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The Impact of Corruption on Economic Growth in Nigeria

Muftau Olaiya Olarinde (Corresponding author)

Department of Economics, Usmanu Danfodiyo University, Sokoto, Nigeria

E-mail: olarinde.muftau@udusok.edu.ng

Jacob Msonter Jonathan

Department of Economics, Usmanu Danfodiyo University, Sokoto, Nigeria

E-mail: jonathanmjacob15@gmail.com

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Abstract

This study empirically analyses the impact of corruption on economic growth in Nigeria, using time series data for the period 1980-2015 analyzed through the ARDL technique. The result of the Bound test confirmed the existence of Cointegration among the variables. The ARDL results revealed that corruption has a significant negative influence on economic growth both in the short run and long run. It was further confirmed that external debt, agricultural output, and human capital development positively impact growth while FDI and inflation rate endanger growth, in both the short and long run. The result of the interacting term revealed the damaging influence of corruption on the positive impact of human capital expenditure and external debt on economic growth. Based on the findings of the study, it is obvious that achievement of growth that is sustainable will remain elusive in a corrupt environment. The study, therefore recommends that government should strengthen the activities of the anti-corruption agencies in Nigeria to reduce the rate of corruption.

Keywords: corruption, economic growth, Nigeria, ARDL

1. Introduction

The focus of most Nigerian policymakers has been on formulating policies that would help to revamp the economy from the devastation caused by civil war since independence back to a growth path. As a result, several policies and programs such as Import Substitution Industrialization Strategy (ISIS), Structural Adjustment Policy (SAP) Vision 20:20:20 among others, have been put in place in this regard, but the high level of corruption and crises have been militating against their positive impact and meaningful results (Sanusi, 2002). A developing country like Nigeria needs to effectively and efficiently manage its available resources, avoid all forms of corruption, misallocation, and mismanagement of resources and ensure a friendly platform for all forms of business operations. Unfortunately, greediness, bribery, kickbacks, among others, have been engraved in the minds of public office holders, thereby denying millions of Nigerian's access to opportunities and limiting the country from being a major player in the global economy (Ozoh, 2012).

In Nigeria, a reasonable proportion of income is usually allocated to various sectors such as power, road infrastructure, communication, education, and among others annually, but the expected impact is highly discouraged, due to the diversion of funds for personal use (Pillary, 2013). This is the reason behind the conclusions reached by the Economic and Financial Crime Commission (2005) that corruption is a deadly disease that has eaten deep into the fabric of the nation and as such has hindered growth in all facets and dimensions of different sectors.

Over the years, a lot of efforts have been made in Nigeria towards tackling corruption, which led to the establishment of bodies such as the Independent Corrupt Practices Commission (ICPC) and Economic and Financial Crime Commission (EFFC) among others in 2003. The establishment of these bodies has not helped in reducing the rate of corruption in Nigeria.

Although, the rate of growth experienced a remarkable increase. For instance, between 2003 and 2004, the country still ranked 132 out of 133 and 144 out of 145 countries respectively (Transparency International, 2018).

There are two divergent ideologies on the effect of corruption on economic growth. The first school of thought believes that corruption triggers economic growth because corruption acts like oil that greases and facilitates the engine of economic growth as it helps government officials to make the process of project approval more efficient (Leff, 1964; Huntington, 1968 and Acemoglu and Verdier, 1998). The other school of thought asserts that corruption retards economic growth and distorts markets' allocation of resources (Krueger, 1974; Myrdal, 1968; Mauro, 1995). Previous empirical studies looking at corruption and economic are bound (Adofu, 2010; Kamel, 2014; Ajie and Oyegun, 2015; Muntasir and Farzana, 2018) have provided evidence in support of each of the theoretical positions on the role of corruption on growth. One shortcoming associated with these studies is the adoption of the corruption perception index as a proxy for corruption. The corruption perception index (CPI), has become increasingly controversial and has been subject to many criticisms both on account of its methodology and the use to which it has been put (see, for instance, Razafindrakoto and Roubaud, 2006; Thomas 2007; Weber 2007; de Maria 2008; Andersson and Heywood, 2009; Hawken and Munck 2009) The criticism has been it measures perceptions rather than, for example, reported cases, prosecutions or proven incidences of corruption. This study attempted to correct this shortcoming by using both CPI and Freedom from Corruption (FFC) index developed by the Heritage Foundation. It is against this background that the research intends to empirically analyze the impact of corruption on Nigeria's economic growth spanning a period of 1980 through 2015. This is highly important for policymakers in developing economies considering their efforts towards fighting corruption. The research would also be of great importance to researchers, students, policymakers, and the entire general public by throwing more light on the effect of corruption on the economic growth of Nigeria, causes of corruption and measures to combat corruption. It is also worthy to note that, most studies that analyzed the effects of the impact of corruption on economic growth are based on a theory with little or no emphasis on empirical facts. It is the realization of this fact that this study attempts an empirical analysis of the impact of corruption on Nigeria's economic growth.

