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ANALYSIS OF EFFECT OF GOVERNMENT REVENUE ALLOCATION ON REAL ECONOMIC GROWTH IN NIGERIA

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Abstract

The study examined the effect of Government revenue allocation on real economic growth in Nigeria spanning from 2001 to 2020. The study was guided by expost-facto design approach, and the time series data was sourced from the Central Bank of Nigeria (CBN) Bulletin and World Development Indicators (WDI). The ADF unit root test revealed that the variables were integrated at 1(1). The Error Correction Model was employed as estimation technique. The findings revealed that federal government share of revenue had a mean value of 2322.655; revenue allocated to state government had a mean of 1426.449, while revenue allocated to local government was 1088.073. The study found a uni-directional causality running from CPI to RAF, RAL and Ras respectively. Bi-directional causality exists between RAL and RAF and RAS and RAF respectively. The findings revealed that revenue allocated to the federal Government had a significant negative effect on real Gross Domestic Product (rGDP), and revenue allocation to Local and State governments had insignificant positive effect on real GDP. The findings established that corruption had an insignificant negative effect on real economic growth. The study concluded the effect of revenue allocation to the federal government on real GDP was negative and significant, while revenue allocated to State and local governments had positive but insignificant effect on real GDP. The study recommended among others that government should allocated more revenue to local Governments, State governments should diversify their internally generated revenue sources and government should intensify its efforts in fighting corruption in the economy.

Keywords: Government Revenue, Revenue Allocation, Economic Growth, Real Economic Group

JEL Classification Codes: E62, H63, H71

1. Introduction

The role of government in stabilizing the economy has been explicitly explained in the theoretical literature of the Keynesians. The Keynesians economists while justifying their stand argued that the collapse of the Classical School of thought was due the inability of the market forces (invisible hands) to ensure full employment equilibrium via its self-adjusting mechanism. Government intervention in economic activities primarily takes the form of fiscal policy where its tools such as government revenue, expenditure and debt operations are often used whenever disequilibrium occurs. It is often argued that the application of fiscal policy measures aimed at curbing macroeconomic challenges such as poverty and dismal growth in the economy looking at the fluctuating nature of the country's Gross Domestic Product (GDP) estimates amidst rising rates of inflation and unemployment. When government earns income for example, it is expected that such monies will be invested in areas that will boost output and employment in the economy because these variables are important in measuring the rate of growth a country's Gross Domestic Product (GDP) estimates. Hence, Onyele and Nwokocha

(2016) observed that sources of public funds such as federation account, independent revenue account and others when adequately utilized results in economic growth and development for Nigeria.

Therefore, in fulfilment of this important role of allocating resources to different sectors and tiers of government in a democratically governed country like Nigeria, revenue allocation has become an important area in fiscal policy debate in Nigeria. Sylvester and Ade (2018) opined that fiscal federalism recognizes two or three levels of government in which one central government must not perform the role of the other tiers of government in economic management; each level of government has different expenditure responsibilities and taxing powers. However, in the case of Nigeria, federally collected revenues are shared on a monthly basis among these federating units, but the federal government retains the larger share of revenue and the state and local governments have a smaller share out of the federation account. Oluleye and Zacchaeus (2019) stated that in in Nigeria, revenue generating and expenditure powers are shared among the three levels of government. They added that the nation's revenue sharing formula has been reviewed several times to keep pace with economic and political realities of the nation. Government has over the years used factors such as population, needs; even development and derivation among others are basis for sharing the federally collected revenue. These techniques support the basic assumption of fiscal federal that each federating units has unique functions that it is expected to play, but that the Federal Government exclusive powers in some areas despite the clear separation of powers that exists. It is in the light of these factors that amount allocated to the tiers of government monthly from the federation account collections differs, but the general assumption is that these monies will help in promoting economic activities economic growth in the country.

Agu, Okwo, Ugwunta and Idike (2015) noted that there have been call and counter calls that the revenue generation sources need to be increased and that Nigeria has suffered this economic backwardness due to low revenue as a result of fall in oil prices in recent times. Ohiomu and Oluyemi (2019) asserted that the stability and robustness of revenue is a function of the ability of the government to stimulate and sustain a high level of economic activities and utilize optimal mix of revenue-generating instruments. Yet, the issue of corruption is not new in developing countries and Nigeria in particular. Nigeria has over the years been considered one of the corrupt nations of the World owing to the increasing challenge of corruption with the most recent case being the alleged stolen of over eighty Billion Naira by the Accountant General of the Federation. The existence of corruption in almost every sector of the Nigerian economy has adversely affected both foreign and local investments in Nigeria. Nigeria's expenditure profiles have been high and in recent times there have been heated debate on the depletion of the excess crude account and its reserves (Abubaker, 2016). These have led to calls for change of leadership among some elites whilst some have blamed it to endemic corruption that has characterized previous governments and leadership amongst others. In the midst of these the citizens have continued to suffer abject poverty just to mention the few. Buttressing this, Omodero and Dandago (2018) stated that the level of corruption in Nigeria has made the Transparency International to consistently rate Nigeria as one of the top three most corrupt countries in the world.

