

An examination of the causes of poverty on economic growth in Nigeria

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Background: This article examined the effect of poverty on economic growth in Nigeria because it was discovered that the existing literature has not holistically battle against the worsening scourge of poverty in Nigeria.

Aim: The article specifically examined the relationship between poverty and economic growth, the determinants of economic growth and poverty from 1980 to 2013.

Setting: The article is structured into five sections which include introduction, literature review, methodology, discussion of results and conclusion.

Methods: The article employed an error correction model as estimation technique to analyse the time series data collected. The Solow–Swan growth methodology and the cumulative and cyclical theory were adopted as methodological approach to achieve the objectives of this article.

Results: The article revealed a positive and significant relationship between inflation, life expectancy and economic growth, while investment proved insignificant. Conversely, poverty, corruption, debt, mortality, human capital development and unemployment presented negative relationships with economic growth. Corruption, life expectancy and mortality rate were significant, while poverty, debt, human capital development and unemployment proved insignificant. Corruption, inflation, life expectancy and mortality rate were the determinants of economic growth. Finally, the article further revealed that all the variables were determinants of poverty in Nigeria except corruption and human capital development.

Conclusion: The article concluded that poverty, corruption, debt, mortality rate, human capital development and unemployment retarded economic growth, whereas other variables enhanced economic growth. The article therefore recommends that government should establish quality institutions and sincere poverty alleviation programmes to improve the level of economic growth in Nigeria.

Introduction

Poverty is a global threat, plaguing both developed and developing nations. It has a devastating effect on developing nations generally but sub-Saharan Africa in particular (Addae-Korankye 2014). Poverty has become pervasive in Nigeria in the last four decades despite the economic boom of the 1970s (Anyanwu 1997; Mohammed-Hashim 2008; Obi 2007). Similarly, it was discovered that about 60% of Nigerians live in poverty despite the country's enormous oil wealth (Sadiq 2007). It can be argued that poverty varies from one subgroup to another such that poverty is seen in all its manifestations and its magnifications as antithetic to economic growth (Rodrigues 2009).

Globally, poverty has been recognised as a major blemish in developing economies ever since economists began to take interest in the third world (Killick 1981). On the whole, the Nigerian economy depends so much on the exportation of oil that nearly all its budgetary revenues come from oil earnings sold in the international market. In 1973, most economic indicators such as real per capita income, real wages and private consumption were positively impacted by the first oil shock, which caused a dramatic increase and sharp rise in them. Similarly, income inequalities between urban and rural areas increased sharply, primarily because of the oil boom and its spin-offs (Anusionwu & Diejomoah 1981). However, the international price of oil decreased or fell constantly between 1980 and 1985 and brought about worsening economic conditions; there was a sharp fall in the standard of living and the biting hand of poverty was ushered in as a leading problem in Nigeria (Okunmadewa 1996). To this end, the oil boom was recognised to have contributed immensely to the large appreciation of the Nigerian naira, which subsequently caused

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adverse effects to agriculture as a non-oil tradable that had been the mainstay of the Nigerian economy.

In Nigeria, the nature of the determinants of poverty can be traced to low or declining level of economic growth, income inequalities, unemployment, corruption, bad governance, diversion of funds into non-developmental projects, fund embezzlement, inappropriate macroeconomic policies, inadequate endowment of human capital, debt or borrowing, labour market deficiencies that were caused by limited growth in job creation, low productivity, low wages in the informal sector and poor development of human resources. Poverty can also arise through structural deficiencies such as environmental degradation, worker retrenchment, frequent and increasing crime rates and violence, decrease in the real value of safety nets, structural changes in the family as well as the neglect of the agricultural sector, non-development of infrastructural facilities, lack of enabling environment for infant industries, epileptic power supply, depreciation of the Nigerian currency (naira) and the military government's inability to properly manage the Nigerian economy (Ajakaiye & Adeyeye 2001; NPC 2004; Ogwumike 2001).

Poverty became prevalent in Nigeria beginning in 1985 and was seen as an obstacle or limitation to economic growth because poverty was measured based on the world standard of \$1 per day and \$2 per day. International prices were adjusted for local currency such that purchasing power parity conversion factors were employed to compute the depth of poverty as well as its prevalence in Nigeria (Obadan & Odusola 2001). The poverty gap calculated on the basis of \$1 and \$2 per day as the mean shortfall below the poverty line indicated that 70.2% and 90.8% of Nigerians, respectively, earned income that put them below the poverty line in a survey conducted in 1992–1993. During the same period, the poverty gap computed at \$1 and \$2 per day was 34.9% and 59.0%, respectively (Mohammed-Hashim 2008; World Bank 2001). In 2010, the World Bank defined or readjusted the international poverty line of \$1 equivalent in 2001 to a new international poverty line of \$1.25 per day in US prices (World Bank 2011). Generally, poverty brings about impaired access to resources, reducing the capability of individuals to enjoy an improved quality of life, which might have been converted from available productive resources (Adeyeye 1999; Ogwumike 2001; Sen 1997). On the other hand, poverty persists as a result of inefficient employment of common resources, occurring because of a weak policy environment and inadequate infrastructure, as well as a lack of access to improved technology. Other causes include the non-availability of credit instruments and exclusion of 'problem groups' from participating in the democratic process. Thus, widespread poverty and an over-reliance on earnings from oil might have hindered economic growth in Nigeria.