2. Conceptual and Empirical Reviews

The concept of economic growth has been used synonymously with economic development and associated with things as growth in population, development of resources, technological advancement and increasing capital formation (Awoniyi et al 2011). Economic growth means growth in the level of output produced by a country over a certain period. It is a useful measure of the economic performance of a country. The performance here means the degree of correspondence between actual output and maximum output that could be realized given the pattern of demand all the resources and the most advanced technology available were used to full advantage. (Olamade, 1999; Akpihi, 2010). The growth of any economy can be endangered or encouraged by corruption, according to theories. Corruption consists of several elements,

including deceit, trickery, cheating, international deception, dishonesty and the conscious, premeditated action of a person or group of persons to alter the facts of a matter or transaction for selfish or personal gains (Ogunde and Opeifa, 2004). World Bank (2004) and Adewale, (2011) conceptualized corruption as an act of diverting the resources that should have been used for developmental purposes of the society to private or personal use. An act of corruption can be categorized into different types some of which are; political, electoral, and bureaucratic corruptions (Taylor, 2010). Any of these types can be perpetuated through any of these forms' bribery and fraud, embezzlement, extortion, favoritism, and nepotism among others.

There are two divergent ideologies on the concept of corruption. The first group believes that corruption enhances economic growth. To the proponents of this view, they argued that corruption introduces efficiency in the economy and influences economic growth positively. Corruption works like pieces' rate pay for bureaucrats, which induces a more efficient provision of government services, and provides a leeway for entrepreneurs to bypass inefficient regulations (Leff, 1964; Huntington; 1968; Acemoglu and Verdier, 1998). To this school of thought, corruption allows business actors to work around pervasive and inefficient bureaucratic procedures, reducing some of the adverse effects of red tape, thus corruption acts as a lubricant that smooth operations and, hence raise the efficiency of an economy. This view is further supported by the policy-oriented theory of corruption. The theory was developed by Tevei et al. (1986), in explaining the role of government in fighting corruption. The theory opines that a high level of corruption in any country, whether developed or developing would not allow the country's economy to grow and that when the field of administrative corruption is to become more theoretical and less descriptive, it must develop a framework and methodology that would help to measure its effect on economic growth.

The second group claims that corruption hinders economic growth and distorts markets and the allocation of resources as explained in rent-seeking theory. Rent- seekers theory was propounded by Krueger (1974), Tullock (1967, 1990). This theory takes a cue from the traditional theory of imperfect market structures in which a monopolist derives his rent-maximization at the expense of a reduction of the consumers' welfare. The act of the monopolist, in this manner, reduces the socio-economic welfare of the society or nation. A competitive market facilitates rent-seeking activities and several economic agents compete to obtain rent from the groups, but only a few agents achieve their goal with the consequence of waste of economic resources like allocating highly talented human capital to unproductive economic activities. In a society where rent-seeking activities prevail, labour remuneration could be based on the relative power of certain groups within society rather than labour productivity. From the standpoint of economic equity, income redistribution sponsored by rent-seeking activity would reward the power of influence, rather than merit and capacity. Corruption in this form creates cost and inefficiency. For this study, the policy-oriented theory of corruption will be adopted as its theoretical underpinning because the theory has wider applicability, the theory also permits the inclusion of policy variables including corruption.

Numerous empirical studies are looking at the relationship between corruption and economic growth. For instance, Egunjobi (2013) empirically investigated the impact of corruption on economic growth in Nigeria on an annual time series data from 1980 to 2009 using regression. Also, the granger causality test and impulse response function were carried out. The empirical results revealed that corruption per worker exerts a negative influence on output per worker. Furthermore, the study revealed that there is a one-sided causality where the direction of influence runs from output per worker to corruption per worker. Kamel (2014) examines determinants of economic corruption in a panel of twenty-one Arabs countries between 2005 and 2010. In the study, the corruption Perception Index (CPI) was considered as a dependent variable, while the Human Development Index (HDI), Index of Economic Freedom (IEF), and inflationary rate (IFL) are used as independent variables. The result of the study shows that the Human Development Index (HDI) Index of Economic Freedom (IEF) and Inflation Rates (IFL) were statistically significant. The coefficient of the dependent variable is positive which means that when the Human Development Index (HDI), and Index of Economic Freedom (IEF) rise, the corruption Perception Index does also, and vice versa. The negative coefficient means that if the inflation rate rises, the Corruption Perception Index decreases. This means that inflation causes corruption in Arabs countries.

Muntasir and Farzana (2018) investigate the elasticities of socioeconomic and environmental development indicators, concerning corruption and other macroeconomic fundamentals using annual data from 2000 to 2015. The findings of the study show that corruption has a negative relationship with socioeconomic development across the Asian, African, and LAC subpanels. -In addition, corruption negatively affects environmental development in the context of the Asian and African sub-panels while positively affecting the context of the LAC sub-panel. The study also found short-run bidirectional causality between corruption and socioeconomic development in the context of all the countries. Aliyu and Elijah (2008) investigated the impact of corruption on economic growth from 1986-2007. The results showed that corruption has a significant negative effect on economic growth. The study also found that corruption exerted a negative impact on both human capital development and total employment, but it has positive impacts on government capital expenditure. The positive effect of corruption on capital expenditure was however not surprising because public expenditure figures would always be inflated to siphon or embezzle a reasonable proportion of the total value. The findings of the study further discovered that corruption has both direct and indirect negative effects on economic growth in Nigeria. Rotimi et al (2013) examined the relationship between corruption and economic growth in Nigeria The study used the ordinary least squares (OLS) to determine the relationship between corruption and economic growth. The results revealed that corruption impairs and impacts economic growth negatively.

