



Empirical Analysis of the Effect of Corruption on Poverty in Nigeria from 1995-2019

¹Sheba Liman Gamba, ²Hannatu Yohanna Gimba, ¹Rilwanu Mohammed

¹Department of General Studies,

²Department of Accountancy and Taxation.

Abubakar Tatari Ali Polytechnic, Bauchi, Bauchi State, Nigeria

ABSTRACT

The aim of this study was to empirically analyze the effect of corruption on poverty in Nigeria, using time series or secondary data spanning the period 1995 to 2019. The study used *ex-post-facto* design as its guide and the data were sourced from the publication of Transparency International, Central Bank of Nigeria Bulletins and National Bureau of Statistics (NBS) respectively. Thus, the ADF unit root test for single equation modeling revealed that the data became stationary at first difference, 1(1). The used corruption perception index (CPI), corruption Ranking (CRK) and income inequality (INQ) as explanatory variables, while poverty rate was considered the dependent variable. The Error Correction Modeling (ECM) technique was therefore used for model estimation. The findings from this empirical study revealed that corruption perception index and the Gini coefficient index used as measured of income inequality had statistically significant positive effects on poverty in Nigeria. It was also found also that corruption ranking had an insignificant positive effect on poverty. The study concluded that corruption affect poverty in Nigeria, and recommended among others that government should enact and implement policies and programmes that will help in curbing corruption in Nigeria in order to reducing the corruption perception index, government should provide opportunities for citizens to earn more income so as to reducing the level of poverty in the country and government should also adopt fiscal policy instruments that will ensure equality in income distribution and address poverty.

ARTICLE INFO

Article History

Received: August, 2020

Received in revised form: January, 2021

Accepted: April, 2021

Published online: May, 2021

KEYWORDS

Corruption, Corruption Perception Index, Corruption Ranking Income Inequality,

INTRODUCTION

The spade of endemic corruption in developing countries left much to be desired considering the vast resources the country is endowed with. Corruption has been identified as one of the most dangerous enemy of mankind, considering its negative multiplier effects on individual households and the State economy as a whole. Though corruption is not a natural disaster like earthquake, curbing this monster seems to be one of the most difficult task, the governments of developing countries are battling with. Atelhe and Agada (2014) noted that the country on attainment of independence in 1960 was considered giant enough lead Africa in

socio-economic revolution. Nigeria is not immune of this societal monster. In the view of Agbibo (2012), Nigeria's corruption is very devastating, pathetic and annoying because both the magnitude and the frequency of occurrence of the menace are very high. Ordinarily, given the vast natural resources the country is endowed with and efforts made so far, corruption should have been nipped in the bud, but realities on ground shows that corruption seems to be the only thing the country cant export if given the opportunity. In addition to being endowed with other natural and human resources, majority of Nigerians are living in abject poverty and this

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may not be unconnected to the increasing challenge of corruption in the country.

There is hardly any sector in Nigeria that has not been infected by this man-made virus called corruption; in the school system, lecturers, students, management and even parents have imbibe this negative virtue. In public offices, both junior and senior staff as well as top management view corrupt acts as normal ways of doing things, in workshop places, elections of officials are marred by corrupt tendencies and the security sector seems to be worst-off when it comes to acts of corruption. Atelhe and Agada (2014) rightly pointed out that huge corruption cases are being recorded regularly in the country, thus indicating the intensity of the phenomenon. This is partly the reason why Nigeria's ranking over the years on the corruption perception index of the Transparency International is not encouraging at all. Amidst vast resources endowment in Nigeria, it is quite unfortunate that while countries are celebrating their progress economically, Nigeria's corruption level in terms of its intensity and frequency has being of the increase. In 2012, Nigeria was ranked 33rd out of 47 countries. In 2013, Nigeria was ranked 34th out of 48 countries and in 2014, Nigeria was ranked 31st out of 48 countries. These show consistent poor performance and it is worrisome (Chiekiezie, Nzewi & Gerald, 2016). It is in recognition of the magnitude and devastating effects of corruption on the Nation's economy that President Muhammadu Buhari on assumption of Office in 2015 said "if Nigeria does not kill corruption, corruption will kill Nigeria". This assertion goes to show that even those in power have admitted that corruption is not only a monster, by a threat to sustainable economic growth in Nigeria.

Poverty and inequality in income are fundamental variables in discussions that centred on corruption because corruption transfers resources and wealth meant for the public into private hands. The basic premise is that in corrupt society individuals always find it difficult to meet up with their daily necessities of life such as food, shelter and clothing. This condition is characterized by severe deprivation of basic human needs including education, health, access to basic social services and safe drinking water

(Ewubare & Okpani, 2018). This deficiency is seen in form of lack of income, lack of access to basic services. This implies that the poor are hungry, lack shelter, and clothing, lack basic education and health care. These challenges have been linked to the rising problem of corruption that has permeated every sector and facets of human life in Nigeria. The notion of income inequality connotes material dispersion across the society that has an influence on the position of individuals.