In spite of the strong growth rate in Africa's second largest economy, poverty has kept rising in Nigeria to the extent that about 100 million of her citizens live below the poverty line of \$1 per day (Daniel 2011). The proportion of Nigerians who

were absolutely poor rose from 54.7% in 2004 to 69.9% in 2010 (National Bureau of Statistics [NBS] 2011; Omoniyi 2016). Nigeria's economy is projected to continue to grow, but poverty is likely to get worse as the gap between the rich and poor continues to widen on a daily basis. This is why Kale (2012) considers poverty to be a paradox in which a higher proportion of Nigerians continue to live in poverty in spite of the continued enormous growth in the Nigerian economy year by year. To this end, the NBS (2010) reported that 112 518 507 million lived in relative poverty while it put Nigeria's population at 163 million. It went further to compare this figure with Uganda, where only 28 million were poor; this is an indication that there are about four times as many people living in poverty in Nigeria as in Uganda. This shows that Nigeria has failed using all standards of poverty measurement including the relative poverty index. The various poverty measures in Nigeria pose different profiles; for instance absolute poverty puts it at 60.9%, 61.2% for \$1 per day, 93.9% for the subjective measure while a recent survey conducted by Harmonized National Living Standard put the poverty profile at 69.0%. The much-celebrated gross domestic product (GDP) growth rate that averaged 7.4% in the last 10 years becomes questionable. Additionally, Nigeria's Gini coefficient was 0.268 in 1980, 0.295 in 1990, 0.430 in 2004, 0.490 in 2009 and 0.834 in 2012 (Nwagwu 2014; UNDP 2009; World Bank 2014a). Similarly, the Human Development Index for Nigeria during the same period was 0.46 in 2004; it increased to 0.49 in 2009 and further increased to 0.51 in 2012 (UNDP 2011; 2013; World Bank 2014b; World Data Atlas 2015). These figures show that income inequality and human capital development increased in Nigeria during the period covered by this article.

This succinctly shows that there is a sharp disconnect between poverty and growth because the majority became poorer through exclusion. It is therefore necessary to mention that what is needed to fight the biting hand of poverty and ensure that poverty is banished, is a holistic attempt. This can only come through the adoption of macroeconomic policies of all-inclusive growth nationwide, to which it seem no adequate attention has been given by previous studies. The objectives of this article are to examine the relationship between poverty and economic growth, to analyse the determinants of economic growth and to establish the causes or determinants of poverty in Nigeria. The rest of this article is divided into four sections: a section dealing with a review of the literature, one to present the methodology of the study, one to discuss the results and finally the conclusion and recommendations.

Literature review

Definition of terms

The fact that poverty affects many aspects of the human conditions, including physical and moral aspects and psychological thinking, means that poverty has been conceptualised from different perspectives by different scholars. This makes it impossible to have a concise and acceptable definition that will be universally accepted.

The World Bank (2000) and Addae-Korankye (2014) define *poverty* as pronounced deprivation in well-being, such that an individual does not have access to basic resources required for him or her, and it consists of several dimensions, including low income and the inability to possess basic goods and services required for survival with self-esteem. Additionally, it also encompasses lack of adequate education, poor state of health, lack of access to clean water and sanitation, loss of physical security, lack of voice, insufficient capacity and lack of opportunity to better one's own life.

According to Aku, Ibrahim and Bulus (1997), poverty relates to physical deprivation in terms of health, nutrition, literacy and education, disability and lack of self-confidence. Economic deprivation is the lack of access to property, income, assets, factors of production and finance, while social deprivation is the denial of socio-political and economic participation. Cultural deprivation is the lack of access to values, beliefs, knowledge, information and attitudes, which deprives people of the opportunity to control their own destinies; political deprivation is the inability to lend one's view in the political decision-making process.

The first dimension shows that individuals with physical deprivation are deprived from been able to have a formal education, unable to express themselves in public or participate in social, economic or political activities. This is mostly experienced in the northern states of Nigeria; the rest of the dimensions are mostly experienced in the rural areas and some in urban areas. Rural areas are denied of access to finance, factors of production, information, knowledge and so on, while the urban population does not have the necessary facilities needed to carry out their roles because of overcrowding; the poor live in slums and individuals are denied of property, income assets and so on. This definition of Aku et al. was chosen as the bedrock of this article because it is multidimensional in nature.

Poverty can be classified as *absolute* or *relative* poverty. Absolute poverty is the number of people whose earnings fall below the \$1.25 per day that is the internationally established poverty line (World Bank 2005; 2011). Anybody living on less than \$1 per day is assumed to be poor. This is a set standard that is said to be consistent among countries over time. Conversely, relative poverty refers to the situation where people cannot meet the basic minimum income required for guaranteed maintenance of the average standard of living recognised by the community where they live. It is relative because individual members of the community differ across countries, while the set standard changes over time depending on the economic trend at a particular point in time. It is a living standard that is defined in accordance with other people's position in the distribution of income or expenditure (Todaro & Smith 2011).

Generally, there are some detrimental causes of poverty in Nigeria. The Central Bank of Nigeria gave an assessment of the causative factors, including overpopulation, which is the situation where a large population chases few resources, and

too little space, which arises from high population density, scarcity of resources or both (Daniel, Moses & Bankole 2009; Okoro & Kigho 2013). The following factors are responsible for poverty in Nigeria.

Inadequate education often stands as a bottleneck in any economy; according to the World Bank (2007) education plays an important role in economic growth and national productivity as well as innovation and democratic values. Illiteracy as well as a lack of education is common in poor countries. This is because governments in sub-Saharan African countries lack the resources to provide adequate public schools in rural areas, such that less than 60% of children in sub-Saharan Africa have an elementary education. Most times poor people in these countries drop out of schooling to enable them to concentrate on making a minimal wage for a living. This prevents people from having the opportunity to secure decent jobs and opportunities to develop themselves to enable them to fully participate in society. In Nigeria the educational system is very poor when compared with other countries in the world.

