

# Does corruption cause economic growth in Nigeria?

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## Abstract

Corruption has been widespread in Nigeria and it has been identified as one main impediment militating against its rapid growth and development. The consequences of corruption in Nigeria have been extensive and all-embracing and this includes both direct and indirect effects such as economic distortions in tax collection, public expenditure level and composition of government spending as well as inefficiencies and waste. This obliquely scares away foreign and local investors with significant adverse effect on the economy. This study thus, using secondary data, error correction model and granger causality test, investigated the relationship between corruption and economic growth in Nigeria. The findings indicated that there is long-run relationship between the level of corruption and economic growth in Nigeria. Both the Corruption Perception Index (CPI) and Relative Corruption Rank (RCR) has positive but not statistically significant effect on economic growth in the short-run. The Granger Causality test showed that corruption in Nigeria does not granger cause economic growth however economic growth granger causes relative corruption. In contrast, there is the presence of causal relationship from economic growth to Corruption Perception Index.

**Keywords:** Corruption, Corruption Perception Index, Economic Growth, Relative Corruption Rank, Nigeria.

**Jel Classification:** C32, D73, O40.

## 1. Introduction

Corruption exists in the public and private sectors, profit and nonprofit as well as charitable organizations. It subsists both in the developing and developed nations but predominant in the developing countries hence, it remains a symptom of a poorly functioning nation. One major issue with corruption is in its definition. Although, it is difficult to agree on a precise definition, there is a consensus that corruption refers to act in which the power of public office is used for personal gain in a manner that contravenes the rules of the game. Given the effects of corruption in a nation especially as it relates to economic growth, there is a growing worldwide concern over its spread. For instance, highly corrupt nations are always perpetuated with vicious circle of poverty where low rate of saving leads to low incomes levels and subsequently leads to low investment and productivity.

Nigeria was ranked second most corrupt in the world in 2004. In 2005 and 2008, Nigeria was ranked 13th and 17th respectively out of 146 countries by Transparency International Corruption Perception Index. It has been identified as one major obstacle militating against its rapid growth and development. The effects of corruption in Nigeria are felt in the economic, political and social spheres either directly or indirectly. The direct costs of corruption include lost revenue or funds diverted from their intended use, while the indirect costs include economic distortions in tax collection, public expenditure level and composition of government spending; inefficiencies and waste resulting from corrupt practices. As such, corruption affects the flow of foreign direct investment (FDI) and scares away foreign and local investors with significant adverse effect on the economy. According to Ekundayo and Obasaju, (2013), the negative consequences of the prevalent corruption continue to hamper the growth and development of the economy, causing insecurity of lives and property of the citizenry. This is evident from the high rate of capital flight, the several Boko Haram attacks, heightened level of poverty and unemployment. Ezeibe and Oguonu, (2014) stated that corruption in Nigeria takes various forms including favouritism, godfatherism as well as electoral and financial fraud.

Corruption in Nigeria has numerous dimensions which include outright embezzlement of funds from the public institutions and solicitation and acceptance of bribes from individuals seeking services provided by the public from those who administers these services. Furthermore, it manifests in form of abuse of positions and privileges, low levels of transparency and accountability, inflation of contracts, misappropriation or diversion of funds, under and overinvoicing, false declarations, advance fee fraud and other deceptive schemes known as “419”, collection of illegal tolls, commodity hoarding, illicit smuggling of drugs and arm, human trafficking, child labour, illegal oil bunkering, illegal mining, tax evasion, foreign exchange malpractices including counterfeiting of currency, theft of

intellectual property and piracy, open market abuse, dumping of toxic wastes, and prohibited goods (Egunjobi, (2013).

Nigeria remains mired in corruption, crime, poverty, and violence despite the promulgation of several laws like in other countries as the principal mechanism for curbing corruption. The legal instruments used to fight corruption in Nigeria include the Criminal Code, Code of Conduct Bureau, the Recovery of Public Property Act of 1984, the Economic Financial Crime Commissions (EFCC) and the Independent Corrupt Practices and other related Crime Commission (ICPC). Despite all these measures, the corruption trend in the country continued to increase with an alarming rate with the list of corrupt practices in Nigeria as well as the people involved being endless. Manifesting itself in different ways, both on a micro and macro level, and occurring at all levels of society, corruption gives room for diversion of the limited public funds, undermines economic progress and impedes policy changes required for development. On the whole, corruption impedes growth and also erodes the already established economic value systems in Nigeria. This devastated effect of continuous corrupt practices in Nigeria has gone so bad and it is worrisome as several but unsuccessful measures have been put in place to halt the menace. It is a result of these that this study using secondary data from 1996 to 2016 examines the effect of corruption on economic growth in Nigeria as well as determine the causal relationship between corruption and economic growth in Nigeria.