The increasing number of poor people in the developing economies is macroeconomic challenge that demands immediate attention. The World Bank (2018) reported that poverty kills about 25000 children each day especially in some of the poorest village on earth. About 2.8 billion of the world population lives on less than \$2 daily and about 1.4 billion live on \$1.9 per day. The poverty situation in Nigeria no doubt has a strong negative relationship with corruption which is endemic in the country. Corruption has deprived rural dwellers access to functional infrastructural and social amenities such as road, quality education and healthcare services, electricity and pipe borne water needed to get out of poverty. Agriculture that is viewed as the major occupation of rural dwellers is still at its primitive stage, while youth unemployment and under-employment is extremely high despite huge allocations to relevant sectors in the country's yearly budgets. No wonder, Kolawole and Omobitan (2015) pointed out that poverty and inequality in Nigeria is a paradox. It is a paradox because; the poverty level in Nigeria contradicts the country's abundant wealth of both human and human resources. In order words, there is poverty amidst of plenty.

Corruption is hydra-headed monster that seems to have permeated every facets of human life in Nigeria. In 2017, Nigeria ranked 148, while it dropped to 144 in 2018. Nigeria's current position means the most populous black nation is two steps lower to 146 in 2019. The report revealed that Nigeria ranks 146 out of the 180 countries considered, behind Botswana (34), Rwanda (51) and Mauritius (56) among other African nations (Transparency Intentional, 2019). This implies that corruption remains one of the most endemic issues affecting development in

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Nigeria. Disturbed by the consequences of corruption, Governments at different levels have made efforts to curb this challenge. Successive Governments therefore have come up with so many anti-corruption policies some which include the Independent Corrupt Practices Commission (ICPC), the Economic and Financial Crimes Commission (EFCC) and the Budget Monitoring and Price Intelligent Unit or Due Process Mechanisms all in an attempt to nip this monster in the bud. Despite all these well-articulated policies, corruption seems to defy all manners of attempts to curbing it out in Nigeria as in the view of Inokoba and Ibegu (2011), the scourge of corruption has gone to the extent of swallowing some of the officials and agencies determined to fight it. Agbibo (2012) also asserted that many of these anti-corruption efforts have failed to accomplish their stated objectives due to the absence of strong commitment from the government.

In fact, it seems as if some people have also succeeded in looting the looted funds recovered all because of corruption, that partly the reason where Nigeria is considered globally as a highly corrupt nation that houses a lot of corrupt people on earth. The rising cases of corruption have attracted the attention of scholars and researchers globally. For instance, scholars like Perera and Lee (2013) in their study found that corruption increases poverty, Sunkanmi and Isola (2014) in their study found that corruption leads for economic growth even though it is a bad omen and evil at all levels. Mohammed, Malarvizhi, Mohammad and Zhan (2014) carried out a study on corruption, economic growth and poverty in Nigeria using VECM modeling found a pass-through effect of corruption on poverty. This implies that findings on the effect of corruption are contradictory. Furthermore, most studies on corruption related variables concentrated on the impact of corruption on economic growth which suggests that there is paucity of literature on its effects on poverty in Nigeria despite its endemic nature. There is therefore the need for further studies on the corruption and poverty in Nigeria. The question therefore is: what has been the extent of the impact of such recoveries on poverty reduction in Nigeria? It is in the light of this that

this study examines the effect of corruption on poverty in Nigeria spanning from 1995 to 2019.

Aim and Objectives of the Study

This study examines the effect of corruption on poverty in Nigeria using time series data spanning from 1995 to 2019. The specific objectives of the study are as follows:

- i. To determine the effect of corruption perception index on poverty in Nigeria
- ii. To evaluate the effect of corruption ranking on poverty in Nigeria
- iii. To examine the effect of income inequality on poverty in Nigeria

Research Hypotheses

The study was guided by the following null hypotheses:

HO₁: Corruption perception index has no significant effect on poverty in Nigeria

HO₂: Corruption ranking has no significant effect on poverty in Nigeria

HO₃: Income inequality has no significant effect on poverty in Nigeria

CONCEPTUAL REVIEW

The concept of corruption has a negative connotation. Acts such as abuse of offices or power for personal gains, immoral acts, misappropriation, mismanagement or embezzlement of funds as well as the collection of giving of bribes are some of manifestation of corruption that re common in the society. According to the Transparency International (2011), corruption is the misuse of delegated authority for personal benefits. It is also a deliberate way of misrepresenting facts, realities and management of situation in which someone finds himself in an effort to deceive and gain both material and non-material things (Akinlabi, Hamed, & Awoniyi, 2011). According to Hasan and Nuri (2013), corruption is the misuse of public office for private gains. It is globally held that corruption is endemic and pervasive in nature, thereby constituting a major hindrance to economic and investment growth; it also impacts negatively the public service delivery as well as increases the social inequality (Bolgorian, 2011). Natalia (2016) posited that corruption includes bribery, extortion, and misuse of insider

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information and thrives where policy enforcement is lacking. Omodero and Dandago (2018) opined that corruption could be defined as any form of manipulation of corporate information and accounting data in which investors rely upon to believe in share prices and make investment decisions. Deducing from these literatures, corruption simply means abuse and misused of office or positions for private benefits and the unethical acts that harms individuals or a society.

