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The Impact of Corruption on Economic Development in Nigeria from 1996 to 2020

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ABSTRACT
This study examined the impact of Corruption on economic development in Nigeria from 1996 to 2020. Corruption perception index, poverty rate and government effectiveness were used as dimensions of independent variable while Human development index, decomposed into life expectancy, literacy and gross national income per capita as measures of dependent variable. Annual time series data on our targeted variables were obtained from secondary sources including the Central Bank of Nigeria annual statistical bulletin, World Bank development indicators (various years). The Eview9 Statistical Software was employed to analyze the data empirically. The Unit root test shows that life expectancy, literacy rate, gross national income per capita, corruption perception index and government effectiveness variables evaluated are all stationary after first difference I(1) while poverty rate was stationary at level I(0). The data were analyzed using the Autoregressive distributed lag (ARDL). From the results of the ARDL estimates it was revealed that among others, corruption perception index and poverty rate coefficients are positively signed and are statistically significant while government effectiveness is negatively signed and also statistically significant in the long run. The study recommended among others that Nigeria should step up her game in the fight against corruption so that as an independent nation which has the prospect to grow a well-off industrial economy would be able to defeat hunger, mass poverty, and create jobs for the jobless, build world-class medical facilities, and schools for better education, with top-notch infrastructure for its citizens.
Keywords: Corruption, Life Expectancy, Literacy Rate, Gross National Income, Nigeria.

INTRODUCTION

The history of corruption is as old as the world itself and it has co-existed with human society for a long time and remains as one of the problems in many of the world's developing economies with devastating consequences. Corruption is a global problem, and exists in varying degrees in different countries (Luna and Perrone, 2002). Corruption exists in both dictatorial and democratic economies, as well as in feudal, capitalist and socialist economies. Christian, Muslim, Hindu, and Buddhist cultures are equally bedeviled by corruption (Dike, 2005).

In Nigeria, corruption is one of the many unresolved fundamental problems that have critically retarded and skewed development (Madichie, 2005). It has remained a major political and economic challenge for Nigeria (Maduagwe, 1996). It ranges from petty corruption to political / bureaucratic corruption or systemic corruption (Abiodun, 2007). World Bank studies put corruption at over $1 trillion per year accounting for up to 12% of the GDP of nations like Nigeria, Kenya and Venezuela (Nwabuzor, 2005). Corruption is endemic as well as an enemy within (Acemoglu and Verdier, 2000). As part of effort at fighting corruption and strengthening the economy, Nigeria engaged in aggressive pursuit of economic

reform that through privatization, banking sector reform, anti-corruption campaigns and establishment of clear and transparent fiscal standards since 1999.

The World Bank defines corruption as the abuse of public office for private gains. Public office is abused through rent seeking activities for private gain when an official accepts, solicits, or extorts a bribe. Public office is also abused when private agents actively offer bribes to circumvent public policies and processes for competitive advantage and profit. Public office can also be abused for personal benefit even if no bribery occurs, through patronage and nepotism, the theft of state assets or the diversion of state resources (Basu et al, 1992). A public official is corrupt if he accepts money for doing something that he is under duty to do or that he is under duty not to do. Corruption is a betrayal of trust resulting directly or indirectly from the subordination of public goals to those of the individual. Corruption is efforts to secure wealth or power through illegal means for private gain at public expense; or a misuse of public power for private benefit. Corruption signifies a form of dishonest or immoral conduct by a person entrusted with a position of authority, often to acquire personal benefits. Corruption may include many wrong activities including bribery and embezzlement.

Despite Nigeria's anti-corruption campaign, the country has dropped from 144 in 2018 to 146 in 2019 on the annual corruption perception index published by Transparency International. 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. 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 (Bamidele, 2020)

This study contributes to the existing literature by incorporating corruption perception index (CPI), as proxy for the independent variable (corruption), and Government effectiveness (GOVTEF) and poverty rate (POVR) as moderating variables, while human development index (HDI); decomposed into life expectancy (LEXP), literacy rate (LITR) and gross national income per capita (GNI per capita) as proxies for the dependent variable (economic development. Therefore, the impact which corruption has on economic development using the above dimensions and measures is the issue this work seeks to address. These issues give credence to this study.

Aim and Objectives

The aim of this study is to empirically investigate the impact of corruption on economic development in Nigeria within the period 1996 to 2020. However, it set out to achieve the following specific objectives which are to;

i. investigate the impact of corruption on life expectancy;
ii. examine the impact of corruption on literacy rate;
iii. determine the impact of corruption on gross national income per capita;
iv. to find out the moderating impact of poverty rate on the relationship between corruption and economic development;
v. to evaluate the moderating impact of government effectiveness on the relationship between corruption and economic development.