Environmental degradation is another factor that leads to poverty. It includes natural calamities such as wars, floods and rainfall disasters, as well as pollution of bodies of water, soil and forests, which impoverishes the quality of the natural environment. This induces transitory poverty, which arises from environmental problems in the form of food scarcity and shortage of clean water, housing materials and other important resources including natural resources such as land, water, forests and air. People whose lives depend on these natural resources suffer directly from the effects of environmental degradation.

A high rate of unemployment may also be responsible for poverty in Nigeria. The inability to get good jobs that produce a decent income leads to low productivity. In addition, many graduates wander the streets without any reasonable prospect of gainful employment in Nigeria. The unemployment rate in Nigeria is estimated at 23.9% (NBS 2012).

Bad governance: Involves misrule in the exercise of power and lack of accountability in managing social and economic resources towards economic growth. The sub-Saharan countries, including Nigeria, are characterised by lack of managerial skills, reckless spending, lack of transparency in resource allocation, poor implementation and monitoring of programmes, mis-spending of loans and waste of public resources, which usually weakens and deteriorates economic growth.

Structural changes: Are more permanent depending on many (exogenous) factors like scarcity of resources, lack of skills and location disadvantage, which may cause poverty. Other people who are inherent in the social and political set-up include the disabled, orphans, landless farmers and households headed by females, who form a group that cannot contribute to GDP but live as dependants, which tends to increase abject poverty in Nigeria.

Macroeconomic shocks and policy failure: The shocks and natural disasters faced by many countries in the world through expansion in aggregate demand policies and terms of trade have led to macroeconomic disequilibrium in the balance of payments. This calls for major policy reforms, which may prevent vulnerability to poverty. The macroeconomic shocks and policies taken, constrain the poor from using their greatest asset – labour – to improve their productivity.

Rural-urban migration may increase poverty, especially when a greater proportion of the individuals who migrate are unskilled migrants. This may lead to limited resources and overcrowding, which may subsequently lead to poverty. Migration could also lead to brain drain when skilled personnel leave a country; this reduces the pace of economic growth and slows down the process of overall job creation, subsequently affecting the long-term development potential of a country, which may eventually increase poverty.

Lag in human resource development: Lag in human capital development tends to limit individuals' productivity, capital investment and income earnings. These factors may subsequently affect individuals' capability to work extensively to increase productivity, earnings attracting capital investment and advanced technology, which may inhibit innovation such that it becomes a causative factor of poverty (Fapohunda 2012).

Ill health or disease: Ill health shackles human capital, reduces the productivity of labour, reduces return on learning, impedes entrepreneurial activities and holds back growth and economic development. This is because it limits the opportunity to access employment and also leads to increased day-to-day costs. The major diseases that cause poverty in most countries of the world are malaria, HIV and AIDS and other infectious diseases. The prevalence of HIV and AIDS is about 5.4% in Nigeria, such that a population of about 2.6 million adults are infected. This has constrained participation in the labour market and has prevented affected labour from earning income (Omoniyi 2016).

Debt burden: Debt burden increases poverty because the cost of servicing the debt owed becomes an encroachment on the resources needed for socio-economic growth and development in many less-developed countries of the world. The masses are therefore subjected to abject poverty because of constraints that led to low productivity, low capacity utilisation, underemployment and low purchasing power in Nigeria. In December 2000, Nigeria's external debt was \$28.5 (about 80% of GDP). The huge amount of money used to service this debt annually hampers government expenditure and thereby reduces the provision of social and physical infrastructure for the poor.

Low productivity: This inhibited the abilities of individual households to earn enough income to enable them to maintain adequate living standards. This arose from low utilisation of

resources or low human capital development, which is a reflection of low education, poor health or physical incapacity, as well as inadequate access to productive assets.

Market imperfections: These are factors that have arisen from institutional distortions and have prevented people from having equal access to productive assets such that it has introduced a kind of discriminatory practice that limits people's advancement in the society. These factors are caused by ignorance, culture, sex, age, race and so on. Distortions in the employment market and skewed income distribution structure also account for market imperfections that favour a particular class in society and render the less favoured class poorer.

Political instability: Social and economic unrest from the domestic and international scene arose from the failure of the government, which lacked the ability to successfully implement political transition programmes that may have actualised stability such that distortion resulted in recession. A restricted domestic market prevented productive ventures from flourishing because of and withdrawal of investment from such country and subsequent job and economic insecurity.

Corruption: Corruption has become a cankerworm in Nigeria such that government revenue is shared among political office holders and their cronies, while the masses are left to wallow in poverty. This indicates that the well-being of the people are practically ignored by political leaders. Thus, corruption has led to increased poverty and income inequality and has contributed to increased crime rates in Nigeria.

Oil over dependency: This simply attested that over-reliance on the oil sector led to the abandonment of other sectors of the economy. The mismanagement of huge oil revenues and fall in the world oil price resulted in Nigeria borrowing to finance white elephant projects that led to wastage. Subsequently Nigeria became a highly indebted country.