## 2. Literature Review

Corruption is a complex and multifaceted phenomenon with multiple causes and effects, as it takes on various forms and functions in different contexts. The phenomenon of corruption ranges from the single act of a payment contradicted by law to an endemic malfunction of a political and economic system. The problem of corruption has been seen either as a structural problem of politics or economics, or as a cultural and individual moral problem. The definition of corruption consequently ranges from the broad terms of “misuse of public power” and “moral decay” to strict legal definitions of corruption as an act of bribery involving a public servant and a transfer of tangible resources (Jens Chr. Andvig *et al.* 2000).

There is a growing body of literature on corruption system. However, evidence on the effects of such system on economic performance is multidimensional and massive. Among the studies are Mauro (1995, 1997), Tanzi and Davoodi (1997), Rose Ackerman (1999), Mo (2001), De La Croix and Delavallade (2007), d'Agostino *et.al* (2011), Dissou and Yakautsava (2011). Mauro (1997) documents that corruption tilts away public expenditure from growth enhancing projects towards less productivity ones. Similar to Mauro's view, Tanzi and Davoodi (1997) observed that corruption provided an easy route where public funds are freely expended on bribes seeking projects. The conclusion drawn from these studies are quite

instructive and informative. If corruption persists in an economy, public funds would be misallocated and misdirected to growth retarding projects with consequential effects on the quality of public infrastructures. Furthermore, Tanzi and Davoodi (1997) provided evidence on the influence of corruption on public spending. It was observed that corruption provided opportunity for rent-seeking and misallocation of public spending. With the incentives to be gained from corruption, public officers often commit public funds to projects whose exact values are difficult to estimate. More so, the revenue accruable to the government from the project are cornered by the corrupt officers to meet personal needs.

Baliamoune-Lutz and Ndikumana (2007) provided a detailed taxonomy of these channels and the policy implications on growth. They used Arellano Bond GMM technique to analyze the impact of corruption on growth by exploring investment channel. Findings from this study shows that corruption reduces the efficiency of private investment and at the same time raises production costs. Ehrlich, and Lui (1999) examined bureaucratic corruption and endogenous economic growth. Their paper attempts to fill the void through equilibrium models of endogenous growth. They derived “balanced growth” as a balancing act between accumulating human capital, which engenders growth, and accumulating political capital, which mainly assures bureaucratic power. Their analysis focuses on the interplay between investment in these two types of capital and its implications for long-term growth under alternative political regimes. Their analysis indicates that the relationship between government, corruption, and the economy's growth is nonlinear. Government intervention in private economic activity hurts most in the poorest countries and those at a critical takeoff level. This may explain the prevalence of corruption in countries trapped in poverty, such as Zaire and Haiti. It can also explain the unstable growth experience in countries such as Bangladesh, India, and Mexico, where a high degree of past government intervention has contributed to unstable growth experiences. Additionally, their findings indicate that government size may have little impact on the economy's growth rate in the more developed countries. Likewise, the impact of exogenous corruption shocks is expected to be nonlinear, having an adverse effect on the level but not necessarily the rate of growth of per capita income in the more advanced economies.

Evrensel (2010) focused on corruption and growth volatility. They used cross-section dataset comprising of 121 developed and developing countries. They found that in terms of the relationship between the governance-related variables and growth rates, only corruption control and government effectiveness significantly and adversely affect the average growth rate. Regarding the relationship between growth volatility and governance-related variables, the results suggest that higher corruption control, expropriation risk control, government effectiveness, and government consumption decrease growth volatility. Meon and Weill (2010) tried to answer the question: Is Corruption an Efficient Grease? Their paper tests whether corruption may be an efficient grease in the wheels of an otherwise deficient

institutional framework. It analyzes the interaction between aggregate efficiency, corruption, and other dimensions of governance for a panel of 69 countries, both developed and developing. Using two measures of corruption and two other aspects of governance, they found that corruption is less detrimental to efficiency in countries where institutions are less effective. It may even be positively associated with efficiency in countries where institutions are extremely ineffective. They consequently find evidence for the "grease the wheels" hypothesis in its weak and strong forms.