LITERATURE REVIEW

Conceptual Clarification

Corruption

The World Bank defines corruption as the abuse of public office for private gains. Public office is abused through rent seeking activities for private gain when an official accepts, solicits, or extorts a bribe. Public office is also abused when private agents actively offer bribes to circumvent public policies and processes for competitive advantage and profit. Public office can also be abused for personal benefit even if no bribery occurs, through patronage and nepotism, the theft of state assets or the diversion of state resources (Basu et al, 1992).

Corruption Perception Index (CPI).

Corruption perception index is a measure that rates countries on the basis of their perceived level of corruption, on a scale from 0 (highly corrupt) to 100 (clean). The CPI was created and used by Transparency International, an international nongovernmental organization established in 1993 with the aim of bringing together business, civil society, and government structures to combat corruption. The index was first used in 1995, and it covers a growing number of countries in annual surveys. The CPI, being based on evaluations, is a valuable alternative source of information about the degree of illegal practices among civil servants and politicians in a given country (Natalia, 2020).

Poverty Rate

Poverty as a multi-facet phenomenon, has no clear cut or universal accepted definition. Poverty is a state where an individual is not able to cater adequately for his or her basic needs of food, clothing and shelter (Kpelai, 2013). However, Eboh & Uma (2010), view poverty as "a lack of command over basic consumption needs", which means that there is an inadequate level of consumption giving rise to insufficient food, clothing or shelter, and moreover, the lack of certain capacities such as being able to participate with dignity in society. Genyi (2007), agrees that: Poverty has various manifestations including lack of income and productive resources sufficient to ensure sustainable livelihoods, hunger and malnutrition, ill-health, limited or lack of access to education and other basic services, increase morbidity from illness, homelessness and inadequate housing, unsafe environment, social discrimination and exclusion. It is also characterized by a lack of participation in decision and in civil, social and cultural life.

Government Effectiveness

The Government Effectiveness rate captures the perceptions of the public services quality, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

Countries are evaluated on the following factors as competence of civil service; effective implementation of government decisions; and public service vulnerability to political pressure, ability to manage political alternations without drastic policy changes or interruptions in government services, to mention but two. (Lewis, 2006).

Life Expectancy

Life expectancy which is one of the three dimensions of human development index is a measure of the length of life expected to be lived by an individual at birth. Improvement of Life expectancy to at least 70 years by 2020 is one of Nigeria's health policy targets. Life expectancy is frequently utilized and analyzed in the composition of demographic data for the countries of the world, for the attainment of mortality experiences and for more reliable international comparisons Julien (2009), noted that life expectancy has important implications for the individuals and aggregate human behavior. They noted that it has crucial effects on fertility behavior, economic growth and development, human capital investment, intergeneration transfers and incentives for pension benefits. Granstein and Kanganovich (2004), noted from the social planner's perspective that life expectancy has implication for public finance.

Literacy Rate

The traditional definition of literacy is the ability to read and write, listen and speak and enumerate. However, in the modern context literacy involves the ability to use and communicate in a diverse range of technologies. In general terms, literacy is a condition whereby one can successfully function at certain levels in a society where literacy plays a role in providing access to power. Essien (2005), maintains that literacy is concerned with the ability to read and write in a language. A literate person is, therefore, someone who is able to read and write in a language or languages. Thus, the standards for what level constitutes 'literacy' differ from society to society. Literacy has also been expanded to include skills in computer, basic numeracy, sound, still and moving images and graphical elements in digital based communication.

Gross National Income per capita

GNI per capita (formerly GNP per capita) is the gross national income, converted to U.S. dollars using the World Bank Atlas method, divided by the midyear population. GNI is the sum of value added by all

resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. GNI, calculated in national currency, is usually converted to U.S. dollars at official exchange rates for comparisons across economies, although an alternative rate is used when the official exchange rate is judged to diverge by an exceptionally large margin from the rate actually applied in international transactions. To smooth fluctuations in prices and exchange rates, a special Atlas method of conversion is used by the World Bank (Index Mundi, 2019).

Theoretical Literature

Social Disorganization Theory by Clifford Shaw and Henry McKay (1929).

The social disorganization theory (SDT) was propounded by two researchers from the University of Chicago, Clifford Shaw and Henry McKay in 1929.

Shaw and McKay found that rates of crime and delinquency exhibited a remarkable consistent patterning over many decades; in particular, the spatial pattern of rates revealed significant long-term stability even though the nationality structure of the population in the inner-city areas changed greatly over time. Shaw and McKay thus determined that crime and delinquency were not the result of personal characteristics of the residents who lived in the neighborhoods but were tied to the neighborhoods themselves. Since areas of high and low crime and delinquency maintained their relative positions over many years, a key theoretical task to explain the existence and stability of these area differentials overtime. A fundamental part of their explanation involved the concept of social disorganization. Social disorganization refers to the inability of a community to realize the common values of its members and maintain effective social controls. As Kornhauser describes, Social disorganization exists in the first instance when the structure and culture of a community are incapable of implementing and expressing the values of its own residents.