Ajie and Oyegun (2015) investigated corruption and economic growth in Nigeria from the period of 1996-2013. The findings of the study show that a significant negative relationship exists between corruption and economic growth (GDP) within the period covered by the study. It's

also established fact from the findings of the study that corruption affected the potential growth ability of the country to the extent that over 19.39 billion dollars in GDP were lost. The study also examined the magnitude of the impact of corruption on the economy of Nigeria and found out that Corruption Perception Index (GDP) the proxy for corruption has been seriously affecting the polity of Nigeria and hampering development proxy by Nigeria's GDP to the tune over 19. 39 billion dollars reduction in GDP on average. The study, therefore, concludes that corruption has negatively affected economic growth in Nigeria under the period covered by the study.

Shuaib et al. (2016) examined the impact of corruption on the growth of the Nigerian economy using time series data from 1960 to 2012. From the results of the findings, it was discovered that corruption has an inverse relationship with the growth of an economy. The study recommended that the government should intensify effort to create more agencies besides EFCC and ICPC to address cases of corrupt practices in the economy

Shleifer and Visny, (1993) in a study of corruption and economic growth found out that corruption had a significant negative impact on a country's economic growth rates. Economists have often argued that where corruption was common, the profit from business activities would be siphoned off by unproductive bureaucrats who demand-side payments for granting the enterprise permission to operate. This reduces the incentives for businesses to invest and hampers a country's economic growth rate.

Examining the influence of public debt on growth, Onakoya and Ogunade (2017) empirical findings showed that external debt harms economic growth. The study recommended that adequate measures be put in place to ensure that borrowed funds are expended on development-promoting capital projects. In addition, appropriate institutional checks and balances on government fiscal performances are prerequisites for analyzing and managing public investment projects. Younis et al (2013) examined the impact of external debt on the economic growth of Iraq. The findings of the study revealed that external debt hurts Gross Domestic Product (GDP), but the impact in the short run is much bigger compared to that of the long run. Paul (2017) analysed the impact of external debt on the economic growth of Nigeria spanning a period of 1985 through 2015. The findings revealed that debt service payment has a negative and insignificant impact on Nigeria's economic growth while the external debt stock has a positive and significant effect on Nigeria's growth index. Sajuyigbe et al (2018) investigated the impact of external debt on economic growth in Nigeria for the period 1999-2015. The results of the findings showed that external debt has an inverse effect on economic growth in Nigeria. Subsequently, the study recommended that government should empower the Debt Management Office (DMO) to set the mechanism in place, ensure that loans are utilised for purposes they are meant for and prosecute corrupt public officers who siphoned the money.

Okoye et al (2015) examined whether external borrowings and its major determinants like exchange rate, gross fixed capital formation and inflation rate have supported the growth of the Nigerian economy. A negative correlation was, however, observed between economic growth and

gross fixed capital formation. The regression estimates for both the ordinary and generalized least squares tests showed a significant positive impact of external debt, exchange rate and inflation rate on economic growth. The results also showed a non-significant negative effect of gross fixed capital formation on economic growth. The study concluded that external debt has significantly promoted economic growth in Nigeria. Wakeel and Alani (2004) examined the contribution of different measures of human capital development to economic growth in Nigeria. It was found that both education and health components of human capital development were crucial to economic growth in Nigeria.

Relating to studies on the agricultural sector and economic growth, Kamil et al (2017) examined the impact of the agricultural sector on the economic growth of Nigeria from 1981 to 2013. The findings revealed that real gross domestic product agricultural output and oil rents have a long-run equilibrium relationship. Vector error correction model result shows that the speed of adjustment of the variables towards their long-run equilibrium path was low, though agricultural output had a positive impact on economic growth. Omoyiwola et al (2017) investigated the impact of Agricultural output on economic growth in Nigeria. The Ordinary Least Square regression method was used to analyze the data. The result of the findings revealed a positive and significant relationship between Gross Domestic Product (GDP) and agricultural output in Nigeria. The agricultural sector was estimated to contribute 2.247 percent variation in Gross Domestic Product (GDP) from 1981 to 2014 in Nigeria.

Olusanya (2013) examined the impact of Foreign Direct Investment (FDI) inflow and economic growth in a pre and post deregulated Nigerian economy using the Granger causality test as a technique of data analysis. However, the analysis dis-aggregated the economy into three periods; 1970 to 1986, 1986 to 2010, and 1970 to 2010, to test the causality between Foreign Direct Investment inflow (FDI) and economic growth (GDP). The results of the causality test showed that there was a causal relationship running from GDP to FDI, which means GDP causes FDI during the pre-deregulation era that is (1970-1986), but no causal relationship between GDP and FDI during the post-deregulation era that is (1986-2010). Innocent et al. (2012) examines the relationship between FDI and economic from 1986 to 2010 and confirmed that a 1% increase in FDI accounts for about 13% variation in GDP. The result of the study further showed that other variables in the model gross fixed capital formation, net export, inflation, and exchange rate impacted GDP positively.

3. Materials and Method

3.1 Method of Data Collection

The study employs data mainly from the secondary source which is obtained from the central bank of Nigeria (CBN) publications, World data index and National bureau of statistics (NBS) the time series data cover the period of 1980-2015. The choice of this period was informed by the availability of data. In an attempt to estimate the effect of corruption on the economy of Nigeria.