The extent of corruption in a country according to transparency International (IT) is measured by the corruption perception of index (CPI). Transparency International (TI) Corruption perception index (CPI) is a collective pointer that positions nations in relation to the level of corruption that is observed to occur among public officials and politicians. It is a compound index portraying all corruption-related data from a variety of reputable institutions based on surveys of domestic and international business executives, financial journalists, and risk analysts who are experts and business elites (Omodero & Dandago, 2018). The corruption perception index scale measurement of corruption is 0 to 100 such that a score scale of 0 means that the level of corruption in that country is very high, while 100 is used to depict a country that is very clean. This suggests that country whose CPI is close to zero is termed a corrupt country and another with a CPI rating of close of 100 faces less corruption cases. Transparency International (2014) argued that a poor score is likely a sign of wide bribery, lack of punishment for corruption and weak public institutions that do not respond to citizens' needs.

Transparency International reports have consistently shown that Nigeria is one of the highest ranking countries on corruption index perception. Consequently, Dauda (2019) reported that the 2019 Corruption Perceptions Index (CPI) reported by Transparency International ranks Nigeria 144th and 146th among 180 countries surveyed in 2018 and 2019 respectively. As at January 2021, transparency international ranked Nigeria the second most corruption country in West Africa. The irony is that the country claimed to be the giant of Africa, which by implications, it is supposed to be a model to other countries not in West Africa, but in

the entire continent of Africa. Paradoxically, Dike (2010) observed that Nigeria has had the reputation of being governed by corrupt and visionless leaders since independence and perceived by the world as a bad product because of corruption.

Ogbeide, Nwamaka and Agu (2015) asserted that poverty has multidimensional nature and can be express in terms of deficiency of material income adequate to guarantee good standard of living; hunger and under-nutrition; illness; limited education and fundamental services; persistent rise in mortality and morbidity due to sickness; homelessness and insufficient housing; insecure environments and social exclusion and discrimination. The link between corruptions is can be better explained by way of analyzing its pass-through effects on income of economic agents. Corruption breeds income inequality which is an important factor in analyzing poverty in a country. The Gini index gives information on the distribution of income in a country. Gini index measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. This therefore means that the Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

In economic theory, inequality in income is link to poverty, because a poverty rated society is often associated with high level of income inequality. Corruption can indirectly contribute to poverty by affecting socio-economic, political and administrative conditions (Ildirar & Iscan, 2015). Nwaokugha and Ezeugwu (2017) stated that corruption fans the embers of political and economic instability and consequently makes under development a norm of the society, accelerates the erosion of cherished values upon which a people are known for and speedily frustrates measures and policies targeted at reducing poverty and inequality. Corruption also determines the quality of government services and the shape of public expenditures which mainly dictates the well-being

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of the poor. The existence of corruption in almost every sector of the Nigerian economy has adversely affected both foreign and local investments in Nigeria (Omodero & Dandago, 2018). According to Dauda (2019), one of the reasons economic growth has not translated into poverty reduction in Nigeria is the widespread corruption and political instability which undermine economic progress and widen inequality and poverty gap. This suggests that endemic corruption in Nigeria determines the quality of government services and the shape of public expenditures which mainly dictates the well-being of the poor since it affects the amount households earn as income and what businessmen and investors earn as profits from investment.

THEORETICAL FRAMEWORK

This study is hinged on the policy-oriented theory of corruption developed by Teveik, Albert and Charles in 1986. The policy-oriented theory of corruption basically explains the role of the government in fighting corruption. The theory states that the existence of corruption in both developed or developing countries will always result in a dwindling economy. Consequently, it is the duty of the government to develop policies and strategies to combating corruption and to seriously investigate its effect on all facets of the economy will be of huge benefits. This therefore suggests that corruption in Nigeria as one of the developing economies in the World can affects the economy of Nigeria and one of such negative effects could be rising cases of poverty because when public wealth are mismanaged, diverted or embezzled which is the case in the country, many individuals and households will have limited access to such wealth thereby causing inequality in income and impoverishing many. Thus, in the light of the assumption of this theory, it behooves of the government to initiates and implements policies that can help in curbing this challenge so that poverty can be reduced.