Grease the Wheels' and 'Sand the Wheels' Theory of Corruption and Economic Growth and Development by Leff Nathaniel (1964) and Mauro Paolo (1998).

'Grease the wheels' hypothesis of corruption and economic growth and development was proposed by Leff Nathaniel in 1964, while 'Sand the wheels' hypothesis was proposed by Mauro Paolo in 1998.

The debate on the effects of corruption on economic growth and development has been dominated by two widely recognized strands: the 'sand the wheels' and 'grease the wheels' hypotheses. According to Meon &Wiell (2010), these hypotheses are underpinned by the 'moralistic view' of corruption. These hypotheses are mainly based on the distinction between institutional failures and corruption. Proponents of 'grease the wheels' hypothesis argue that due to the economic and developmental benefits of corruption such as efficiency in second best world, it is better to judge the relationship between corruption and economic growth and development on moral grounds (Nye, 1967). Grease the wheel hypothesis has resurfaced in the literature in recent years as empirical evidence suggests that corruption tends to facilitate and speed up transaction processes and therefore increase efficiency and productivity (Cuervo-Cazurro, 2006). The 'grease the wheels' hypothesis as advanced by Huntington (1968) postulates that, in non-performing bureaucratic systems in a second best world, corruption often serves as a 'trouble-saving device' in circumventing cumbersome regulations in transactions which indirectly increases efficiency and economic growth. Thus, corruption helps in removing distortions associated with non-performing institutions in countries that have a defective or mediocre governance system. In other words, it suggests that corruption may be beneficial in countries with poor governance and bureaucratic inefficiencies.

Empirical Literature Review

Nwankwo (2014), employed co- integration test, granger causality test and OLS method to examine the impact of corruption on economic growth in Nigeria and it was revealed that there is a long-run relationship between the level of corruption and economic growth in Nigeria and that the impact of corruption on economic growth in Nigeria is negative from the ECM result.

Thach, et al., (2017), examined the impact of corruption on economic growth. They used data of 19 Asian countries in the period 2004 to 2015 and panel data estimation techniques. With the use of fixed effect,

random effect and the dynamic general method of moment, they found that corruption has inverse impact on economic growth in Asian countries, though, they noted that bribe given speeds up administrative process. They further found that investment, population, democracy freedom and economic freedom have direct impact on economic growth.

Gründler & Potrafke (2019), provided new empirical evidence on the link between corruption and economic growth of 175 countries and data for the period 2012 to 2018 and the use of GMM. They found that corruption and its lag values were consistently significant and negative in the determination of economic growth. They found that rail lines, net migration, interpersonal globalization and trade were significant and positive in the determination of economic growth while economic globalization was negatively significant.

Hoinaru, et al. (2020), used panel of 185 countries and data set for the period 2005 to 2015 to test the "Sand the Wheels" and "Grease the Wheels" hypotheses of corruption by examining the impact of corruption and shadow economy on the economic and sustainable development. They used correlation matrix and found that most of the variable used were strongly correlated. The fixed effect and the random effect estimation result showed that the relationship between corruption and economic development was not consistent. However, they found an inverse relationship between corruption and the shadow economy on one hand and the same inverse relationship between corruption and economic development. The result supports the 'sands the wheel corruption hypothesis'.

Looking at the existing literature, it is obvious that empirical studies on the determinants of corruption focused mainly on a group of countries, employing cross-sectional and/or panel data. However, country-specific studies on corruption determinants are relatively scarce.

METHODOLOGY

Model Design

The method adopted in this study is quasi-experimental design called correlational research design which according to Hassan (1995), aims at establishing relationships between variables and to know if the relationship that exist is significant. Another justification for the use of quasi-experimental research design is that the study is descriptive and analytical on the basis of stochastic statistics and the variables are not under the control of the researcher.

Model Specification

Model I: Life Expectancy

The functional form on which the econometric model will be built is expressed as: LEXP = F(CPI, GOVTEF, POVR) Where LEXP = Life expectancy, CPI = Corruption perception index, Government effectiveness, POVR= Poverty rate, F = Functional notation LEXP is a dependent variable while CPI, GOVTEF and POVR are the explanatory variables.