Hanousek and Kocenda (2011) study was on Public Investment and Fiscal Performance in the New EU Member States. They analyzed the dynamics of public investment and public finance in the new members of the European Union, and also how they were affected by changes in economic freedom and corruption. They found that improvements in economic freedom tend to be associated with increases in public investment, while reductions in corruption produce effects going in both directions. They showed that increases in public investment are often linked with decreases as well as increases in corruption. Thus, they opined that as a general rule, steps aimed at reducing corruption and the degree of economic regulation should lead towards improvements in the fiscal position of most of the new EU countries. Ahmad, Ullah, and Arfeen (2012) investigated whether corruption does affect economic growth. They used panel data from the International Country Risk Guide corruption index, institutional quality and political stability indices and several state variables for 71 developed and developing countries. Their paper explored the linear quadratic empirical relationship between corruption and economic growth and their analysis was based on the generalized method of moments estimation. Their study found that a decrease in corruption raises the economic growth rate in an inverted U-shaped way. Furthermore, their study showed demonstrated the statistical importance of corruption in the development of a robust model that explains real GDP per worker. They also analyzed some of channels through which corruption hinders economic development like reduced domestic investment, reduced foreign direct investment, overblown government expenditure, distorted allocation of government expenditure away from education, health, and the maintenance of infrastructure and towards less-efficient public projects that provide more scope for manipulation and bribe-taking opportunities.

Adewale, (2011) investigated the crowding out effects of corruption in Nigeria using parsimonious error correction mechanism and employed experimental research design approach for the data analysis and revealed that there is a negative relationship between corruption and output growth in Nigeria. The implication of this is that Nigeria government should introduce a national re-orientation program to educate people on the crucial need to eradicate corruption in all sectors of Nigeria economy and socio-political system. Akinpelu, Ogunseye, Bada and Agbayangi (2013) examined the Socio- Economic Determinants of corruption in Nigeria using co-integration test and vector error correction model. The study

discovered that there is a long-run relationship between conception and the social economic variables in Nigeria. This study fails to establish the level of relationship like whether significant positive or negative relationship which has policy implication in the short and long run. Ade, Babatude and Awoniyi (2011) in their study of Corruption, foreign direct investment and Economic growth in Nigeria employed granger causality test and Ordinary Least Square Method in testing FDI inflow, corruption index, Exchange rate, Inflation rate, GDP for model one. For the second model, the variables are Gross Domestic Product, Government Expenditure, FDI and Gross fixed capital formation. The OLS result reveals that there is an inverse relationship between FDI inflow and corruption. This means that a large volume of FDI inflow is associated with a low level of corruption in the host countries. Exchange rate depreciation and inflation rate are significant determinations of FDI inflow in Nigeria. Also, there is a significant position.

The evidence from the literature shows that studies found different effects of corruption on economic performance. For instance, some studies found that corruption helps to overcome cumbersome bureaucratic constraints, inefficient provision of public services, and rigid laws especially when countries' institutions are weak and function poorly, thus corruption is a 'grease the wheels' instrument for economic growth. Some studies find that corruption only reduces economic performance while some find ambiguous effects of corruption with respect to public finances.

### 3. Methodology and Data

#### 3.1 Model Specification

Based on the findings from the literature review, the effect of the impact of corruption on economic growth in Nigeria will be done using the model as specified below. Basically, the functional form of the model is given by

$$\text{Economic Growth} = f(\text{corruption}) \quad \dots \quad (1)$$

The explicit form of equation 1 is stated as:

$$RGDP_t = \beta_0 + \beta_1 CPI_t + \beta_2 RCR_t + U_t \quad \dots \quad (2)$$

The semi log form of equation 2 is given by

$$\log RGDP_t = \beta_0 + \beta_1 CPI_t + \beta_2 RCR_t + U_t \quad \dots \quad (3)$$

Where;

RGDP = Real Gross Domestic Product as a proxy for Economic Growth

CPI = Corruption perception Index

RCR = Relative Corruption Rank

Log = Logarithm of variables

$\beta_0, \beta_1, \beta_2$  = Parameters to be estimated.