Inequality: Inequality implies having large discrepancies in resource distribution, whether one is considering income, consumption or other welfare indicators or attributes (Oyekale, Adeoti & Oyekale 2007). Income disparity occurred in Nigeria as a result of the high economic growth that Nigeria experienced from 1965 to 1975. Income inequality has therefore increased the dimension of poverty in the country (Oluwatayo 2008). Additionally, *World Book* (2002) viewed *inequality* as a lack of equality in the form of being unequal in amount, size, value or rank; lack of unevenness in terms of regularity or uniformity and lack of proportionate distribution of resources. Similarly, *World Bank* (2014) uses the Gini coefficient to measure income inequality through the use of the Lorenz curve, which ranges between 0 and 1. When the value is closer to zero, there exists equality but the farther away from zero the wider the inequality (Todaro & Smith 2011).

Laziness: Laziness is rampant among Nigerians and it has become a common disease most especially from youths

who hail from wealthy households. Everyone wants to be comfortable, but they are not ready to work towards it. This often leads to greed such that people do whatever possible to keep the family wealth for themselves. In most families, everyone depends on the breadwinner, who works hard to keep the family going, and when he dies the family become poor because the dependants are lazy; they subsequently mismanage the funds that are bequeathed to them and become poor. In most Nigerian families, the death of the breadwinner means the death of the whole family's fortunes; because everyone depended on him or her to provide for the needs of the household (Aigbokhan 2008).

This article relies on the cumulative and cyclical interdependencies theory of poverty, which stipulates that individuals and their communities are caught in a spiral of problems and opportunities and that when problems dominate, they close other opportunities to create a cumulative set of problems that make any effective response nearly impossible. The cyclical explanations explicitly looked at individual situations and community resources, such as a faltering economy, which makes economic survival a mirage for the community as fewer taxes are generated. Myrdal (1968) notes that individual and community well-being are closely related in a cascade of personal and community problems, which include migration of people from one community to another, accelerating the independence of factors that create poverty as soon as the cycle decline sets in.

Empirical review

Dollar and Kraay (2000) discover that there was no robust responsiveness of poverty to growth since transformation begins. They claimed that though urban economic growth was more beneficial to the rural poor in the post-reform economy, the rural poor lacked access to public goods and services (World Bank 1990).

Vijayakumar (2013) opines that growth alone cannot sufficiently alleviate poverty at the national level; he further explains the importance of a country's growth pattern in eradicating poverty. An inverse relationship was seen to exist between poverty and economic growth, while a high growth rate paves the way for a sustained and stable increase in productive capacity and employment opportunities. Thus, the absorption of more employees into production and allied activities decreases unemployment. He concludes that better remuneration made individuals spend their income on nutritional food, education and health care for their children; they were able to save more and increase investment, which eventually enhanced productivity of the work force in the economy.

Bakare and Ilemobayo (2013) in their empirical findings discover a direct relationship between economic growth and poverty in Nigeria. This implies that an increase in economic growth failed to reduce poverty in Nigeria. Hence, the underlying 'trickle-down' phenomenon that

growth reduces poverty is not supported by Nigeria's data. They suggested that policymakers should evaluate the pattern of public expenditures so as to ensure an equitable distribution of the national income.

Methodology

Theoretical framework

The theoretical framework used in this study is adopted from Aigbokhan (2000a; 2000b), who made use of the Solow-Swan growth model. This is because the framework was developed with few empirical implications, which were mainly related to the exogenous growth models. Aigbokhan used this theoretical framework to study the empirical nexus among poverty, economic growth and inequality in Nigeria. In his model, he used poverty as a function of GDP growth rate and later varied his model to reflect the use of each of the variables as dependent variables. In his model he used GDP growth rate, poverty, unemployment rate and literacy rate. The model is adopted in the present study because it is the most relevant, while it captured some of the variables used in this study. He presented his model in equation 1.

$$\text{GDPGR}_t = F(\text{POV}, \text{UMPR}, \text{LITR}) \quad [\text{Eqn 1}]$$

Model specification

This study adopted the Solow growth model with some modifications. The article used two model specifications to capture the objectives of the article. The first model captured economic growth while the second handled the determinants of poverty.

The first model is specified in functional form in equation 2:

$$\text{GDP} = f(\text{POV}, \text{MOR}, \text{UMP}, \text{LXP}, \text{COR}, \text{INF}, \text{SSE}, \text{INV}, \text{DEBT}). \quad [\text{Eqn2}]$$

The econometric function is written in equation 3:

$$\text{GDP}_t = a_0 + a_1\text{POV} + a_2\text{MOR} + a_3\text{UMP} + a_4\text{LXP} + a_5\text{COR} + a_6\text{INF} + a_7\text{SSE} + a_8\text{INV} + a_9\text{Debt} + U_t \quad [\text{Eqn 3}]$$

Where:

- GDP = economic growth
- POV = poverty index
- MOR = mortality rate
- COR = corruption index
- UMP = unemployment rate
- LXP = life expectancy rate
- INF = inflation rate
- SSE = secondary school enrolment (proxy for human capital development)
- INV = investment (proxied by gross capital formation)
- DEBT = internal and external debts
- a_0 = constant term
- $a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8$ and a_9 are parameters to be estimated
- U_t = stochastic error term

A priori expectation

The a priori behaviour of the independent variables with respect to the dependent variable are postulated as follows: $a_1 > 0$, $a_2 > 0$, $a_3 > 0$, $a_4 > 0$, $a_5 > 0$, $a_6 > 0$, $a_7 > 0$, $a_8 > 0$ and $a_9 > 0$.