EMPIRICAL REVIEW

Empirical studies have been carried out globally on corruption and poverty related variables. Though variations exist in terms of the

findings of these studies, the consensus in literature is that corruption is endemic in developing countries and in Nigeria, the situation is worrisome. For instance, Bakare (2012) investigated the relationship between poverty and economic growth using the OLS and Gini coefficient to and found that increase in economic growth did not necessarily lead to a fall in poverty and an unequal distribution of income. This study applies to the current research because is captured poverty and income inequality. However, the study failed to explain the link between corruption and poverty which is the aim of this research.

Perera and Lee (2013) investigated the effects of economic growth and institutional quality on poverty and income inequality in nine developing Asian countries; China, Indonesia, Malaysia, Philippines, Thailand, Bangladesh, India, Pakistan and Sri Lanka; over the period 1985-2009. The study used the generalized method of moments (GMM) estimation technique. The results showed that economic growth did not have much impact on income inequality, thus implying that economic growth leads to poverty reduction. Furthermore, improvement in government stability and law and order were found to reduce poverty, while improvement in the level of corruption was found to increase poverty. This study relevant to the current research but its major shortfall is that it cannot effectively explained the situation in Nigeria because used were sourced from other developing countries.

Nwankwo (2014) investigated the impact of corruption on the growth of Nigerian economy, employing granger causality and regression techniques. The study made use of GDP as proxy for economic growth while corruption index was used as the independent variable. The result indicated a negative influence of corruption on the economic growth. The study recommended the formulation of policies that could minimize corruption and poverty hindering the growth of the Nigerian economy. The scholars used economic growth as the dependent variable, not poverty which is captured as the dependent variable in this study. O'Toole and Tarp (2014) examined the effect of corruption on the efficiency of capital investment

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using firm-level data from World Bank Enterprise Surveys which covered 90 developing and transition economies. The findings revealed that bribery decreased investment efficiency such that the negative impact was most robust on small and medium sized enterprises. Again, the use of corruption as a variable suggests that this study is relevant to the present research. However, while the scholar concentrated on analyzing the relationship between corruption and private investment, the emphasis in this research is on corruption and poverty.

Sunkanmi and Isola (2014) studied the relationship between corruption and economic growth in Nigeria. The study made use of Ordinary Least Squares (OLS) technique and time series data spanning from 1980 to 2010 which were gathered from CBN Statistical Bulletin, Anti-graft agencies reports and other secondary sources. The dependent variables were the Foreign Direct Investment, Gross Domestic Product, government expenditure in Nigeria and globalization openness of the economy while the level of perceived corruption was the independent variable used. The study found that corruption had a positive significant impact on economic growth.

Furthermore, Faloye and Bakare (2015) examined the effect of economic growth on poverty level in Nigeria applying time series data from 1999 -2014. The study adopted Ordinary Least Squared. The results revealed that economic growth influence poverty reduction. Gross National Income growth rate, agricultural value added growth rate, export growth rate and real interest rate influence poverty reduction but were not significant statistically. The effect of manufacturing value added growth rate, industrial value added growth rate, service value added growth rate and gross capital formation growth rate did not agree with the *a priori* expectations because they were insignificant. The study recommended the need for huge input in material and human resources, agricultural reforms, industrial sector, manufacturing and service sectors to enable unrestrictive job creation for the unemployed majority. Though the scholars studied poverty, they failed to capture corruption which is important variable in this study.

More so, Fosu (2017) investigated the link between poverty reduction and economic growth using income inequality as the transition mechanism in developing countries. The study applied both regional and country-specific data, with USD1.25 and USD2.50 as the baseline for poverty as seen in the World Bank poverty data. The findings revealed that income growth played a major role in reducing and increasing poverty in developing countries. Poverty was considered important variable in this study, but the scholar did not capture corruption and explained its relationship with poverty and income inequality.

Omodero and Dandago (2018) conducted a study on corruption and stock market performance in Nigeria using time series data spanning from 1996-2016. The study found a significant positive correlation between corruption and stock market performance in Nigeria. The result revealed robust positive and significant relationships between Nigeria corruption ranking, corruption perception index and share price index. The study recommended that the Federal and State governments should formulate more result-oriented policies and rules that could help combat corruption more effectively. This study is relevant to the study on corruption and poverty because it captured corruption. But, it is deficient in the sense that it failed to empirically explain the impact of corruption on poverty.