The linear regression models base on the above functional relation is expressed as:

$$LEXP = \beta_0 + \beta_1 CPI + \beta_2 POVR + \beta_3 GOVTEF + U \quad 2$$

$$\Delta LEXP_t = \alpha_{0i} + \beta_{1i} LEXP_{t-1} + \beta_{2i} CPI_{t-1} + \beta_{3i} POVR_{t-1} + \beta_{4i} GOVTEF_{t-1} + \sum^{q}_{i=1} \alpha_1 \Delta LEXP_{t-1} + \sum^{p1}_{i=1}\alpha_2 \Delta CPI_{t-1} + \sum^{p2}_{i=1}\alpha_3 \Delta POVR_{t-1} + \sum^{p3}_{i=1}\alpha_4 \Delta GOVTEF_{t-1} + {}_{t-1} + et \quad 3$$

ECM

$$\Delta LEXP_t = \alpha_{0i} + \sum^{q}_{i=1} \alpha_{1i} \Delta LEXP_{t-1} + \sum^{p1}_{i=1} \alpha_{2i} \Delta CPI_{t-1} + \sum^{p2}_{i=1} \alpha_{3i} \Delta POVR_{t-1} + \sum^{p3}_{i=1} \alpha_{4i} \Delta GOVTEF_{t-1} + \lambda ECT_{t-1} + et \quad 4$$

$\beta_1 \geq 0, \beta_2 \geq 0, \beta_3 \geq 0, \beta_4 \geq 0, \beta_5 \geq 0,$

Where β_0 is the regression constant or intercept,$\beta_1,\beta_2\beta_3\beta_4$and β_5 are the regression coefficients or parameters and U is the random variable. All other terms are as earlier defined.

Model II: Literacy Rate and Model III: Gross National Income per capita could be stated in their functional forms as model I above.

EMPIRICAL RESULTS AND DISCUSSIONS

Table 1. Augmented Dickey Fuller and Philips Perron Unit Root Test

Variable	ADF					PP				
	Level		1st Diff		I(.)	Level		1st Diff		I(.)
	Coeff.	5% CV	Coeff.	5% CV		Coeff.	5% CV	Coeff.	5% CV	
CPI	-2.182	-3.622	-5.779	-3.662	I(1)	-3.192	-3.612	-5.923	-3.622	I(1)
GOVTEF	-2.371	-3.645	-5.265	-3.645	I(1)	-2.408	-3.612	-6.888	-3.622	I(1)
POVR	-5.016	-3.658	_	_	I(0)	-3.621	-3.612	_	_	I(0)
LEXP	-1.549	-3.622	-5.737	-3.622	I(1)	1.289	-2.992	-3.681	-3.612	I(1)
LITR	-3.333	-3.622	-3.965	-3.633	I(1)	-0.308	-1.956	-3.0-55	-1.956	I(1)
LOG(GNI)	-1.735	-2.992	-3.084	-2.998	I(1)	-1.579	-2.992	-3.132	-2.998	I(1)

Source: Computed from E-view

Table 1 shows the result of unit root test conducted with both Augmented Dicky Fuller Test (ADF) and Philips Perron Test (PP). To get a robust result for this empirical study, we adopted the outcome of Philip Perron statistics due to the robustness of the result in point of structural breaks. In line with the prepositions of Jenkins and Box (1970). Variable that are not stationary at levels would be made stationary after first difference. The following variables in the model were made stationary after first difference, CPI, GOVTEF, LEXP, LITR and GNI while POVR was stationary at level.

Table 2: Bound Test for LEXP Model

ARDL Bounds Test

Date: 06/27/21 Time: 20:17

Sample: 1998 2020

Included observations: 23

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	14.31161	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	3.47	4.45
5%	4.01	5.07
2.5%	4.52	5.62
1%	5.17	6.36

Source: Computed from E-view

The result presented in table 2, shows that the calculated F-statistics of 14.3116 is higher than the upper bound critical value of 5.07 at 5% significant level. Based on this result, it is concluded that a long run

relationship exists among the variables of LEXP model. So, there is a long run co-integration amongst the variables in the life expectancy model.

Table 3: ARDL-ECM Short-run Results for LEXP model

Dependent Variable: LEXP
Selected Model: ARDL(2, 2, 2, 2)
Date: 06/27/21 Time: 20:37
Sample: 1996 2020
Included observations: 23

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LEXP(-1))	0.308675	0.146303	2.109829	0.0611
D(CPI)	0.012177	0.005278	2.307090	0.0437
D(CPI(-1))	-0.020935	0.005289	-3.958595	0.0027
D(POVR)	0.003137	0.004204	0.746106	0.4728
D(POVR(-1))	-0.004695	0.003132	-1.499033	0.1648
D(GOVTEF)	0.028388	0.039018	0.727569	0.4836
D(GOVTEF(-1))	-0.029229	0.039266	-0.744397	0.4738
D(@TREND())	0.155380	0.026181	5.934946	0.0001
CointEq(-1)	-0.407647	0.064925	-6.278763	0.0001

Cointeq = LEXP - (0.0805*CPI + 0.0268*POVR + 0.3850*GOVTEF + 42.1180
+ 0.3812*@TREND)

R-squared	0.744037	Mean dependent var	49.80040
Adjusted R-squared	0.707471	S.D. dependent var	3.072630
S.E. of regression	1.661861	Akaike info criterion	3.999400
Sum squared resid	57.99743	Schwarz criterion	4.194420
Log likelihood	-45.99250	Hannan-Quinn criter.	4.053490
F-statistic	20.34771	Durbin-Watson stat	1.856503
Prob(F-statistic)	0.000002		

Source: Computed from E-view9

The ECM turned up with a negative value of -0.407963 as the ECM coefficient which suggests 40% speed of adjustment. This means that approximately 40% of discrepancy in the previous year is adjusted for the current year.