$U_t$  = Error term

$t = 1996 - 2016$

Real gross domestic product (GDP) is an inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year, expressed in base-year prices, and is often referred to as “constant-price”, “inflation-corrected GDP” or “constant dollar GDP”. The Corruption Perceptions Index (CPI) scores countries on how corrupt their governments are believed to be. It is published by Transparency International, an organization that seeks to stop bribery and other forms of public corruption. A country's score can range from zero to 100, with zero indicating high levels of corruption and 100 indicating low levels. While the Corruption Perceptions Index ranks countries and territories based on how corrupt their public sector is perceived to be. A country or territory's rank indicates its position relative to the other countries and territories in the index. This implies that the higher the relative corruption rank, the higher the level of corruption in that country. Equation 3 is estimated using the Error Correction Model (ECM). This enables doing a unit root and Cointegration test, also the Granger Causality test will be carried out.

### 3.2 Estimation Techniques

Based on the nature of this study, both Descriptive Statistics and econometric analysis was utilized. The descriptive statistics made the use of graphs to describe the trend of corruption and economic growth in Nigeria for the period covered by this study. It also made use of some statistical tools like standard deviation, skewness, kurtosis, probability, maximum and minimum on the data that was used for the study's analysis. The econometric analysis included the unit root test using the Augmented Dickey-Fuller test, Co-integration test (employed to investigate the long run relationship between corruption and economic growth in Nigeria) and the error correction model. The causality between corruption and economic growth was done.

The Unit Root Test involved testing for the stationarity of the individual variables using the Augmented Dickey Fuller (ADF) test to find the existence of unit root in each of the time series. When time series data is characterized by a unit root or is non-stationary, regression analysis conducted in a conventional way yield spurious regression results which will be indicated by high value of  $R^2$  with a low value of Durbin Watson statistic. The Co-integration test was carried out in order to determine the long-run relationship between the dependent and independent variables when one or all of the variables is/are non-stationary at level which means they have stochastic trend. The Error Correction Models are theoretically-driven approach useful for estimating both short-term and long-term effects of one time series on another. The term error-correction relates to the fact that last-period's deviation from a long-run equilibrium, the error, influences its short-run dynamics. Thus ECMs directly estimate the speed at which a dependent variable returns to equilibrium after a change in other

variables. The Granger Causality was done to investigate whether there exists a causal relationship between corruption and economic growth and if there exists such relationship, is it a unidirectional or bilateral causality and also what is the direction of causality? The study tries to find out if corruption determines the direction and likely future occurrence of economic growth.

In Granger's test, Granger causality relationship is expressed in two pairs of regression equations by simply twisting the independent and dependent variables. Therefore, from equation (1), the model specification on causality between corruption and economic growth is specified below;

$$\text{CPI} = \text{RCR} = \text{RGDP} = 0$$

$$CPI_t = \mu + \sum_{i=1}^n \lambda RCR_{t-1} + \sum_{i=1}^n \pi RGDP_t + \sum_{i=1}^n \gamma CPI_{t-i} + U_t \quad \dots \quad (6)$$

Where:

RGDP = Real Gross Domestic Product

CPI = Corruption Perception Index

RCR = Relative Corruption Rank

Equation (4) postulates that gross domestic product is related to the past values of itself as well as that of corruption and vice-versa for equation (5). Unidirectional causality from corruption to gross domestic product is indicated if the estimated coefficient on the lagged corruption in equation (5) is statistically different from zero as a group (i.e.  $\sum_{i=1}^n \gamma_i \neq 0$ ).

Bilateral causality exists when corruption and gross domestic product coefficients are statistically different from 0 in both regression.

### 3.3 Data Type and Sources

Annual time-series data for the period 1996 to 2016 was used for the study and they were sourced secondarily from publications of the Central bank of Nigeria (CBN Statistical Bulletin and CBN Annual Reports) and Transparency International (Corruption Perceptions Indexes). The choice of the study period is based on the fact that corruption in Nigeria is perceived to be legitimized especially during this period. This was manifest in terms of huge

but wasteful government spending with nothing to show in terms of physical developments. Furthermore during this period, the culture of corruption was highly imbedded in the economy while the settlement syndrome became part of the country's political culture.