The second model employed to identify the determinants of poverty is specified in equation 4:

$$POV = F(GDP, UMP, MOR, COR, INF, SSE, INV, DEBT, LXP) \quad [\text{Eqn 4}]$$

The econometric equation is written as (see equation 5).

$$POV = a_0 + a_1 GDP + a_2 UMP + a_3 LXP + a_4 COR + a_5 INF + a_6 SSE + a_7 INV + a_8 Debt + U_t \quad [\text{Eqn 5}]$$

Where:

- POV = poverty index

Other variables are as earlier defined:

- β_0 = constant term
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ and β_8 = parameters to be estimated
- U_t = stochastic term

A priori expectation

In consonance with economic theory, it is expected that a priori relationships are postulated for the parameters that were estimated: $a_1 > 0$, $a_2 > 0$, $a_3 > 0$, $a_4 > 0$, $a_5 > 0$, $a_6 > 0$, $a_7 > 0$, $a_8 > 0$ and $a_9 > 0$.

Estimation technique and sources of data

The study employed the Johansen error correction model (ECM) as the estimation technique. The ECM is extensively used in regression analysis primarily because it is an efficient technique for estimations that involve long-run relationships (Adebiyi 2002; Gujarati 2004). Data were procured from CBN Statistical Bulletin, NBS Publications, Amnesty International Corruption Perspective and the Internet.

Results and discussion

Unit root test: The augmented Dickey–Fuller (ADF) tests were used to ascertain the order of integration of the variables. It considered the null hypothesis of a random walk with drift and linear trend.

Table 1 reports the results of the stationarity test using the ADF unit root test. Gross domestic product, poverty index, corruption, unemployment, secondary school enrolment, investment, life expectancy and debt are integrated of order one I(1). Mortality is integrated of order two I(2) while inflation is stationary and integrated of order zero I(0). The variables were further investigated to determine whether their linear combinations were stationary. The co-integration test in line with Johansen was used for the investigation; the results are as shown in Tables 2 and 3. The trace test and the maximum eigenvalue were used for the investigation in the co-integration test and possible long-run relationship between the variables.

TABLE 1: Augmented Dickey–Fuller unit root test.

Variable	Level	1st difference	2nd difference	Order of integration	Test critical values
GDP	-	-5.293365	-	I(1)	-
POV	-	-5.365464	-	I(1)	-
COR	-	-5.386687	-	I(1)	-
UMP	-	-4.930884	-	I(1)	-
INF	-3.011328	-	-	I(0)	-
SSE	-	-9.560607	-	I(1)	-
INV	-	-3.949046	-	I(1)	-
LXP	-	-5.738263	-	I(1)	-
MOR	-	-	-4.392031	I(2)	-
DEBT	-	-3.613447	-	I(1)	-
ECM	-3.692042	-	-	I(0)	-
1% level	-	-	-	-	-3.661661
5% level	-	-	-	-	-2.960411
10% level	-	-	-	-	-2.619160

GDP, gross domestic product; POV, poverty index; COR, corruption; UMP, unemployment; INF, inflation; SSE, secondary school enrolment; INV, investment; LXP, life expectancy; MOR, mortality; DEBT, debt; ECM, error correction model.

TABLE 2: Co-integration test (trace test).

Hypothesised number of CE(s)	Unrestricted co-integration rank test (trace)			Prob.**
	Eigenvalue	Trace statistic	Critical value (0.05)	
None*	0.995888	760.5366	239.2354	0.0000
At most 1*	0.995008	584.7360	197.3709	0.0001
At most 2*	0.987501	415.1365	159.5297	0.0000
At most 3*	0.932585	274.9095	125.6154	0.0000
At most 4*	0.890053	188.6091	95.75366	0.0000
At most 5*	0.765455	117.9608	69.81889	0.0000
At most 6*	0.687565	71.55737	47.85613	0.0001
At most 7*	0.540044	34.32991	29.79707	0.0140
At most 8	0.241566	9.477916	15.49471	0.3230
At most 9	0.019493	0.629932	3.841466	0.4274

Note: Trace test indicates eight co-integrating equations at the 0.05 level.

CE(s), co-integrated equations; Prob., probability; *, Denotes rejection of the hypothesis at the 0.05 level; **, MacKinnon-Haug-Michelis (1999) *p*-values.

TABLE 3: Co-integration test (maximum eigenvalue).

Hypothesised number of CE(s)	Unrestricted co-integration rank test (maximum eigenvalue)			Prob.**
	Eigenvalue	Max. eigen statistic	Critical value (0.05)	
None*	0.995888	175.8005	64.50472	0.0000
At most 1*	0.995008	169.5995	58.43354	0.0000
At most 2*	0.987501	140.2271	52.36261	0.0000
At most 3*	0.932585	86.30032	46.23142	0.0000
At most 4*	0.890053	70.64831	40.07757	0.0000
At most 5*	0.765455	46.40346	33.87687	0.0010
At most 6*	0.687565	37.22746	27.58434	0.0021
At most 7*	0.540044	24.85199	21.13162	0.0143
At most 8	0.241566	8.847983	14.26460	0.2990
At most 9	0.019493	0.629932	3.841466	0.4274

Note: 'Max. eigenvalue test' indicates eight co-integrating equation(s) at the 0.05 level.

CE(s), co-integrated equations; Prob., probability; *, Denotes rejection of the hypothesis at the 0.05 level; **, MacKinnon-Haug-Michelis (1999) *p*-values.

Co-integration test

In this article, dynamism is a priority; therefore, there is the need to test whether the variables in the model have long-run relationships among themselves by testing for possible co-integration among these variables. Adopting the Johansen test, the results are presented in Tables 2 and 3.

The trace test is done using the Osterwald-Lenum critical values. The test shows eight co-integrating equations at the

5% level. This means that the equation is co-integrated and as such has a long-run relationship.