Table 4: ARDL Long Run Regression for Life Expectancy Model

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	0.080547	0.013321	6.046674	0.0001
POVR	0.026798	0.016005	1.674414	0.1250
GOVTEF	0.384961	0.192940	1.995240	0.0740
C	42.118007	1.220255	34.515729	0.0000
@TREND	0.381164	0.010929	34.876560	0.0000

Source: Computed from E-view

Tables 4.6.1 Residual Diagnostics Test for LEXP

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.921884	Prob. F(11,11)	0.5524
Obs*R-squared	11.03258	Prob. Chi-Square(11)	0.4405
Scaled explained SS	1.196477	Prob. Chi-Square(11)	0.9999

Source: Computed from E-view

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.635622	Prob. F(1,10)	0.2298
Obs*R-squared	3.233116	Prob. Chi-Square(1)	0.0722

Source: Computed from E-view

The null hypothesis states that there is no serial correlation. Since each of the F-statistics probability value is greater than five percentage we cannot reject the null hypothesis of no serial correlation. It means that the result is good.

4.4.1 Stability Tests for LEXP

The test is meant to test the appropriateness and stability of the estimated ECM model. This is to check if the coefficient of the model are stable and can be used for prediction. The stability test was conducted using the cumulative sum (CUSUM) and cumulative sum of square (CUSUMSQ) tests. If the plot of the CUSUM and CUSUMSQ for the model lies within the 5 percent critical bound it is suggestive that the model is stable. From our results, the model is stable.

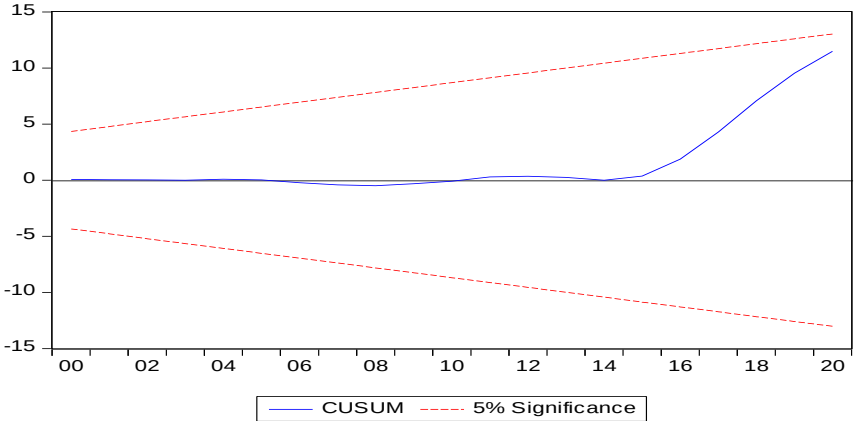

Figure 4.7A: Cumulative sum for LEXP Model

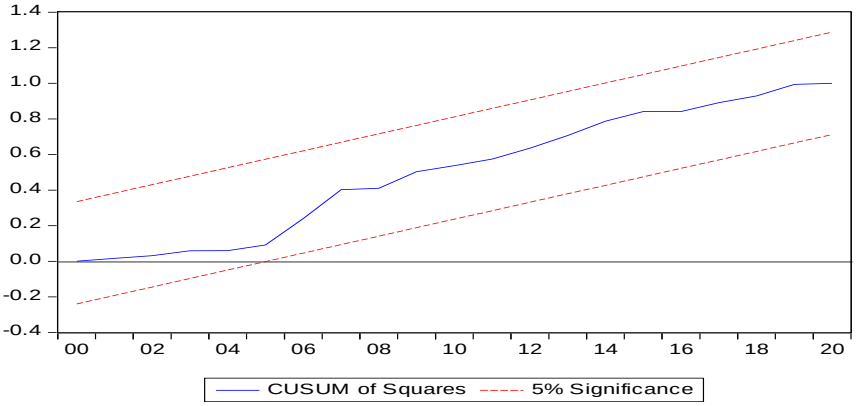

Figure 4.7B: Cumulative sum of Square for LEXP Model

Table 2: Bound Test for LITR Model

ARDL Bounds Test
Date: 06/27/21 Time: 20:26
Sample: 1998 2020
Included observations: 23
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	6.024846	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	3.47	4.45
5%	4.01	5.07
2.5%	4.52	5.62
1%	5.17	6.36

Source: Computed from E-view

The result presented in table 2 shows that the calculated F-statistics of 6.024846 is higher than the upper bound critical value of 5.07 at 5% significant level. Based on this result, it is concluded that a long run relationship exists among the variables of LITR model. So, there is a long run co-integration amongst the variables in the literacy rate model.