3.2 Model Specification and Variables Definitions

The econometric model in this study is as specified in equation 3.1 where external debt stocks, index of economic freedom, corruption perception index, human capital index, agricultural output and foreign direct investment as the independent variables while Real Gross Domestic Product serves as the dependent variable. To examine the influence of corruption on the effects of external debt and human capital expenditure on the growth we interacted CPI with external debt.

$$LNRGDP_t = b_o + b_1FDI_t + b_2IEF_t + b_3CPI_t + b_4LNHUCI_t + b_5LNAGROTt + b_6LNEXDS_t + b_7INFR + u. \quad (3.1)$$

Where LNRGDP stands for economic growth, CPI represents the level of corruption proxy by the Corruption perception index and index of economic freedom. LNEDXS stands for Log of external debt stock, while FDI represents a foreign direct investment. LNHCI, LNAGROT and IFR are used to capture Log of the human capital index, Log of agricultural output, and inflation rate respectively. U stands for stochastic or random error term while b_0 is the constant term and $b_{1.....7}$ are parameters to be estimated.

Economic growth (LNRGDP) is the dependent variable and is defined as the total output of goods and services produced in an economy over a year. Economic growth is proxy by Real Gross Domestic Product (RGDP) measured in dollars. The choice of this proxy follows the work of (Adewale, 2011; Ajie and Oyegun, 2015). The level of corruption will be measured by two different proxies, CPI **(see** Ade et al., 2011) and index of economic freedom. The Corruption perception index measures the level of how corrupt a country is. According to transparency international, countries with the least index of figures indicates the least corrupt country while countries with the highest index number, indicate the most corrupt country. The parameters used in the compilation of the index include questions relating to bribe of public officials, kick back in public procurement, embezzlement of public funds and question that probe the strength and effectiveness of public sector anti-corruption efforts. Freedom from corruption on the other is sourced from World Economic Freedom Index**.** The Freedom from Corruption (FFC) index combines quantitative data to assess the Perception of corruption in the business environment which includes governmental, legal, Judicial, and administrative corruption.

External debt stocks (EXDS) refer to accumulated funds/ loans from external sources. External debt stock is measured by debt burden this is in line with the work of Olasode and Babatunde (2016). The human capital index (LNHCI) measures the proportion of the total population of those who are trained and able to work within the economy. Secondary school enrollment is used as a proxy for the Human capital index this follows the work of Ogunde et al (2017). Foreign direct investment is measured as the total value of foreign direct investment inflow measured in dollars this is in line with the work of Benedict and John (2017) while the agricultural sector was measured by the share of agricultural output in GDP (see Enoma (2010) Odetola and Etamnu (2013).

3.3 Technique and Procedures

This study employed quantitative tools of data analysis in the form of time series spanning thirty-five (35) years as earlier mentioned. Time series macroeconomics data are notably not stationary due to change in time trends. Hence the need for a stationarity test to test for stationarity of the variables used in this study, the Augmented Dickey-Fuller (ADF) and Philip-Perron test for stationarity were adopted to test for the stationarity of the series.

Furthermore, in other to analyze the impact of corruption on Nigeria's economic growth, this study employs the ARDL technique. The ARDL model is used in determining the long-run relationship between series with different orders of integration (Pesaran and Shin, 1999 and Pesaran, et al 2001). Using equation 3.1, we specified our ARDL model as follows:

$$\Delta \ln GDP_t = \beta_0 + \delta_1 \ln GDP_{t-1} + \delta_2 \ln CORR_{t-1} + \delta_3 \ln EXDS_{t-1} + \delta_4 \ln HCI_{t-1} + \delta_4 \ln AGRO_{t-1} + \delta_4 \text{INFR} I_{t-1} + \sum_{t=1}^{n} \emptyset_i \Delta \ln GDP_{t-1} + \sum_{t=0}^{m} \varphi_j \Delta \ln CORR_{t-1} + \sum_{t=0}^{m} \gamma_l \Delta \ln EDS_{t-1} + \sum_{t=0}^{m} \alpha_m \Delta \ln HCI_{t-1} + \sum_{t=0}^{m} \alpha_m \Delta \ln AGRO_{t-1} + \sum_{t=0}^{m} \alpha_m \Delta \text{INFR}_{t-1} + \varepsilon_t \quad (3.2)$$

The basic steps of ARDL approach are built upon the estimation of level relationship once the order of the mode is recognized, then testing the existing long-run relationship and estimating series of small or finite size (Pesaran et al. 2001) using the bound test. It is a fact that bound testing has the advantage of avoiding pre-testing problems involved in unit root test, but since the mixture of the series order cannot exceed 1(1) for the estimation to be valid, unit root testing will be necessary to ensure that none of the variables is 1(2).

4. Interpretation and Discussion of Results

The analysis of the results commenced with descriptives analysis of series as presented in Table 4.1.

Table 4.1 Summary of Descriptive Statistic

	AGRO	CPI	EXDS	FDI	RGDP	HUCI	INFR	IEF
Mean	6761.743	1.486852	156.1554	3.513528	2.14E+11	30.54991	19.44278	50.95833
Maximum	15952.22	2.700000	412.0741	14.00000	4.64E+11	56.18000	72.84000	56.80000
Minimum	2303.505	0.630000	14.52511	0.100000	1.08E+11	13.67500	5.380000	45.40000
Std. Dev	4520.328	0.715084	123.9168	3.741187	1.09E+11	9.787583	17.74829	3.514003
Skewness	0.760252	0.542725	0.531923	1.557718	1.025135	1.014538	1.670264	0.475130
Kurtosis	2.050485	1.694269	2.180871	4.435119	2.700223	3.347584	4.527665	1.620929
Jarque-Bera	4.820263	4.324703	2.704108	17.64825	6.440213	6.356942	20.23933	4.207246
Probability	0.089803	0.115054	0.258708	0.000147	0.039951	0.041649	0.000040	0.122014
Sum	243422.7	53.52666	5621.593	126.4870	7.71E+12	1099.797	699.9400	1834.500
sum sq. Dev.	7.15E+08	17.89710	537438.0	489.8767	4.15E+23	3352.887	11025.07	432.1875
Obs	36	36	36	36	36	36	36	36

Source: Author's computation using Eviews version 9.