## 4. Result Presentation and Analysis

### 4.1 Descriptive Statistics

Table 4.1 shows the statistical distribution of the variables used in the study. The Jarque-Bera statistics of LRGDP, CPI and RCR have the probability values of 0.390834, 0.442393 and 0.16684 respectively and are statistically insignificant. Hence, the null hypothesis that LRGDP, CPI and RCR follow a normal distribution is accepted.

**Table 4.1:** Descriptive Statistics

	<b>LRGDP</b>	<b>CPI</b>	<b>RCR</b>
<b>Mean</b>	10.56901	20.31905	119.1429
<b>Median</b>	10.59652	22	134
<b>Maximum</b>	11.14221	28	152
<b>Minimum</b>	9.960714	9.6	52
<b>Std. Dev.</b>	0.425314	5.92888	30.51112
<b>Skewness</b>	-0.10491	-0.38256	-1.00532
<b>Kurtosis</b>	1.54971	1.869192	2.775452
<b>Jarque-Bera</b>	1.878943	1.631113	3.581435
<b>Probability</b>	0.390834	0.442393	0.16684
<b>Sum</b>	221.9493	426.7	2502
<b>Sum Sq. Dev.</b>	3.61784	703.0324	18618.57
<b>Observations</b>	21	21	21

Source: Authors' computation.

Figure 4.1 above shows the trend of Corruption Perception Index (CPI) over the years. The y-axis shows the value of CPI while the x-axis shows the years under study. Critical evaluation showed that Nigeria's corruption perception index exhibited an upward trend over the years under study. It shows a very low value of about 0.1 at the beginning of the period under study, and thereafter fluctuated. There was a sharp increase in 1996 from 0.1 to about 1.7 in 1999. CPI recorded its lowest value of 0 in 2001. CPI maintained an increasing trend till it reached its highest value of about 2.7 in 2009. It fell to about 2.4 in 2011, but later recovered and fluctuated till the end of the period under study.

**Figure 4.1:**Trend of Corruption Perception Index

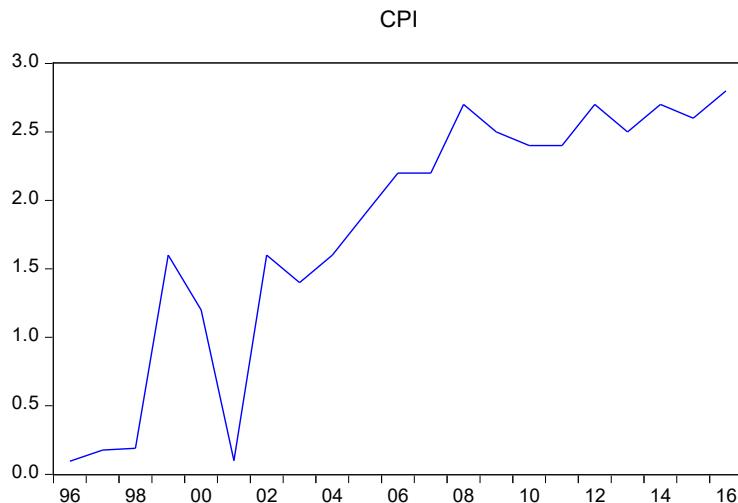
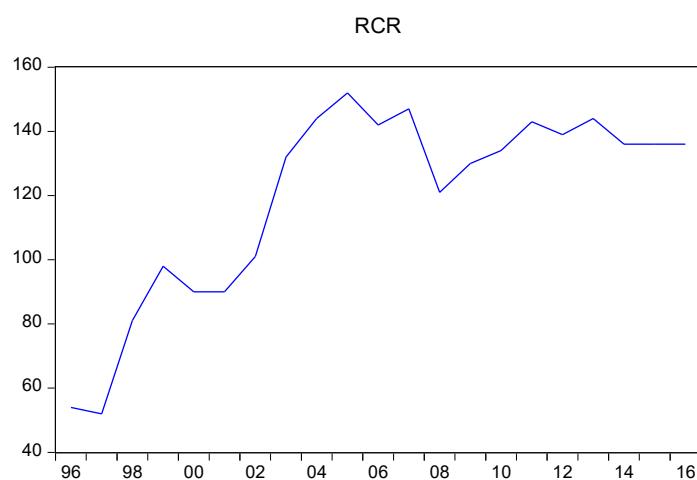
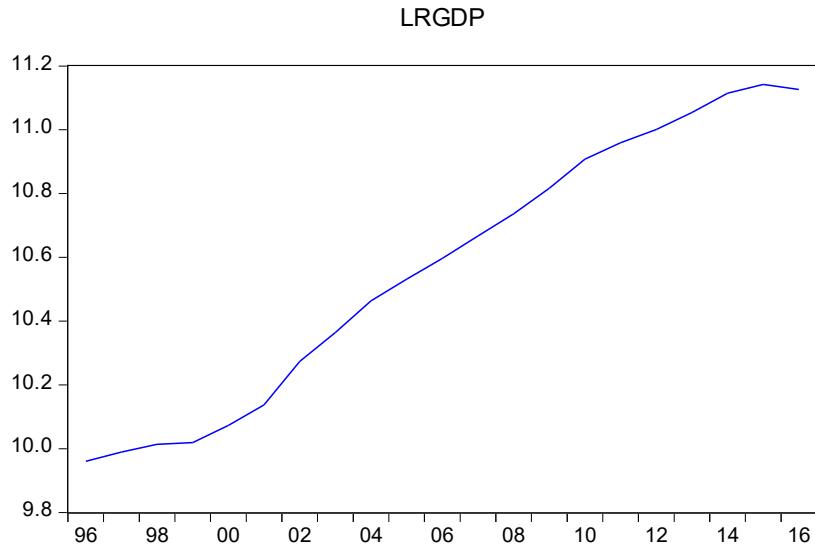