Table 3: ARDL-ECM Short-run Results for LITR model

Dependent Variable: LITR
Selected Model: ARDL(1, 2, 2, 1)
Date: 06/27/21 Time: 20:30
Sample: 1996 2020
Included observations: 23

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CPI)	-0.170165	0.233460	-0.728882	0.4801
D(CPI(-1))	0.321274	0.283093	1.134871	0.2786
D(POVR)	0.721735	0.219297	3.291127	0.0064
D(POVR(-1))	-0.339330	0.173082	-1.960514	0.0736
D(GOVTEF)	-1.509836	1.995073	-0.756782	0.4638
D(@TREND())	0.637093	0.264769	2.406220	0.0331
CointEq(-1)	-0.454416	0.160371	-2.833528	0.0151

Cointeq = LITR - (-2.0671*CPI + 2.7097*POVR -10.6632*GOVTEF - 125.8500 + 1.4020*@TREND)

R-squared	0.852197	Mean dependent var	57.85652
Adjusted R-squared	0.729028	S.D. dependent var	4.688072
S.E. of regression	2.440375	Akaike info criterion	4.928114
Sum squared resid	71.46514	Schwarz criterion	5.471177
Log likelihood	-45.67332	Hannan-Quinn criter.	5.064693
F-statistic	6.918921	Durbin-Watson stat	2.088550
Prob(F-statistic)	0.001277		

Source: Computed from E-view

Table 4: ARDL Long Run Regression for Literacy Rate Model
Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	-2.067083	0.751258	-2.751494	0.0176
POVR	2.709731	1.043198	2.597523	0.0233
GOVTEF	-10.663190	7.058571	-1.510673	0.1567
C	-125.849998	74.250934	-1.694928	0.1159
@TREND	1.402003	0.551464	2.542328	0.0258

Source: Computed from E-view

Residual Diagnostics Test for LITR
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.922332	Prob. F(10,12)	0.5445
Obs*R-squared	9.995437	Prob. Chi-Square(10)	0.4409
Scaled explained SS	2.162073	Prob. Chi-Square(10)	0.9949

Source: Computed from E-view
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.082559	Prob. F(1,11)	0.7792
Obs*R-squared	0.171338	Prob. Chi-Square(1)	0.6789

Source: Computed from E-view

The null hypothesis states that there is no serial correlation. Since each of the F-statistics probability value is greater than five percentage we cannot reject the null hypothesis of no serial correlation. It means that the result is good.

Stability Tests for LITR

The test is meant to test the appropriateness and stability of the estimated ECM model. This is to check if the coefficient of the model are stable and can be used for prediction. The stability test was conducted using the cumulative sum (CUSUM) and cumulative sum of square (CUSUMSQ) tests. If the plot of the CUSUM and CUSUMSQ for the model lies within the 5 percent critical bound it is suggestive that the model is stable. From our results, the model is stable.