Table 4.1 show that the number of observations is (35) after adjustment, which represents an annual report of thirty-five years of the study. The mean value of agricultural output in millions of US dollars is 6761.743 while 15952.22 and 2303.505 are the maximum and minimum. The mean external debt stock in millions of US dollars is 156.1554 while that of corruption perception index and FDI are 1.486852 and 3.513528 respectively.

Again, from the data, all the variables are positively skewed since their skewness values are all positive. Also, the skewness of FDI (1.557718) is the strongest among the variables followed by that of HUCI (1.014538). The table indicates that the tails of data on FDI and HUCI are heavy because their kurtosis values are greater than three. Notwithstanding, the tail of RGDP, AGDRO, CPI, EXDS, and IEF are light or have platy-kurtic curve because their respective kurtosis values

are less than three. Based on the above table Jarque- Bera results show that data on RGDP, AGRO, FDI, and HUCI has a probability value of 1%, while data on CPI, EXDS, and IEF are normally distributed since the probability values of their Jarque-Bera are greater than all levels of significance.

The pre-estimation test commenced with the test of stationarity of the series using both Dickey-Fuller and Philip-perron unit roots tests. Table 4.2 presents the results of the test both at the level and at first difference. The summary of the results revealed that all variables are stationary at first difference.

Table 4.2 Result of augmented Dickey-fuller and Philip- perron Unit Root Test

	ADF		PP	
Variable	Trend	Trend & intercept	Trend	Trend & intercept
FDI	-1.722000	-2.322565	-1.760584	-2.427297
IEF	-1.606969	-3.765914	-1.567034	-3.060551
CPI	-0.647608	-2.727107	-2.252238	-2.527610
LOGEXDS	-1.285044	-2.871715	-1.499928	-2.871715
LOGHUCI	-1.849611	-2.399854	-1.895546	-2.699208
LOGAGRO	0.481288	-2.217476	0.490819	-2.225582
LOGRGDP	-1.996523	2.309342	1.383121	-3.648537
LOGHUCICP	6.695918	5.380666	-0.524285	-2.217053
ΔFDI	-5.750999*	-5.665020*	-.789269*	-5.690863*
ΔIEF	-5.673136*	-5.594388*	-.672931*	-5.594091*
ΔCPI	-5.669905*	-5.626330*	-.660539*	-9.061711*
ΔLOGEXDS	--4.528501*	-4.406430*	-.528501*	-4.406430*

ΔLOGHUCI	-5.180646*	-5.065436*	-.176761*	-5.051815*
ΔLOGAGRO	-5.723936*	-5.718611*	-.723936*	-5.718611*
ΔLOGRGDP	-3.122513*	-4.189965*	-.168187*	-4.141822*
ΔLOGHUCICP	-2.634756*	-3.422794*	-.848452*	-12.94283*

For ADF and PP, the null hypothesis is that the variable has a unit root (i.e. non-stationary) *, ** *and* *** *represent the level of significance at 1%*, 5% and 10% respectively while Δ denotes the order of integration.

Source: Author's Computation using Eviews version 9.

The test of stationarity was followed by the bound test, the result of which is presented in Table 4.3. The result reveals that there exists a long-run relationship between LOGRGDP and other variables in the model.

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Table 4.3 Bound Test Result

DEPENDENT VARIABLE	FUNCTION	F-STATISTIC
LOGAGRO	LOGAGRO(LOGAGRO,LOGEXDS,LOGHUCI,LOGRGDP,INFR,IEF,FDI, CPI)	1.411313
LOGEXDS	LOGEXDS(LOGEXDS, LOGAGRO,LOGHUCI,LOGRGDP,INFR,IEF,FDI,CPI)	4.244061
LOGHUCI	LOGHUCI(LOGHUCI,LOGEXDS,LOGAGRO,LOGRGDP,INFR,IEF,FDI,CPI)	3.135823
LOGRGDP	LOGRGDP(LOGRGDP,LOGHUCI,LOGEXDS,LOGAGRO,INFR,IEF,FDI,CPI)	5.891839
INFR	INFR(INFR,LOGRGDP,LOGHUCI,LOGEXDS,LOGAGRO,IEF, FDI, CPI)	1.929167
IEF	IEF(IEF,INFR,LOGRGDP,LOGHUCI,LOGEXDS,LOGAGRO,FDI,CPI)	4.244061
FDI	FDI(FDI,IEF,INFR,LOGRGDP,LOGHUCI,LOGEXDS,LOGAGRO, CPI)	1.488422
CPI	CPI(CPI,FDI,IEF,INFR,LOGRGDP,LOGHUCI,LOGEXDS,LOGAGRO)	3.008782

Asymtotic critical value	10%	5%	1%
Lower bound	1.92	2.17	2.73
Upper bound	2.89	3.21	3.9

Source: Author's Computation using Eviews version 9

This conclusion is based on the computed F-statistic which is greater than both the upper and lower bound at all levels of significance. Thus, the null hypothesis is rejected while we accepted the alternative.