Figure 4.2 above shows the trend of Relative Corruption Rank (RCR) over the years. The y-axis shows the value of RCR while the x-axis shows the years under study. Relative Corruption Rank (RCR) had its lowest value of 50 at the beginning of the year under study which is 1996. It increased rapidly to 99 in 1999 and fluctuated until 2001. It increased persistently to 150 in 2005 which is the highest during the period under study. It decreased afterwards to about 120 in 2008 and increased to about 141 in 2011. It then increased persistently until the end of the period under study. Figure 4.3 above represents the trend of Real Gross Domestic Product in Nigeria during the period under study. The y-axis shows the value of RGDP while the x-axis shows the years under study. Real Gross Domestic Product experienced almost a uniform growth for about a decade. From 2000 onward, Nigeria's output continues to rise till the end of the period under study.

**Figure 4.2:Trend of Relative Corruption Rank**



**Figure 4.3:Trend of Real Gross Domestic Product**



## 4.2 Estimation Results

### 4.2.1 Unit Root Test

The unit root test is a highly persistent time series process where the current values comprise of the last period's value and dependent disturbance. Examination of the properties of time series before analyzing the relationship between variables of interest have been held in a position of prominence because of the challenges that non stationarity series present in regression analysis. Literature established that Ordinary Least Square (OLS) regression estimate will yield spurious results if data with unit roots are employed. Hamilton (1994), specifically conceive that insufficient accounting for unit roots can lead to result which may appear to be significant and meaningful but in reality are meaningless and insignificant. Therefore in order to avoid spurious results in this study we carried out the stationarity test of the variable of interest in this working using Augmented Dickey Fuller test for unit roots.

**Table 4.2: Unit Root Test Results**

Variables	Augmented Dickey Fuller			
	At Level	First difference	Second Difference	Order of Integration
<b>CPI</b>	-2.432786 ( 0.1473)	-6.111939 (0.0001)		I (1)
<b>LRGDP</b>	-0.670492 (0.8326)	-1.507950 (0.5080)	-4.392771 (0.0034)	I(2)
<b>RCR</b>	-1.712269 (0.4078)	-3.854215 (0.0095)		I(1)

Author's computation, 2018.

As depicted in Table 4.2, both corruption perception index (CPI) and Relative Corruption Rank (RCR) are integrated at first difference I(1), while Real GDP is integrated at second difference I(2). We therefore reject the null hypothesis at this level. Conclusively, once the unit root test reveals a combination of stationarity of variables at level I(1) and I(2) across both the dependent and independent variables, we proceed to difference I(2) twice and I(1) once then run Ordinary Least Squares (OLS) Regression.