The maximum eigenvalue was evaluated using the Osterwald-Lenum critical values. The test also showed that there were eight co-integrating equations at the 5% level of significance. This means that the variables have long-run relationships and therefore one can go ahead to estimate the long-run equation in Table 4.

The results in Table 4 posit that there is a negative relationship between poverty and economic growth in Nigeria. This means that poverty may reduce economic growth in Nigeria. The result is supported by the coefficient -22643.48 . The variable came up with an insignificant t -value, -0.661847 . This means that a 1% increase in the level of poverty may reduce economic growth by multiple percent (22643.48%). This indicates that poverty does not pose much of a problem because of the insignificant nature of the variable. This result could be a result of the large magnitude of the poor in Nigeria. The variable, poverty, conformed to a priori expectation.

Corruption also exhibits a negative relationship with economic growth in Nigeria, which indicates that corruption may lead to a reduction in economic growth. This claim is supported by the coefficient $-943\,515$. The result shows that 1% increases in corruption may lead to multiple (9 943 515%) reductions in economic growth in Nigeria. The result is further supported as corruption was found to be statistically significant at the 10% level of significance with a t -value -1.973316 . The result indicates that most wealth amassed through corruption in Nigeria is not economic growth enhancing because of the likelihood that the wealth gathered may not be invested into the Nigerian economy, such that it impacts negatively on economic growth in Nigeria. The result, therefore, presents corruption as a

determinant of economic growth in Nigeria but appeared contrary to a priori expectation.

Debt showcases a negative relationship with economic growth in Nigeria, meaning that it has the potential to retard economic growth. This claim is supported by the coefficient of the variable -0.237725 . The result indicates that a 1% increase in debt may lead to about a 0.24% reduction in economic growth in Nigeria. However, the result claimed there was no cause for alarm because it was statistically insignificant with a t -value of -0.910382 . The reason for the outcome of the result may be connected to the fact that debt or borrowing were not spent on capital goods that may further increase wealth but were used to finance consumption goods such that external debt became a burden rather than a blessing to Nigeria. The results, therefore, consider debt not to be a determinant of economic growth in Nigeria and the variable also behaved contrary to a priori expectation.

The results further revealed the existence of a positive relationship between inflation and economic growth in Nigeria. This is to say that inflation enhances economic growth in Nigeria. The result is corroborated by the coefficient 27613.01 and also confirmed to be statistically significant at the 10% level of significance with the t -value 1.856469. The result indicates that a 1% increase in inflation may lead to multiple (27 613%) increase in economic growth in Nigeria. The outcome of the result shows that the level of inflation is a reflection of the level of development in Nigeria, such that the inflation level may not be too high for the Nigeria economy. The variable can therefore be seen as a determinant of economic growth in Nigeria and comply with a priori expectation of the behaviour of the variable.

Investment presented a positive relationship with economic growth, which means that it enhances economic growth in Nigeria. The result relies on the coefficient 2.931708, which means that a 1% increase in investment may lead to about a 3% increase in economic growth in Nigeria. The joy attached to the impressive contribution of investment to economic growth is short-lived, as the variable was statistically insignificant with a t -value of 0.285427. The result conformed to the assertion that investment (trade) is the engine of growth. However, investment proved not to be a determinant of economic growth in Nigeria but met its a priori expectation in terms of its behaviour.

The results further show that life expectancy has a positive relationship with economic growth, meaning that it has the potential to increase economic growth in Nigeria. The positive relationship is shown by the coefficient of the variable 900836.3, meaning that one unit increase in life expectancy may lead to multiple (900 836 units) increases in economic growth in Nigeria. The result is further corroborated by the value of the t -statistic, 5.298367, which shows that life expectancy is statistically significant at 1% level of significance. This presents life expectancy as the best determinant of

TABLE 4: Result for economic growth.

Variable	Coefficient	Std. error	t -Statistic	Prob.
C	23 602 997	20 032 997	1.178206	0.2503
POV	-22643.48	34212.55	-0.661847	0.5144
COR	-943515.9	478137.2	-1.973316	0.0601
DEBT	-0.237725	0.261126	-0.910382	0.3717
INF	27613.01	14873.94	1.856469	0.0757
INV	2.931708	10.27130	0.285427	0.7778
LXP	900836.3	170021.5	5.298367	0.0000
MOR	-71118.77	18165.20	-3.915110	0.0007
SSE	-33986.62	49691.65	-0.683950	0.5006
UMP	66118.59	88437.97	0.747627	0.4619
R -squared	0.916794	Mean dependent var	-	1 459 989
Adjusted R -squared	0.885592	S.D. dependent var	-	3 133 859
S.E. of regression	1 060 004	Akaike info criterion	-	30.82537
Sum squared resid.	2.70E+13	Schwarz criterion	-	31.27430
Log likelihood	-514.0313	Hannan–Quinn criterion	-	30.97847
F -statistic	29.38241	Durbin–Watson stat	-	2.153258
Prob (F -statistic)	0.000000	-	-	-

Note: Dependent variable: GDP. Method: Least squares. Date: 05/19/15 Time: 15:49. Sample: 1980 2013. Included observations: 34.

Std. error, Standard error; t -Statistic, test statistic; Prob., probability; GDP, gross domestic product; POV, poverty index; COR, corruption; UMP, unemployment; INF, inflation; SSE, secondary school enrolment; INV, investment; LXP, life expectancy; MOR, mortality; DEBT, debt; C, constant; VAR, variance; RESID, residual.

economic growth in Nigeria during the period of the study. The behaviour of the variable agrees with its a priori expectation.

