty in Nigeria.

Table 4. Analysis of OLS regression result

Variable	Coefficient	Std, Error	t-Statistic	Prob.
C	139.7376	76.38081	1.829485	0.0839
COR	64.06169	66.30916	0.966106	0.3468
UEMP	0.866544	1.383229	0.626465	0.0389
EISTB	0.000144	6.87E-05	2.093498	0.0507
POGROW	51.13389	24.71465	2.068971	0.0532
R-squared	0.455411	Mean dependent var		19.00978
Adjusted R-squared	0.334392	S.D. dependent var		5.589043
S.E. of regression	4.559811	Akaike info criterion		6.062100
Sum squared resid.	374.2538	Schwarz criterion		6.3089446
Log likelihood	-64.71415	Hannan-Quinn criter.		6.124181
F-statistic	3.763116	Durbin-Watson stat		1.479606
Prob(F-statistic)	0.021482			

Dependent Variable: POV

Sample: 2002 2024

Included observations: 23

Source: E-views 12.0 statistical software.

From the regression results in Table 4, the R (R-Squared) which measures the overall goodness of fit of the entire regression, had a value of 0.4554 which showed that the selected determinants explained the changes in poverty level by approximately 46%. The adjusted R-Squared was 0.3343 which has a difference of 12% from the R-Squared which is within the acceptable range for a stable model. This showed that the model was stable. The test for the existence of autocorrelation was performed using the Durbin-Watson statistic. The Durbin-Watson result indicates 1.48 and since this value lies between 0 and 2, it can be deduced that there is an absence of autocorrelation among the successive values of the variables in the model.

6. Discussion of Findings

The research work investigated the determinant of poverty in Nigeria. Specifically, the study assessed the impact of corruption, unemployment, economic instability and population growth on poverty levels in Nigeria. In order to achieve the stated specific objectives and hypotheses, the study employed several empirical tests and submitted the following findings. The overall result of the descriptive analysis showed that the JB value for corruption affirms that the series is normal and is appropriate for our study. The correlation result shows all the selected determinants have a significant positive and negative correlation on poverty levels in Nigeria. This finding agrees with the expected results of the study except for economic instability. The outcome of the ordinary least square regression technique revealed that for corruption, the positive coefficient (64.061) indicates that higher levels of corruption are associated with an increase in the poverty level. This finding aligns with previous research that has shown a link between corruption and increased poverty (Dreher, 2006; Méon & Sekkat, 2005). Corruption can divert resources away from public goods and services, leading to poorer living conditions for the population. Although the insignificance of the result suggests that corruption is triggered by other factor which may have an indirect influence on poverty. Furthermore, the regression result for unemployment with the positive coefficient (0.866), suggests that higher unemployment rates are associated with higher poverty levels. This finding is consistent with the notion that unemployment can lead to a lack of income and economic insecurity, which ultimately contribute to poverty (Kang & Kim, 2021; Ozturk & Acaravci, 2010). Policies and interventions aimed at reducing unemployment rates could therefore have positive effects in combating poverty.

Additionally, the coefficient (0.0014) for economic instability implies that higher levels economic instability are associated with higher poverty levels. This finding contradicts the expectation of the study and the concept of the poverty reduction effect of economic growth, as suggested by various studies (Dollar & Kraay, 2003; Ravallion, 2004). Lastly, the positive coefficient (51.13) suggests that higher population growth rates are associated with higher poverty levels. This finding is consistent with the literature indicating that rapid population growth can put strain on resources, infrastructure, and services, leading to increased poverty (Bongaarts & Bulatao, 2000; Ezech et al., 2012). Effective population management policies could be necessary to mitigate the impact of population growth on poverty rates.

7. Conclusion

The study investigated the determinants of poverty in Nigeria using annual time series data for twenty-three years. From the statistical computation, analyses and findings of the test carried out, it was discovered that all the selected determinants (corruption, unemployment, economic instability and population growth) have a significant positive correlation on poverty levels in Nigeria. The findings however highlight the other factors not included in the model might also influence poverty.

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