#### 4.2.2 Cointegration Test

A cointegration test was carried out to determine the long run relationship between corruption and economic growth. This test was carried out with after the first difference of the I(2) variable. This test becomes necessary as the estimation of Ordinary Least Square (OLS) Regression yielded a low R-squared value which was not desirable.

**Table 4.3:** Cointegration Test Results

Sample (adjusted): 1999 2016  
 Included observations: 18 after adjustments  
 Trend assumption: Linear deterministic trend  
 Series: DLRGDP CPI RCR  
 Lags interval (in first differences): 1 to 1

#### Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.635443	35.09137	29.79707	0.0112
At most 1 *	0.466230	16.92807	15.49471	0.0302
At most 2 *	0.268500	5.627849	3.841466	0.0177

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

The results of the cointegration test, as contained in Table 4.3, show that there are three cointegrating equations. This indicates that there exists a long run relationship among the variables. The study therefore conducted an error correction mechanism (ECM).

#### 4.2.3 Error Correction Model (ECM) Analysis

The ECM proposed by Engle and Granger is a technique of analyzing the short term behavior of a variable with its long term behavior over the time. If the economic variables are found to be cointegrated with each other, the disturbances from the long-run regression can be applied to empirically estimate the error correction model and to examine the long-run plus short-run

effects of the economic variables and to notice the adjustment coefficient. The numerical result of the error correction model for this study is given below in Table 4.4.

**Table 4.4: ECM Test Results**

Dependent Variable: D(LRGDP,2)  
 Method: Least Squares  
 Date: 08/10/18 Time: 12:42  
 Sample (adjusted): 1998 2016  
 Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CPI)	0.000899	0.002559	0.351528	0.7301
D(RCR)	0.000162	0.000610	0.265349	0.7944
ECT(-1)	-0.560995	0.286491	-1.958156	0.0691
C	-0.001808	0.007258	-0.249085	0.8067
R-squared	0.239313	Mean dependent var	-0.002337	
Adjusted R-squared	0.087176	S.D. dependent var	0.029960	
S.E. of regression	0.028624	Akaike info criterion	-4.084477	
Sum squared resid	0.012290	Schwarz criterion	-3.885648	
Log likelihood	42.80253	Hannan-Quinn criter.	-4.050827	
F-statistic	1.573010	Durbin-Watson stat	1.509944	
Prob(F-statistic)	0.237379			

From Table 4.4 above, coefficients of corruption variables indicate the short-run elasticity estimates or short-run coefficients. The estimated results show that in the short-run CPI and RCR has positive effect on economic growth (LRGDP). In the same vein, both variables (CPI and RCR) are not statistically significant in their effect on LRGDP with t-statistics probability values of 0.7301 and 0.7944 respectively. That is, a unit increase in CPI will cause LRGDP to increase insignificantly by 0.000899 percent, and a unit increase on RCR will cause LRGDP to increase insignificantly by 0.000162 percent. The result confirms the negative sign of ECT and was found to be statistically significant at 10 percent level of significance which gives validity to the existence of equilibrium linkage between corruption and economic growth. The speed of adjustment from prior year's disequilibrium in LRGDP return is 56 percent annually.

#### **4.2.4 Causality Test**

The third objective of the study looks at the causal relationship between corruption (CPI and RCR) and Economic Growth (LRGDP) in Nigeria. The causality test result is presented in Table 4.5.

**Table 4.5:** Granger Causality Test Results

Pairwise Granger Causality Tests

Date: 08/10/18 Time: 12:55

Sample: 1996 2016

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
CPI does not Granger Cause LRGDP	19	1.34985	0.2910
LRGDP does not Granger Cause CPI		5.27926	0.0196
RCR does not Granger Cause LRGDP	19	1.16415	0.3407
LRGDP does not Granger Cause RCR		6.51726	0.0100
RCR does not Granger Cause CPI	19	2.27294	0.1397
CPI does not Granger Cause RCR		3.22342	0.0706

Table 4.5 above shows the results of the granger causality test. The F statistic of causality from CPI to LRGDP is 1.34985 with a probability value of 0.2910. The null hypothesis is therefore accepted, and we infer that corruption in Nigeria does not granger cause LRGDP, which is a proxy for Economic Growth. In contrast, there is the presence of causal relationship from LRGDP to CPI, with F statistic 5.27926 and probability of 0.0196. Thus, LRGDP granger causes CPI. The granger causality test also showed only RCR does granger cause LRGDP with F-statistic value of 1.16415 and probability value of 0.3407. However, log of Real Gross Domestic Product (LRGDP) granger causes RCR with F statistic value of 6.51726 and probability value of 0.0100.