Ewubare and Okpani (2018) examined the relationship between poverty and income inequality in Nigeria within the period 1980-2017. The study used the OLS, unit root, co-integration, ECM and Granger causality test to analyze the data. The study specifically determined how poverty, unemployment and life expectancy at birth affect inequality in Nigeria. The OLS result further indicated that national poverty index was positively related to inequality but statistically not significant. Unemployment rate was positively related to inequality but not statistically significant at level. The estimated parsimonious ECM result depicts that poverty and unemployment have positive significant relationship with inequality. The Pair wise causality test results revealed a bi-directional causality between poverty and inequality. The study recommended that deliberate effort should be made by government

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to creating employment opportunities so as to combat poverty and inequality in Nigeria. The strength of this study lies on the fact that it incorporated variables like poverty and income inequality. However, it failed of capture corruption, and did not cover time series data for 2019 despite their availability.

METHODOLOGY

The main aim of this study is to examine the effects of corruption on poverty in Nigeria. The study used time series data for a sample period spanning from 1995 to 2019. *Ex-post facto* research design was adopted as a guide based on the fact that the emphasis of the research was on variables that cannot be manipulated since the event had occurred already. This study used secondary and specifically time series data. The time series data were sourced from the publications of the Central Bank of Nigeria and Transparency International website for various years. the Augmented

Dickey-Fuller (ADF) unit root test was used to determine the stationarity of the data since the study follows the single equation modeling approach. In time series econometrics, the first thing to be done after specifying the model is to conduct unit root or stationary test. In order word, the unit roots test is basically required to ascertain the number of times a variable or series has to be differenced to achieve stationarity. Similarly, cointegration test was also conducted to determine the long-run relationship between the variables in the model since they were found to be integrated at first difference,1(1). Nkoro and Uko (2016), opined that cointegration test examines how time series, which though may be individually non-stationary and drift extensively away from equilibrium can be paired such that the workings of equilibrium forces will ensure they do not drift too far apart. Therefore, the Engle-Granger (EG) cointegration test was used because the study follows the single equation modeling approach.

$$POV = f(CPI, CRK, GIN).....(1)$$

Model Specification

The specification of the model here entails the expression of the relationship between the explanatory variables of corruption and poverty mathematically so that the parameters that measure the intercept and slopes of the relationship can be econometrically estimated. Corruption perception index (CPI), corruption ranking (CRK) and income inequality measured by Gini Coefficient (GIN) were considered as explanatory variables of corruption which is the

independent variable, while poverty rate (POV) is the dependent variable. Therefore, the functional specification of the relationship between the explanatory variables and dependent variable is as follows:

The specified functional relationship between the variables can be transform into the Multiple OLS regression modeling approach as follows:

$$LnPOV_t = \beta_0 + \beta_1 \lnPOV_{t-1} + \beta_2 \ln CPI_t + \beta_3 \ln CRK_t + \beta_4 \ln GIN_t + \mu_t.....(2)$$

Where:

- POV_t = Poverty rate in period t
- CPI_t = Corruption perception index in period t
- CRK_t = Corruption ranking in period t
- GIN_t = Gini Coefficient used as a proxy of income inequality in period t

- β₀ = Parameter denoting the intercept of the relationship between corruption and poverty
- β₁-β₄ = parameters showing the slope of the relationship between each explanatory variable

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μ_t = Error or linear stochastic term in time or period t used to capture other explanatory variables of corruption not captured in the model

\ln = Natural logarithm of the slope of each explanatory variable used to harmonized the differences in the unit of measurement associated time series data.

Model Estimation Technique

The study employed the Ordinary Least Square (OLS) Multiple Regression as a modeling used in the studies of Sunkanmi and Isola (2014); Faloye and Bakare (2015) and Ewubare

and Okpani (2018) respectively, with modification of variables and time series data. To obtain the numerical estimates of the model which is the concern of model estimation, the econometric form of the model is expressed as follows:

$$\ln POVi = \beta_0 + \beta_1 \ln POVi_{t-1} + \beta_2 \ln CPI_t + \beta_3 \ln CRK_t + \beta_4 \ln GIN_t \dots \dots \dots (2)$$

The *a priori* expectation is that $\beta_1, \beta_2, \beta_3, \beta_4 > 0$. In order word, a positive relationship is expected between CPI, CRK, GIN and corruption for their coefficients to confirm to economic theory.

run and the long-run relationships in the sense that results indicate the speed of adjustment back to long-run equilibrium after a short run shock. Since the data were found to be integrated at first difference, $I(1)$, the ECM modeling approach was employed as technique for model estimation. Consequently, if the long-run multipliers of the adjustment process to short-run multipliers are denoted by ECM_{t-1} , the Error Correction Model can also be expressed follows:

Error Correction Model (ECM)

The Error Correction Mechanism (ECM) test is necessary in time series regression because it helps to distinguish between the short-

$$\Delta \ln POVi = \beta_0 + \beta_1 \Delta \ln POVi_{t-1} + \beta_2 \Delta \ln CPI_t + \beta_3 \Delta \ln CRK_t + \beta_4 \Delta \ln GIN_t + \lambda_4 ECM_{t-1} + \mu_t \dots \dots \dots (3)$$

Therefore, from equation (3), λ is a parameter that shows the coefficient of speed of adjustment process of the Error Correction Model (ECM).