The need for the achieving real growth in the economy could be linked to the fact that economic growth is considered a macroeconomic goal of every society regardless of the economic system it operates, while growth in real terms is important because developing economics are characterized by among other macroeconomic problems high rate of inflation. This therefore suggests that figuring the effect of inflation if a country's Gross Domestic Product (GDP) estimate which is the major issue of concern in real growth debate is important in assessing how growth impacts on the wellbeing of the people in a given society. Revenue allocation in Nigeria borders on the promotion of national unity and rapid economic growth and it is however sad that despite continuous increase in revenue generation, the expected impact on economic growth in Nigeria has not been realized. The growth statistic suggests that growth has been experiencing a faltering position within this short term as depicted by the statistics of the country's Gross Domestic Product (GDP), however

looking at contributions of revenue allocation to each of the tiers of government empirically needed for making informed macroeconomic decisions. Unfortunately, there have been so many discontentments with the various revenue sharing formulae on the ground that they have not met the sustainable economic growth needs of the country. This could be linked to the view of Plowshare (2017), that there are spikes in inflation, a dramatic increase in unemployment, negative and low economic growth rate as well as a substantive decrease in foreign reserves and all of these signify economic downturn for the nation.

Despite the fact that Federal, States and Local Government shared the federally collected revenue with the aim of achieving macroeconomic goals, including sustainable economic growth, it has been observed that most of the States and Local Government Areas in the country have limited sources of internally generated revenue, a situation that seems to have impacted badly on the country's Gross Domestic Product (GDP) considering the fact that in 2016 and 2020 Nigeria experienced economic recession. Disturbed by this challenge, each tier of government has been advised to look inward by way of diversifying its economy and revenue base in particular so as to boost production and supply, the high rate of inflation in the country is a pointer to the fact that economic growth despite these allocations of revenues to federating units is still a macroeconomic problem yet to be addressed, and if allowed to continue, real economic growth may not be achieved. Consequently, in an effort to provide empirical evidence of the nexus between revenue allocation and economic growth related variables, the empirical studies of (Usman, 2011; Sylvester & Ade, 2018; Sani, Aondowase, Kabiru & Yerima,2019) among others concentrated on the relationship between revenue allocation related variables and economic growth, but the effect of corruption on growth in the economy was not captured. Similarly, scholars like (Sunkanni & Ishola,2014; Nwankwo,2014) among others studied corruption and economic growth in Nigeria, without looking at their relationship with revenue allocation. These studies neither capture real economic growth, nor used time series data spanning up to 2020 looking at the perceived effects on the economic recession of real growth in the economy. This study seeks to examine the effect of government revenue allocation on real economic growth in Nigeria from 2001 to 2020. The following specific objectives were formulated to guide this research:

i. To examine the effect of Federal Government share of revenue on economic growth in Nigeria
ii. To find out the effect of State Governments revenue share of revenue on economic growth in Nigeria
iii. To determine the effect of Local Governments, share of revenue on economic growth in Nigeria
iv. To investigate the effect of corruption on economic growth in Nigeria

2. Literature Review

2.1 Theoretical Framework

This study was hinged on the Keynesians theory of macroeconomic reasoning put forward by John M. Keynes (1936).The Keynesians came as a fallout of the self-adjusting mechanism of the economy as argued by the Classical school of economics could not explain the causes of the Great Depression of 1929-1933 and it was also not able to provide solutions to the macroeconomic problem. Keynes and his associates postulated that there is need for government intervention in the economic to ensure equilibrium or economic stability when things begin to fall apart. Justifying this view, Keynesians opined that the A.C Pigou assumption that a cut in wages for instance can raise employment and move the economy towards full employment equilibrium. Therefore, government can use fiscal policy instruments such as government revenue and expenditure to stabilize the economy. The relevance of this theory to the present research is predicated on the assumption that whenever government allocates its revenue collected to components units, it incurs expenses that are targeted at boosting economic activities, economic growth and in the long-run ensure stability in prices so as to prevent inflation which is an important macroeconomic variables in measuring real economic growth in the economy.