Mortality presented a negative relationship with economic growth, which means that constant death may lead to reduction in economic growth in Nigeria. This assertion is corroborated by the coefficient of mortality rate, -71118.77 . This result indicates that a 1% increase in the rate of mortality in Nigeria may lead to multiple (71118.77%) reductions in economic growth in Nigeria. The result is also buttressed by the statistical significance of the variable with the t -value -3.915110 , which shows that mortality is statistically significant at the 1% level of significance. The results revealed that mortality rate has a devastating effect on economic growth in Nigeria, which may be a result of the impact of stress on the working class group such that the effect subsequently reduces economic growth in Nigeria. Mortality can therefore be recognised as a determinant of economic growth in Nigeria, and it also behaved in conformity with a priori expectation.

Secondary school enrolment, which stands as proxy for human capital development, shows a negative relationship with economic growth in Nigeria. This is an indication that it has the ability to retard economic growth. This claim is supported by the coefficient -33986.62 . This result indicates that a 1% increase in secondary school enrolment may lead to about a 33 987% reduction in economic growth in Nigeria. However, the result may not be reliable because it was statistically insignificant. The outcome of the result revealed that the state of education is highly deplorable in Nigeria, to the extent that knowledge and skills acquired by workers led to low productivity, which subsequently allowed secondary school enrolment to perform poorly in Nigeria. This shows that secondary school enrolment is not a determinant of economic growth in Nigeria and it behaved contrary to a priori expectation.

Unemployment shows a positive relationship with economic growth in Nigeria. This is an indication that unemployment could enhance economic growth in Nigeria. The coefficient of the variable 66 118 supported the claim, which means that a 1% increase in unemployment may increase economic growth to a greater extent of 66 118%. This is a shocking result, but it may not pose any problems as it was statistically insignificant. The variable could therefore not be regarded as a determinant of economic growth in Nigeria, and it also failed to meet up with its a priori expectation.

Finally, the coefficient of determination (R^2) 0.916794 shows that the independent variables used in the model accounted for about 92% of total variation in economic growth (dependent variable). This shows that the model is of good fit. The F -statistic 29.38241 showed that the joint performance of the variable used was reliable at the 5% level of significance while the Durbin–Watson (2.153258) showed the absence of autocorrelation in the model.

Table 5 shows that economic growth, debt, inflation, investment, life expectancy and unemployment rate are determinants of poverty in Nigeria. On the other hand, corruption and secondary school enrolment proved not to be considered as determinants of poverty in Nigeria.

The result shows that economic growth has a negative relationship with poverty, which means that it could lead to a reduction in poverty in Nigeria. The coefficient of the variable $-1.52\text{E-}06$ indicates that 1% increases in economic growth may have led to about a 1.52% reduction in poverty in Nigeria during the period of the study. The result was further supported by that t -value -1.707434 , which means that the variable is statistically significant at the 10% level of significance. The result indicated that the benefit of growth trickled-down to the poor in Nigeria. This is a shocking result because it does not conform to reality but it may have occurred because of the other variables used in the model. The behaviour of the variable is contrary to a priori expectation but proved to be a determinant of poverty in Nigeria. This result contradicts Bakare and Ilemobayo (2013).

In addition, corruption showed a positive relationship with poverty, meaning that it has the potential to aggravate poverty in Nigeria. This claim is supported by the coefficient 3.047470. This indicates that a 1% increase in corruption may lead to above a 3% increase in poverty in Nigeria. However, the result suggests that corruption may not be too problematic, as it was statistically insignificant with a t -value of 1.039300. As a result, corruption could not be named among the determinants of poverty in Nigeria. This result shows that the ill-gotten wealth from corrupt practices were confined within the hands of the perpetrators and were not likely invested, such that the poor could not benefit from the gains; hence, corruption worsens the plight of the poor within the Nigerian economy.

Debt showed a negative relationship with poverty, such that it revealed that it has the tendency to reduce poverty

TABLE 5: Estimate of determinants of poverty in Nigeria.

Variable	Coefficient	Std. error	t -statistic	Prob.
C	-154.5962	53.19353	-2.906297	0.0076
GDP	-1.52E-06	8.89E-07	-1.707434	0.1001
COR	3.047470	2.932233	1.039300	0.3086
DEBT	-2.82E-06	1.39E-06	-2.023669	0.0538
INF	0.227270	0.081967	2.772687	0.0104
INV	-0.000176	4.80E-05	-3.672869	0.0011
LXP	4.430658	1.070296	4.139656	0.0003
SSE	-0.157677	0.231132	-0.682192	0.5014
UMP	0.917719	0.476594	1.925578	0.0656
R -squared	0.833014	Mean dependent var	-	53.39412
Adjusted R -squared	0.779578	S.D. dependent var	-	13.30457
S.E. of regression	6.246376	Akaike info criterion	-	6.723807
Sum squared resid	975.4302	Schwarz criterion	-	7.127844
Log likelihood	-105.3047	Hannan–Quinn criter.	-	6.861595
F -statistic	15.58911	Durbin–Watson stat	-	1.817907
Prob (F -statistic)	0.000000	-	-	-

Note: Dependent variable: POV. Method: Least squares; RESID, residual; VAR, variance; CRITER, criterion.