Ramsey reset Test, heteroscedasticity test (using Breusch-Pagan Godfrey Test), normality (using skewness and Kurtosis), stability test (using CUSUM test) were carried out because they are all residual based. The estimated model was also evaluated by the goodness of fit test (using the adjusted R) square, while the parameters and overall model significance tests were conducted using t-statistic and F-statistic respectively.

Diagnostic Tests

Model diagnostic tests were also conducted to verify the estimates of the ECM model estimated. Thus, serial or autocorrelation test (using the LM test), linearity test, using the

RESULTS:

Table 1: Results of Descriptive Analysis

Variable	POV	CPI	CRK	GIN
Mean	56.52920	19.81920	119.7200	45.26400
Median	55.20000	22.00000	136.0000	45.10000
Maximum	66.90000	28.00000	152.0000	55.50000
Minimum	40.10000	0.690000	52.00000	35.10000
Std. Dev.	6.027450	7.939734	32.37607	5.021195
Skewness	-0.442829	-1.087914	-1.041939	0.325184
Kurtosis	3.669979	3.373276	2.702710	2.611296
Jarque-Bera	1.284648	5.076631	4.615548	0.597988

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Variable	POV	CPI	CRK	GIN
Probability	0.526068	0.078999	0.099482	0.741564
Sum	1413.230	495.4800	2993.000	1131.600
Sum Sq. Dev.	871.9236	1512.945	25157.04	605.0976
Observations	25	25	25	25

Table 2 revealed that poverty (POV) had a mean of 56.53 and standard deviation of 6.02, while Corruption perception index (CPI) had a mean of 19.81 and a standard deviation estimate of 7.94. The results also shows that Corruption ranking (CRK) had 119.72 as its mean value and a standard deviation of 32.37, while Gini coefficient used as a proxy of income inequality had a mean of 45.26 and a standard deviation of 5.02. This implies that all the variables deviate significantly from their mean

value and A CPI mean value of 19.81 also means that Nigeria is a highly corrupt rated country based on the 100 rating for a corrupt free country and zero (0) for a highly corrupt economy. The coefficients of the skewness which shows the asymmetric of the normal curve and coefficients of the Kurtosis for both the dependent and explanatory variables ranges from 0 and 3 which implies that the data were normally distributed.

Table 2: Results of Augmented Dickey-Fuller (ADF) Unit Root Test

Variable	ADF Values	5% Critical Values	Prob.	Order of Integration	Decision
POV	-4.6921	-2.9981	.0012	1(1)	N.S
CPI	-4.5719	-2.9981	.0015	1(1)	N.S
CRK	-4.3629	-2.9981	.0025	1(1)	N.S
GIN	-6.1227	-2.9981	.0000	1(1)	N.S

Note: N.S means non-stationary or unit root only exist at first difference

The findings from the ADF unit root test indicated that the variables were stationary at first difference. In order word, none of the variable shows evidence of station at level, but they proved to be stationary or have unit root at their first difference because it is only at this level that their probability values were less than 0.05 or $p < 0.05$. The series are of the same order of

integration and none stationary. This implies that there is need for cointegration to determine if long-run relationship exists in the model. Again, 1(1) means that the conventional OLS technique of model estimation cannot be applied; hence the motivation for the application of the Error Correction Modeling (ECM) approach for model estimation.

Table 3: Results of Engle-Granger Cointegration Test

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
POV	-4.842313	0.0318	-25.21809	0.0180
CPI	-4.231580	0.0903	-20.29195	0.0968
CRK	-4.452513	0.0627	-22.41751	0.0440
GIN	-5.781127	0.0055	-28.57598	0.0041

From Table 3, it is observed that the Engel-Granger test indicates three cointegrating equation at 5% level of significance. This implies that the study rejected the null hypothesis (H0)

that there is no cointegration or long-run relationship and conveniently accepted the alternative hypothesis of the presence of cointegration or long-run among the variables.