Having confirmed the existence of a long-run relationship between the series, we estimated the short-run and long-run parameters of the model as shown in Table 4.4A and 4.4B. Table 4.4A represents the short-run results of the model while models 3 and 4 in Table 4.4B presented the ARDL long-run results.

Table 4.4A Short Run Result

ARDL (1,0,1,0,1,1,0) automatically selected model AIC

REGRESSORS	MODEL3			MODEL4		
	Coefficient	T. stats	p.value	Coefficient	T.stats	p-value
LOGRGDP						
VARIABLE						
CPI	-0.119333	-2.940949	0.0070	-0.097836	-2.595307	0.0183
FDI	-0.000850	-0.735710	0.4688	0.000397	0.390102	0.7010
INFR	-0.000072	-0.616610	0.5431	-0.000240	-2.307144	0.0331
LOGAGRO	0.349142	7.347885	0.0000	0.329749	8.131690	0.0000
LOGEXDS	0.099676	-3.735078	0.0010	-0.089213	-3.916032	0.0010
LOGHUCI	0.000819	2.865686	0.0083	0.004090	2.007082	0.0600
LOGEXDSCP	-0.044868	2.876321	0.0081	0.03832	0.0255	0.0255
LOGHUCICP	-	-	-	-0.001120	-1.875947	0.0770
IEF	0.000132	0.127198	0.8998	-0.001852	-2.109120	0.0492
CointeQ(-1)	-0.376115	-7.912082	-0.000	-0.230871	-9.399482	00000

Source: Authors computation using Eviews version 9

In model 1, we included CPI as the only proxy for corruption while in model 2, we now include the index of economic freedom source from Heritage foundation. Model 1 and 2 revealed that corruption when proxy by corruption perception index has a significant negative impact on growth in the short run, while FDI and inflation also exert a negative but insignificant impact on growth. The log of Agricultural output, external debt and human capital indicated a positive and significant relationship with economic growth both in model 1 band 2. Interacting external debt with corruption, the impacts turn negative, as shown in model 1. In model 2, the result of the interacting term (human capital and corruption also revealed a significant negative impact on growth. Furthermore, the index of economic freedom the alternative proxy for corruption also exerts a positive, but insignificant impact on economic growth in model 1, while in model 2, the

results revealed a significant but negative impact on economic growth. On the average, we can conclude that corruption has a significant negative impact on Nigeria's economic growth. This means that in the short run, corruption has hampered economic growth under the period covered by the study. The outcome of this result, however, is not surprising going by many abandoned capital projects due to corruption. This result provides further empirical support to previous empirical studies that have also confirmed a declining impact of corruption on growth (Pellegrini and Gerlagh 2004, Mauro 1995, Akindele 2005, Adewale 2011 and Nagari et al 2013).

In the long run, as shown in models 3 and 4 of Table 4.4B, CPI, FDI, and inflation continue to exert a negative and insignificant impact on economic growth while the log of agricultural output, external debt, and human capital are all positive functions of economic growth. The impact of the two interacting terms remains negative in the long run as shown in model 4.

Table 4.4B Long-run Impacts of Independent Variables Using ARDL

ARDL (1,0,1,0,1,1,0) Automatically Selected Model Based On AIC

REGRESSORS	MODEL 3			MODEL 4		
	COEFFICIENT	t-stats	p-value	Coefficient	t-stats	p-value
\LOGRGDP						
VARIABLE						
CPI	-0.084304	-0.726895	0.4740	-0.023320	-0.064839	0.9490
FDI	-0.004662	-1.362984	0.1850	0.000988	0.155630	0.8781
IEF	0.002144	0.738781	0.04669	0.002571	0.373040	0.7135
INFR	-0.000278	-0.669115	0.5096	-0.001686	-1.202329	0.2448
LOGAGRO	0.776153	10.984981	0.0000	0.746330	6.304900	0.0000
LOGEXDS	0.039361	1.532375	0.0599	0.149078	0.573599	0.5733
LOGHUCI	0.001492	1.831249	0.0790	0.014218	1.053138	0.3062
LOGEXDSCP	-	-	-	-0.058444	1.454757	0.06547
LOGHUCICP	-	-	-	-0.003980	-0.968931	0.3454

Source: Author's Computation using Eviews version 9.

It needs to be noted that a large amount of funds obtained through debt were usually diverted for personal gain while in some cases a larger percentage of loans are expended on recurrent expenditures resulting in unproductive debt. This is in line with the study of (Onakoya & Ogunade, 2017, Younis et al., 2013).

Furthermore, the coefficient of Foreign Direct Investment inflow revealed that both in the short run and long run have a negative but statistically insignificant influence on economic growth in line with the findings of Innocent et al (2012). Agricultural output measures the contribution of the crop, livestock and forestry, fishing processing, and total output. The finding of the study indicates that agricultural output has a significant positive impact on economic growth both in the short run and long run. This implies that an increase in agricultural output will lead to a corresponding increase in economic growth this is in line with the research conducted by Kamil et al (2017), Omoyiwola et al (2017), Ewetan et al (2017), Odetola and Etumnu (2013). The Human capital index measures the proportion of the total population with require skills proxy by secondary school enrollment rate. In addition, human capital proxy by secondary school enrollment rate has a positive and significant impact on economic growth both in the short run and long run in line with the work of Ogunleye et al (2017) and Uchechi and Godstime (2014). Surprisingly not, the impact turned negative when we interacted human capital with corruption, the result revealed a significant negative impact on growth at 1% level of significance. This suggests that resources meant for human capital development are being diverted by a corrupt public official. Therefore, the impact of the investment in human capital development may not be visible. Index of economic freedom another proxy for corruption is the condition in which individuals can act with autonomy while in the pursuit of their economic livelihood and greater prosperity.