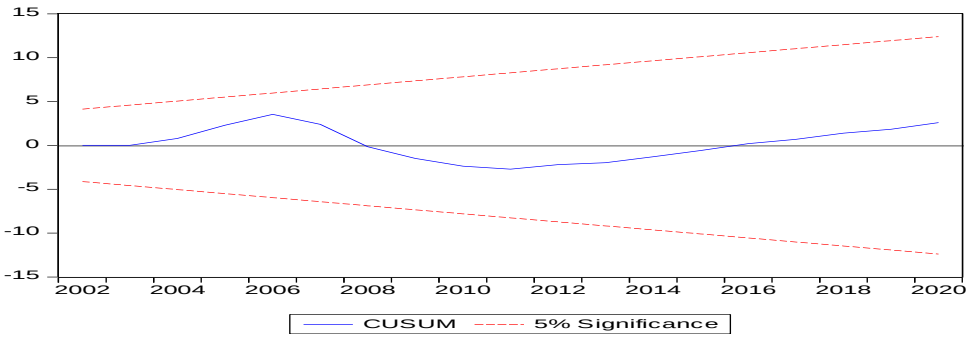

Figure 1. Cumulative sum for LIR Model

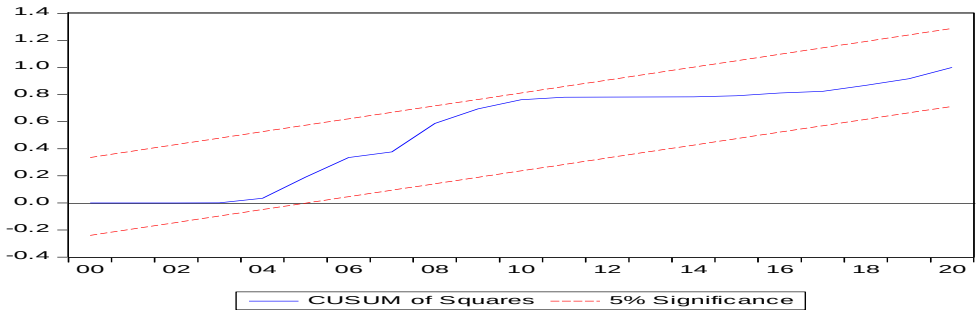

Figure 2. Cumulative sum of Square for LITR Model

Table 2 Bound Test for LOG (GNI) Model

ARDL Bounds Test
Date: 06/27/21 Time: 20:36
Sample: 1999 2020
Included observations: 22
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	16.08318	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	3.47	4.45
5%	4.01	5.07
2.5%	4.52	5.62
1%	5.17	6.36

Source: Computed from E-view

The result presented in table 2 shows that the calculated F-statistics of 16.08318 is higher than the upper bound critical value of 5.07 at 5% significant level. Based on this result, it is concluded that a long run relationship exists among the variables of GNI model. So, there is a long run co-integration amongst the variables in the gross national income per capita model.

Table 3 ARDL-ECM Short-run Results for LOG (GNI) model

Dependent Variable: LOG(GNI)
Selected Model: ARDL(2, 3, 2, 3)
Date: 06/27/21 Time: 20:37
Sample: 1996 2020
Included observations: 22

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(GNI(-1))	0.625914	0.153199	4.085625	0.0047
D(CPI)	0.017247	0.005962	2.893070	0.0232
D(CPI(-1))	-0.019476	0.005244	-3.713591	0.0075
D(CPI(-2))	0.013394	0.004853	2.759885	0.0281
D(POVR)	-0.000352	0.003523	-0.099867	0.9232
D(POVR(-1))	-0.012455	0.003087	-4.034475	0.0050
D(GOVTEF)	-0.172818	0.030703	-5.628691	0.0008
D(GOVTEF(-1))	0.204190	0.046427	4.398085	0.0032
D(GOVTEF(-2))	0.209753	0.038394	5.463208	0.0009
CointEq(-1)	-0.550595	0.107946	-5.100655	0.0014

Cointeq = LOG(GNI) - (0.0568*CPI + 0.0290*POVR -1.3643*GOVTEF
+
2.1363)

R-squared	0.862541	Mean dependent var	7.140194
Adjusted R-squared	0.842904	S.D. dependent var	0.712009
S.E. of regression	0.282207	Akaike info criterion	0.453295
Sum squared resid	1.672456	Schwarz criterion	0.648315
Log likelihood	-1.666184	Hannan-Quinn criter.	0.507385
F-statistic	43.92428	Durbin-Watson stat	1.761621
Prob(F-statistic)	0.000000		

Source: Computed from E-view9

Table 4 ARDL Long Run Regression for Gross National Income Per capita Model

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	0.056834	0.014421	3.941027	0.0056
POVR	0.029001	0.009157	3.167242	0.0158
GOVTEF	-1.364332	0.210456	-6.482746	0.0003
C	2.136264	0.691771	3.088107	0.0176

Source: Computed from E-view

Tables 5a Residual Diagnostics Test for Log(GNI)

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.043561	Prob. F(14,7)	0.5041
Obs*R-squared	14.87362	Prob. Chi-Square(14)	0.3868
Scaled explained SS	1.576087	Prob. Chi-Square(14)	1.0000

The null hypothesis states that there is no heteroskedasticity. Since each of the F-statistics probability value is greater than five percentage we cannot reject the null hypothesis of no heteroskedasticity. It thus means that the result of the model can be taken seriously, that is the result is good and could be used for prediction.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.141606	Prob. F(1,6)	0.7196
Obs*R-squared	0.507251	Prob. Chi-Square(1)	0.4763

Source: Computed from E-view

The null hypothesis states that there is no serial correlation. Since each of the F-statistics probability value is greater than five percentage we cannot reject the null hypothesis of no serial correlation. It means that the result is good.

Stability Tests for LOG (GNI)

The test is meant to test the appropriateness and stability of the estimated ECM model. This is to check if the coefficient of the model is stable and can be used for prediction. The stability test was conducted using the cumulative sum (CUSUM) and cumulative sum of square (CUSUMSQ) tests. If the plot of the CUSUM and CUSUMSQ for the model lies within the 5 percent critical bound it is suggestive that the model is stable. From our results, the model is stable.