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Table 4: Results of Error Correction Model (ECM) Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.152440	0.719030	-0.212007	0.8344
D(CPI)	0.190466	0.165560	-1.150435	0.0264
D(CRK)	0.034764	0.058446	0.594798	0.5590
D(GIN)	0.408186	0.182158	2.240833	0.0372
ECM(-1)	-0.565538	0.207374	-5.138250	0.0001
R-squared	0.635889	Mean dependent var		-0.708333
Adjusted R-squared	0.559234	S.D. dependent var		4.762470
S.E. of regression	3.161815	Akaike info criterion		5.323222
Sum squared resid	189.9445	Schwarz criterion		5.568650
Log likelihood	-58.87866	Hannan-Quinn criter.		5.388334
F-statistic	8.295457	Durbin-Watson stat		1.834088
Prob(F-statistic)	0.000478			

Table 3 revealed that CPI had a coefficient of 0.190466, with the p-value of 0.0264 or $p < 0.05$, CRK had an estimated value of 0.034764 and a p-value of 0.5590 or $p > 0.05$ and GIN had a coefficient of 0.408186 and p-value of 0.0372 or $p < 0.05$. This implies that the coefficients of CPI and GIN were statistically significant, while CRK was insignificant even though both explanatory variables had positive effects on poverty in Nigeria. Interestingly, since the adjusted R-Square recognizes the influence of the number of included explanatory variables in the model revealed a coefficient of 0.559234, this implies that after removing the influence of the explanatory variables, 55.92 percent of

variation or changes in the dependent variable are explained by variations in the explanatory variables. This means that the model showed good-fit, and is statistically significant since F-statistic had $p < 0.05$. Similarly, the coefficient of the Durbin Watson (D.W) statistics of 1.834088 was not statistically farther away from the traditional rule of thumb of 2.0. This means that there was no sign of serial correlation or autocorrelation in the model specification; hence the assumption of absence of covariance of the error term was not violated. Akaike info criterion (AIC) was selected as the best lag length because it had the smallest coefficient compared to others.

Table 5: Results of Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
CPI does not Granger Cause POV	23	0.37184	0.0394
POV does not Granger Cause CPI		5.53127	0.0134
CRK does not Granger Cause POV	23	1.84284	0.1870
POV does not Granger Cause CRK		1.25233	0.3096
GIN does not Granger Cause POV	23	6.81271	0.0063
POV does not Granger Cause GIN		2.41398	0.1178
CRK does not Granger Cause CPI	23	1.62819	0.2239
CPI does not Granger Cause CRK		3.48117	0.0527

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GIN does not Granger Cause CPI	23	4.80236	0.0213
CPI does not Granger Cause GIN		0.21765	0.8065
GIN does not Granger Cause CRK	23	0.80353	0.4632
CRK does not Granger Cause GIN		1.14090	0.3416

The analysis of causality test in Table 5 revealed that there is a bi-directional causality of relationship between CPI and poverty. This means that CPI affects poverty and Poverty can also affect the coefficient of CPI. However, the findings showed the existence of uni-directional

causality between GIN and poverty as well as GIN and CPI. This implies that an increase in Gini coefficient index which is a measure of income inequality will affect both poverty and corruption perception index, but these variables had no effect on the GIN index.

Table 6: Results of Diagnostic Tests

F-Statistic	Test	Coefficient	Prob.	Decision
Breusch-Godfrey	Serial Correlation	0.086483	0.9175	<i>N.S.C</i>
Breusch-Pagan-Godfrey	Heteroscedasticity	0.656328	0.5880	<i>N.H</i>
Ramsey Reset	Linearity	0.7259	0.7259	<i>L.E</i>

$p > 0.05$

Note: *N.S.C* means no serial correlation, *N.H* means no heteroscedasticity and *L.E* means linearity exist respectively

Table 6 showed that Breusch-Godfrey F-statistic had a coefficient of 0.086483 and a probability value of 0.9175, which means $p > 0.05$. Hence, the null hypothesis of no serial correlation was accepted or retained. This is in conformity with the findings of the Durbin Watson Test in the estimated ECM. This therefore means that the model is not spurious or meaningless economically. Breusch-Pagan-Godfrey F-statistic test had a coefficient of 0.086483 and a probability value of 0.5880 or $p > 0.05$. The null hypothesis of no heteroscedasticity was

accepted or retained which implies that the constant variance assumption of linear regression was not violated. Furthermore, the Ramsey Reset F-statistic of linearity revealed a coefficient of 0.7259 and probability value of 0.7259 or $p > 0.05$. Based on this, the null hypothesis that the model was correctly specified (linear) was accepted. This implies that there exist a linear relationship between the dependent and independent variables, and the model is free from specification errors.