The index of economic freedom is the average of 10 individual freedom indices (i.e. business freedom, trade freedom, fiscal freedom, government size, monetary freedom, investment freedom, financial freedom, property right freedom, freedom from corruption, and labour freedom. The estimate of model 3 (short-run results) as shown in Table 4.4B, indicates that freedom from corruption index another proxy for corruption has an insignificant negative effect on economic growth, in model 4 as shown in Table 4.4B, the impact turns positive, however, the influence remains insignificant. However, in the long run, as shown in model 3, Table 4.5B freedom from corruption has a significant positive impact on economic growth at a 1% level of significance. This implies that a society free of corruption will encourage investment that can generate further output.

Table 4.6 presents the results of various diagnostic tests and the results suggest that model 1-4 has no serial correlation problem with insignificant Breusch-Godfrey serial correlation LM statistic probability values of (0.8852, 0.9921, 0.9385, and 0.9484) while the test of hypothesis for the presence of heteroscedasticity shows very high probability values (0.7319, 0.8667, 0.7105 and 0.4905**)** which is an indication that the models are homoscedastic and therefore not accepted. The coefficients of the Jarque-Bera for the models are (9.729527, 1.960074, 1.256994, and

1.237768) with their insignificant probability values (0.771425, 0.375297, 0.533393, and 0.538545) it could therefore be construed that the models are normal and thus fit for policy recommendation. Finally, the Ramsey Reset test also shows that model one (1) is correctly specified and stable because the probability value is greater than the absolute value.

Table 4.6. Diagnostic Tests

	Model1		Model2		Model3		Model4	
	Statistic	p.value	Statistic	p.value	Statistic	p.value	Statistic	p.value
Serial correlation LM test	0.122511	0.8852	`0.007918	0.9921	0.063591	0.9385	0.053132	0.9484
Heteroskedasticity test	0.623610	0.7319	0.409085	0.8667	0.650837	0.7105	0.943351	0.4905
J.B statistics		0.771425		0.375297		1.256994		0.538545
Ramsey Reset Test	1.019722	0.3173	2.085784	0.0466	0.942219	0.3548	3.657391	0.0011

Source: Author's Computation using Eviews version 9.

The paper also tests for stability of the model using the cumulative sum of recursive residuals (CUSUM) and cumulative sum of square (CUSUM Q). The graphical presentation of all these tests is presented in figures 4.1 to 4.4. Figures 4.1-4.2 represent the results of the CUSUM tests for models 1 and 3, and models 2 and 4. The results indicated that the model is stable since the CUSUM line lies within the 5% critical bound, however, an outward shift in the CUSUM line beyond the 5% critical bound was observed in 2004. This break in the stability of the model might be a result of the debt management crisis being faced by the country, during which most of the projects were abandoned.

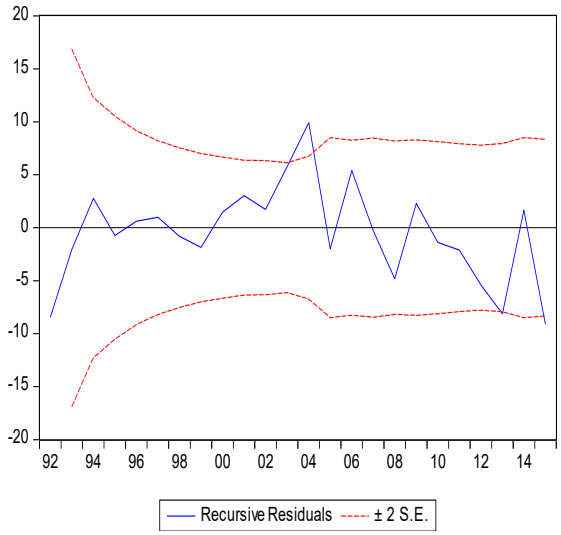
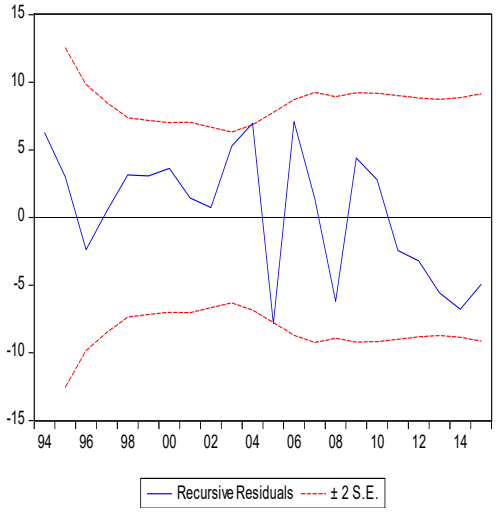


Figure 4.1. CUSUM Plots for Model 1



Figur4.2. CUSUMQ Plots for Model 3

Source: Author's Plots Using Eviews 9.

The result of the CUSUMQ test is presented in figure 4.3 for models 1 and 3 and figure 4.4 for models 2 and 4. for both the short run and long-run equilibrium.