Std. error, Standard error; t -Statistic, test statistic; Prob., probability; GDP, gross domestic product; POV, poverty index; COR, corruption; UMP, unemployment; INF, inflation; SSE, secondary school enrolment; INV, investment; LXP, life expectancy; DEBT, debt.

in Nigeria. This claim is confirmed by its coefficient $-2.82E-06$, which indicates that a 1% increase in debt may lead to about a 3% reduction in poverty. The outcome of the result is likely because of a change in orientation such that current borrowings from external sources are now being spent on viable projects or that Nigeria enjoys the benefits of debt forgiveness, which has encouraged the outcome of this result. The variable debt also was statistically significant at the 10% level of significance with a t -value -2.023669 . Hence, debt is a determinant of poverty in Nigeria and conforms to a priori expectation.

Inflation showed a positive relationship with poverty, which meant that it has the power to aggravate poverty in Nigeria. This was corroborated by the coefficient of the variable 0.227270 , which indicates that a 1% increase in inflation may lead to a 0.23% increase in poverty in Nigeria. The outcome of this result is that the rate of inflation in terms of high increases in price might have increased the plight of the poor. The result is further supported by the t -value of the variable 2.772687 , which shows that the variable is statistically significant at the 5% level of significance. Inflation is therefore a determinant of poverty in Nigeria.

It can also be seen from the result that investment exhibits a negative relationship with poverty in Nigeria, meaning that it could lead to poverty reduction in Nigeria. In support of the claim is the coefficient -0.000170 . This indicates that a 1% increase in investment may lead to about a 0.0002% reduction in poverty in Nigeria. This indicates that a small change in the level of investment may lead to a less-than-proportionate change in poverty. This is because investment is very powerful in moving the Nigerian economy to a higher level such that the poor subsequently benefit from its spill-over. Investment was statistically significant at the 5% level of significance with a t -value of -3.62869 . This result presents investment as a determinant of poverty in Nigeria and also conforms to a priori expectation.

Life expectancy indicates a positive relationship with poverty in Nigeria, such that it could also increase the level of poverty in Nigeria. This is supported by the coefficient 4.430658 , which means that a 1 unit increase in life expectancy may lead to about a 4.45% increase in poverty in Nigeria. This result indicates that further increase in life expectancy may create additional unemployed old people, who may become dependent on working class employees, or that the quality of life of the old people may decline such that more people fall below the poverty line; hence, the level of poverty increases. The variable of life expectancy was statistically significant at the 1% level of significance, with the t -value 4.139656 , making life expectancy to be the strongest determinant of poverty in Nigeria.

Secondary school enrolment exhibits a negative relationship with poverty in Nigeria, meaning that it has the potential to reduce poverty in Nigeria. This claim is corroborated by the coefficient -0.157677 , which means that 1% increases in secondary school enrolment may reduce poverty by

about 0.16%. This shows that the increase in secondary school enrolment improved the level of human capital development; the products of the schools improved labour performance to the extent that they were able to contribute marginally to poverty reduction in Nigeria. However, the claim is not a dependable one as the variable failed to be statistically significant with a t -value of -0.682192 . Hence, secondary school enrolment is not a determinant of poverty in Nigeria, but it conforms to a priori expectation.

Lastly, the unemployment rate shows a positive relationship with poverty in Nigeria, meaning that it may aggravate the level of poverty in Nigeria. This is evidenced from the coefficient of unemployment 0.9177219 , which means that a 1% increase in the rate of unemployment may cause an increase of about 0.92% in poverty in Nigeria. This is because any further increase in the already high unemployment rate in Nigeria may further aggravate the situation of poverty in Nigeria. The variable also was statistically significant at the 10% level of significance with the t -value 1.925578 , making unemployment a determinant of poverty in Nigeria. The variable equally conforms to a priori expectation in terms of its behaviour with respect to poverty in Nigeria.

Finally, the test of reliability of the model discussed in the following section shows that the coefficient of determination (R^2) 0.8330914 revealed that the explanatory variables in the model explain over 83% of the variation in poverty (dependent variable). This shows that the model is of good fit. The F-statistic of 15.58971 shows that the combined performance of the variables in the model is significant at the 5% level while the Durbin-Watson statistic 1.817907 shows that serial correlation is absent from the model.

Conclusion

This study concluded that poverty, corruption, debt and secondary school enrolment have the potential to retard economic growth, while mortality has a devastating effect. The results revealed that inflation, investment, life expectancy and unemployment have the potential to increase or enhance economic growth in Nigeria. The article further revealed that corruption, inflation, life expectancy and mortality are determinants of economic growth while poverty, debt investment and unemployment are not. Finally, the article revealed that economic growth, debt, inflation, investment, life expectancy and unemployment rate are determinants of poverty in Nigeria. Other variables such as corruption and secondary school enrolment proved not to be considered as determinants of poverty in Nigeria.

Policy implications

With reference to the conclusion of this study, the following suggestions are made to the government for long-term sustenance of poverty reduction in Nigeria. Such suggestions include the following:

- Government should increase its expenditure on education so that appropriate skills are acquired in schools to facilitate

improved productivity that could improve economic growth in Nigeria.

- Government may initiate poverty programmes, which should be all-inclusive and properly monitored to ensure that such programmes reached the desired or targeted population in Nigeria.
- Government should enact laws that will introduce stiffer penalties for people who are guilty of corrupt practices and strengthen institutions whose responsibility is to arrest, prosecute and try perpetrators of corruption in Nigeria. This is to ensure that allocations are spent on what they are meant for so that Nigeria will be able to improve its level of economic growth.
- Government should avoid the spending of borrowed funds (internal and external) on white elephant projects and consumables but should finance durable goods that will contribute immensely to improve the level of economic growth in Nigeria.
- Finally, policymakers are encouraged to also initiate public policies that may improve the level of domestic investment, which could generate improved employment levels that will favour the poor to enable them to contribute adequately to economic growth in Nigeria.

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