## 5. Conclusion

The study investigates the relationship between corruption and economic growth in Nigeria using Real Gross Domestic Product (RGDP) as proxy. The descriptive statistics result indicate that the variables of interest in this study follow a normal distribution. The trend analysis showed that Nigeria's corruption perception index exhibited an upward trend over the years under study while the Corruption Perception Index (CPI) and Relative Corruption Rank (RCR) maintained a fluctuating trend while the Real Gross Domestic Product experienced almost a uniform growth for about a decade. The results from the Error Correction Mechanism showed that coefficients of the corruption variables indicate short-run elasticity estimates. Furthermore, in the short-run CPI and RCR had positive but not statistically significant effect on economic growth (LRGDP). This implies that a unit increase in CPI and RCR will cause an insignificant increase in the LRGDP. The result confirms the negative sign of ECT and was found to be statistically significant which gives validity to the

existence of equilibrium linkage between corruption and economic growth. The speed of adjustment from prior year's disequilibrium in LRGDP return was 56 percent annually. The Granger Causality test, showed that corruption in Nigeria does not granger cause economic growth. In contrast, there is the presence of causal relationship from economic growth to CPI. The granger causality test also showed that RCR does granger cause economic growth, however, log of Real Gross Domestic Product (proxy for economic growth) granger causes RCR. The empirical analysis thus reveals that there is long-run negative relationship between the level of corruption and economic growth in Nigeria. The implication of this is that the Nigerian economy cannot grow fast enough without reduced level of corruption.

Conclusively, this study found that corruption has insignificant impacts on economic. Although the cost on the economy may not be too high on the economic growth, it will, no doubt have retarding effect on its development and on the good will of the nation at large. The causal relationship of the variables shows that corruption affects economic growth, and since the relationship is negative, it becomes imperative that the identified causes and problems of corruption setting back the economy over time must be seriously identified and tackled. Based on this, it is recommended that the Nigerian government should further enhance its fight against corruption. The government should strengthen the ability of the anti-graft agencies and make them independent from the influence of political elites as well as the government officials so that these agencies will be able to perform their functions without the influence of the government and will not be seen as a witch hunting agencies of the government. They, the anti-graft agencies, should be equipped technologically with the database information of Nigerians which can always be updated in order to encourage accountability of earnings and spending of Nigerians. The government should be ready to take a bold step to serve as an example by practicing good governance, transparency, accountability with economic issues so that Nigerians will begin to believe in the system of government. Unnecessary government spending on duplication of offices, and bureaucracies should be reduced to its bearable minimum. The fund should be used for developmental purpose to foster equal distribution of incomes and the execution of developmental capital projects. Furthermore, all the stakeholders within the economy should be educated about the problems that corrupt practices create for the economy and the society at large and be discouraged from participating in corrupt practices.

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## Appendix

Null Hypothesis: CPI has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic - based on AIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.432786	0.1473
Test critical values: 1% level	-3.857386	
5% level	-3.040391	
10% level	-2.660551	

Null Hypothesis: D(CPI) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on AIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.111939	0.0001
Test critical values: 1% level	-3.857386	
5% level	-3.040391	
10% level	-2.660551	

Null Hypothesis: LRGDP has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.670492	0.8326
Test critical values: 1% level	-3.808546	
5% level	-3.020686	
10% level	-2.650413	

Null Hypothesis: D(LRGDP) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.507950	0.5080
Test critical values: 1% level	-3.831511	
5% level	-3.029970	
10% level	-2.655194	

Null Hypothesis: D(RCR) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.854215	0.0095
Test critical values:		
1% level	-3.831511	
5% level	-3.029970	
10% level	-2.655194	

Null Hypothesis: D(LRGDP,2) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.392771	0.0034
Test critical values:		
1% level	-3.857386	
5% level	-3.040391	
10% level	-2.660551	

Null Hypothesis: RCR has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic - based on SIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.712269	0.4078
Test critical values:		
1% level	-3.886751	
5% level	-3.052169	
10% level	-2.666593	