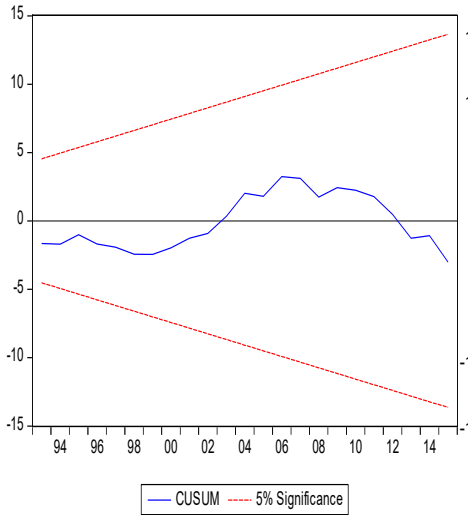


Figure 4.3. CUSUM Plots for Model 2

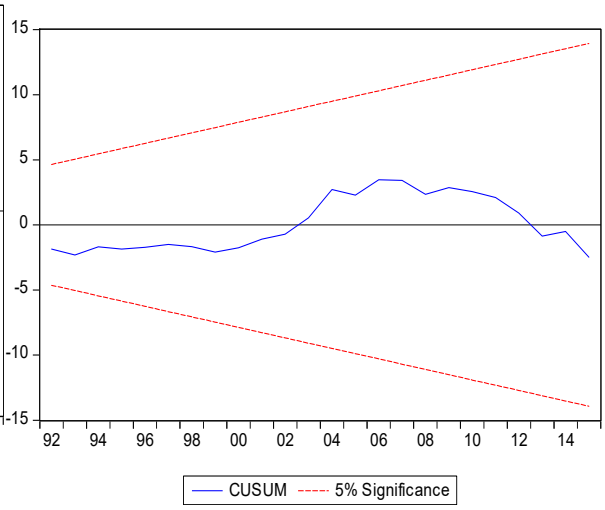


Figure 4.4. CUSUMQ Plots for Model 4

The figures indicate that the models are stable, since CUSUM lines are within the 5percent critical bound.

5. Summary and Conclusion

The rationale behind the study is to empirically analyse the impact of corruption on Nigeria's economic growth from 1980-2015. The paper reviewed theories relating to two divergent ideologies about the impact of corruption on economic growth. The study adopted the ARDL model which is built upon the estimation of level relationship once the order of the model is recognized.

The major findings are summarized based on the specific objectives of this study. Firstly, the study determines the effects of corruption proxied by the Corruption Perception Index (CPI) on economic growth in Nigeria. The findings of the study revealed that corruption has a negative coefficient on economic growth and is statistically significant at a 1% level. Index of economic freedom another proxy for corruption also established that corruption is a decreasing function of economic growth.

Based on the findings of the study, the public office holder should inculcate the act of transparency and accountability in the execution of their official functions. In addition, the activities of the anti-corruption agencies in Nigeria such as the Economic and Financial Crime Commission (EFCC) and the Independent Corrupt Practices and Related Offences Commission (ICPC) should be strengthened and at best make them independent from the influence of political elites. This will enable the agencies to perform their functions without the influence of those in power. Finally, the rule of law must be upheld to instill sanity in the administration of justice. Laws that specifically deal with corrupt practices in its various forms should be enacted to stem the tide of judgment that was perceived too lenient and be followed. Beyond this, Nigeria's legal and judicial system should be reviewed and restructured to handle swiftly the cases of people that are engaged.

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APPENDICES

APPENDIX I: Descriptive Statistics

	RGDP	AGRO	CPI	EXDS	FDI	HUCI	IEF	INFR	LOGAGRO	LOGEXDS	LOGHUCI	LOGRGDP
Mean	2.14E+11	6761.743	1.486852	156.1554	3.513528	30.54991	50.95833	19.44278	3.737888	1.990220	1.465150	11.28330
Median	1.58E+11	4390.461	1.100000	148.4341	1.990000	27.04200	48.95000	11.90000	3.642429	2.171343	1.432039	11.19908
Maximum	4.64E+11	15952.22	2.700000	412.0741	14.00000	56.18000	56.80000	72.84000	4.202821	2.614975	1.749582	11.66678
Minimum	1.08E+11	2303.505	0.630000	14.52511	0.100000	13.67500	45.40000	5.380000	3.362389	1.162120	1.135927	11.03287
Std. Dev.	1.09E+11	4520.328	0.715084	123.9168	3.741187	9.787583	3.514003	17.74829	0.284709	0.486206	0.131571	0.199182
Skewness	1.025135	0.760252	0.542725	0.531923	1.557718	1.014538	0.475130	1.670264	0.323839	-0.480079	0.246210	0.610637
Kurtosis	2.700223	2.050485	1.694269	2.180871	4.435119	3.347584	1.620929	4.527665	1.606798	1.754482	3.238942	1.998845
Jarque-Bera	6.440213	4.820263	4.324703	2.704108	17.64825	6.356942	4.207246	20.23933	3.540751	3.709831	0.449355	3.740730
Probability	0.039951	0.089803	0.115054	0.258708	0.000147	0.041649	0.122014	0.000040	0.170269	0.156466	0.798774	0.154067
Sum	7.71E+12	243422.7	53.52666	5621.593	126.4870	1099.797	1834.500	699.9400	134.5640	71.64792	52.74538	406.1987
Sum Sq. Dev.	4.15E+23	7.15E+08	17.89710	537438.0	489.8767	3352.887	432.1875	11025.07	2.837080	8.273869	0.605879	1.388570
Observations	36	36	36	36	36	36	36	36	36	36	36	36