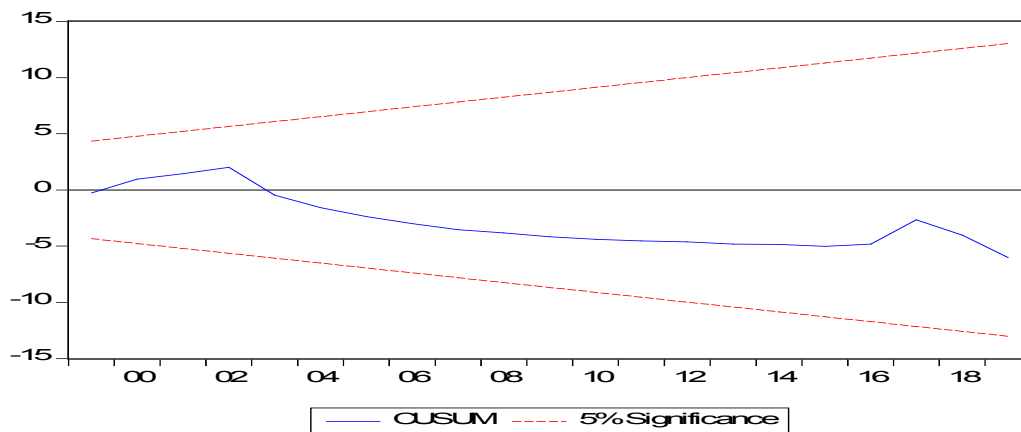


Figure 1: CUSUM plot for parameter stability

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The CUSUM plot in figure 1 revealed that the blue line in the graph fall within the 5% critical bound region represented by the red lines. This implies that the parameters of the estimated model were free from structural instability. This also means that all the estimated coefficients were statistically stable and reliable for policy decisions.

DISCUSSION OF FINDINGS

The finding from the estimated Error Correction Model (ECM) regression analysis revealed that corruption perception index (CPI) had a coefficient of 0.190466 and a probability value of 0.0264. The null hypothesis was rejected and the conclusion drawn is that corruption perception index (CPI) had a significant positive effect on poverty in Nigeria. Thus, $p < 0.05$, means that a unit increase in the CPI leads to a 19.05 percent increase in the rate of poverty in the country. The implication of this finding on poverty in Nigeria is that the increasing level of poverty in Nigeria is attributed to the increasing challenge of corruption in the country. This is conformity with the findings Perera and lee (2013) and Ajisafe (2016) who found in their studies that an increase in the level of corruption was found to increase poverty, but contradicted that of Sunkanmi and Isola (2014) that corruption had a positive significant impact on economic growth which suggests that it has negative effect on poverty since economic growth plays important role in reducing poverty. However, the analysis of the effect of corruption ranking on poverty in Nigeria established that CRK had an estimated value of 0.034764 and a probability value of 0.5590. Since $p > 0.05$, the null hypothesis was rejected and alternative accepted. The study concluded that corruption ranking (CRK) had an insignificant positive effect on poverty in Nigeria since $p > 0.05$. Hence, a unit increases in the corruption ranking of Nigeria will only leads to 3.48 percent increase in poverty rate in Nigeria.

Furthermore, the analysis of the effect of income inequality measured by the Gini coefficient index found that income inequality (GIN) had an estimated value of 0.408186 and a probability value of 0.0372. Hence, $p < 0.05$ and the null hypothesis was rejected and the conclusion is that income inequality had a

statistical positive effect on poverty in Nigeria. This further suggests that a unit increase in income inequality will leads to a 40.82 percent increase in poverty rate in the country. This agreed with the findings of Ewubare and Okpani (2018) study on poverty and income inequality who found that the national poverty index was positively related to inequality but statistically insignificant in Nigeria. More so, the ECM estimates of -0.565538 confirmed the negative property of the error correction mechanism associated with time series linear regression. The result shows that an increase in poverty rates in Nigeria has an automatic mechanism and that poverty in Nigeria responds to deviations from its equilibrium in a balancing manner. An estimated coefficient of -0.565538 for the ECM implies that a fast speed of adjustment of about 55.55% after a short-run shock in the model. The study found a bi-directional causality of relationship between CPI and poverty.

CONCLUSION

This study examined the effect of corruption on poverty in Nigeria. The main finding from conceptual literature is that corruption in Nigeria is pervasive and endemic because it has being on the increase in terms of its frequency and intensity despite efforts made toward curbing it. The findings from this empirical study revealed that corruption perception index and the Gini coefficient index used as measured of income inequality associated with corruption have significant positive effects on poverty in Nigeria, while corruption ranking had an insignificant positive effect on poverty. Based on this, the study concluded that corruption has significant effect on the increasing rates of poverty in Nigeria.

RECOMMENDATIONS

Based on the findings of the study and conclusion drawn, the following have been recommended:

- i. Government should enact and implement policies and programmes that will help in curbing corruption in Nigeria in order to reducing the corruption perception index

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- ii. Government should provide opportunities for citizens to earn more income so as to reducing the level of poverty in the country.
- iii. Government should also adopt fiscal policy instruments that will ensure equality in income distribution so as to reduce the challenge of income equality that causes corruption and poverty.

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*Corresponding author: Liman, S. G. ✉ shaebaliman@gmail.com ✉ Department of General Studies, Abubakar Tafawa Balewa University, Bauchi © 2019 Faculty of Technology Education, ATBU Bauchi. All rights reserved



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