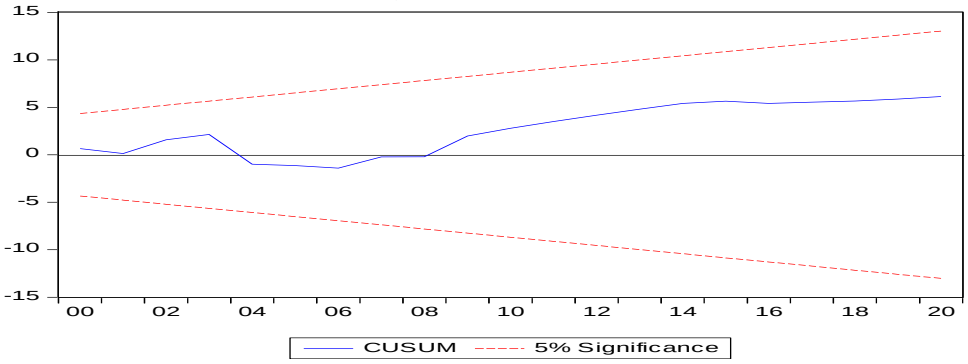

Figure a: Cumulative sum for LOG(GNI) Model

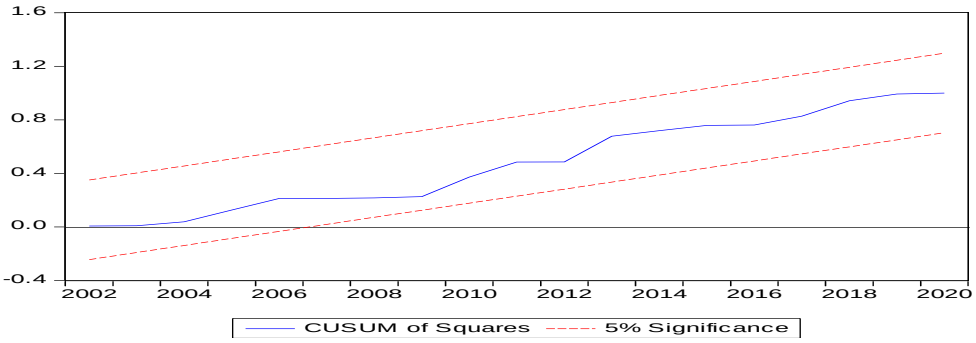

Figure b: Cumulative sum of square for LOG (GNI) Model

CONCLUSION/ RECOMMENDATIONS

This study examined the impact of corruption on economic development in Nigeria from the period 1996 – 2020. The study investigated the long run and short run relationship between the variables by using Autoregressive distributed lag (ARDL). The empirical results show that life expectancy is influenced positively by corruption perception index, poverty rate and government effectiveness in both the long run and short run. The variables are also found to be statistically significant in the short run except poverty rate, while in the long run it is only corruption perception index that is statistically significant. This result is in variance with that of Gupta (1998) who ascertained that corruption increases poverty rate by lowering economic growth and development, promoting a biased tax system in favour of the rich few, lowering social spending, reducing access to education and health.

The results also show that literacy rate has a negative relationship with corruption perception index and government effectiveness both in the long run and short run. The two variables are not statistically significant in the short run but in the long run corruption perception index is statistically significant. Poverty rate has a positive relationship with literacy rate in both the long run and short run. It is also found to be statistically significant in both the long run and short run. Mahuda (2013) found similar result as he concluded that poverty rate has a positive relationship with economic growth and development in Nigeria

It was also found that gross national income per capita is influenced positively by corruption perception index in both the long run and short run but in lag one and two periods in the short run, it has a negative impact on gross national income per capita. The coefficient of corruption perception index was also found to be statistically significant in both the long run and short run. Poverty rate has a negative influence only in the short run. The variable is found to be statistically significant only in the long run. Government effectiveness is statistically significant in both the long run and short run. The variable has a negative influence on gross national income per capita in Nigeria in both the long run and short run. This is in agreement with the findings of Fabayo et al (2011), in which they concluded that low corruption ranking in Nigeria which implies high level of corruption, leads to low investment and thus low economic growth and development in Nigeria.

Based on the findings, the study makes the following recommendations: Given that corruption skews and retards economic growth and development in Nigeria, therefore the duties of the anti-corruption agencies such as the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices and related Offences Commission (ICPC) should be strengthened to enable them achieve the desired result in the fight against corruption. They should be made independent of government control and at the same time, empowered to prosecute corrupt government officials without interference from the government. Nigeria should step up her game in the fight against corruption so that as an independent nation which has the prospect to grow a well-off industrial economy would be able to defeat hunger, mass poverty, and create jobs for the jobless, build world-class medical facilities, and schools for better education, with top-notch infrastructure for its citizens. As for poverty alleviation, the study considered that it can only be achieved if corruption is squarely or at least minimized to its lowest level. Already existing programmes were introduced by various governments towards poverty alleviation. They are hindered from being successful by corruption and insincerity in the implementation process. With sincerity of purpose and corrupt free policy making or rather less corrupt free policy makers, it is easy in a country with tremendous resources both human and material to alleviate poverty successfully within a few decades. More funds should be made available to the health and education sectors which have significant impact on the overall development of the nation. Also, our leader in government should show exemplary conducts by practicing good governance through transparency and accountability.

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