2.2 Conceptual Issues

Generally, the concept of government revenue basically implies monies that accrues to the government, be it Federal State or Local Government. Government revenue is the income generated from various resources that government utilizes for execution of its obligations. Government revenue comprises of many sources. They include revenue from oil and oil related sources; non-oil sources (including taxation, federation account, levies); independent revenue; and other sources (Proshare, 2016). Government through the budget estimates the amount of revenue as well as expenditure it will embark on so as to actualize its macroeconomic objectives and ultimately achieve development status (Onuchukwu, Kalagbor & Nzor, 2012). The amount of revenue that government generates at any in time is determined by factors such as resource endowment, level of economic activities and the efficiency of its revenue collection machinery. Equally, the stability and growth of revenue is a function of the ability of the government to stimulate and sustain a high level of economic activities and an optimal mix of revenue-generating instruments. Ohiomu and Oluyemi (2017) defined revenue allocation is an important fiscal policy issue in developing economies because most of federal units in these countries rely so much on the central government. Revenue allocation basically means the distribution of national revenue among the various tiers of Government in the Federation in such a way as to reflect the structure of fiscal Federalism.

Government revenue if collected or earned is shared between the Federal or Central Government and its sub-government or federating units. Onigbinde (2017) reported that the government revenue amounted to N295.3billion in 2014, it rose to N323.2billion in 2015 and felt to N237.7 billion 2016, depicting some level of fluctuations in government revenue. Furthermore, Berembo and Igonikon (2020) reported that it fells to 155.1billion in year 2017 indicating that revenue leakages still exist in the face of the implementation of treasury single account system of the federal government and other payment platforms that are supposed to block revenue leakages that could affect the amount allocated to each of the tier of government as a way of promoting economic growth in the economy. The statistics of federally collected and distributed revenue in Nigeria revealed a fluctuating situation as the figures keeping moving in a cyclical pattern. Ahmed (2019) reported that the Federation Accounts Allocation Committee (FAAC) allocated ₦619.857 billion to the three tiers of government in March, 2019 which was generated in February, 2019. This was inclusive of the 13% derivation revenue for oil producing states and the 11% cost for revenue generating agencies. The report revealed that the Federal Government received ₦257.681 billion, States received ₦169.925 billion, Local Government Areas received ₦127.722 billion, Oil Producing States received ₦50.946 billion and the cost for revenue generating agencies received ₦13.582 billion. In April, 2019, ₦617.566 billion was shared among the three tiers of government as revenue generated. The break down shows that Federal Government received ₦257.758 billion, States received ₦168.254 billion, Local Government Areas received ₦126.575 billion, Oil Producing States received ₦49.823 billion while the cost for revenue generating agencies received ₦15.156 billion as cost for revenue collection, transfers and FIRS Refund (Ahmed, 2019).

Economic growth is majorly a measure of the productivity level in an economy. In order words, growth has a country is concern with quantitative increase in the productive capacity of all sectors of the economy. Berembo and Igonikon (2020) asserted that economic growth means an increase in the amount of the goods and services produced over a specific period of time and economists use an increase in country's GDP to measure economic growth. The GDP is expressed as a comparison to the previous quarter or year. Ironkwe and Success (2017) stated that if the year-to-year GDP is up 5%, this is thought to mean that the economy has grown by 5% over the last year. When a country growth rate increases, it means that more goods and services in nominal terms have been produced in the country, but this may not also translate to reduced poverty, unemployment, improve standard of living or welfare because these are indicators of development which is a much broader concept than growth. Real economic growth captures the effect of inflation on the Gross Domestic Product estimate for a period of time. This is important because inflation

reduces the value of money which cans in the long-run affect the welfare of people in the economy.

The augment is that Government allocates resources to its components units, on the assumption that such funds will be channeled into reproductive sectors that will bring about higher productivity, employment opportunities, poverty reduction, stability is prices of goods and services and also promotes sustainable growth in the economy. Berembo and Igonikon (2020) reported that between the January of 2015 and January of 2018, the economic growth was witnessed in Nigeria at a faster rate in 2015 with a record of 3.96 %, but within one year it has a negative figure of -0.67 in January 2016 indicating a recession in the economy. Nigeria growth rate increased between 2017 to 2019, but had a negative estimate aging in 2020 signifying another recession. It is assumed that effective utilization of the revenue allocated to the different tiers of government in line with the fiscal federalism principle will help in boosting economic activities and real growth in the economy. Sadly, finding in extant literature indicated that corruption seems to be one of the obstacles the hinders the achievement of this macroeconomic growth in Nigeria. Akinlabi, Hamed and Awoniyi (2011) defined corruption as a deliberate way of misrepresenting facts, realities and management of situation in which someone finds himself in an effort to deceive and gain both material and non-material things. While, Hasan and Nuri (2013) viewed corruption as the misuse of public office for private gains. In order words, corruption occurs when an individual or group of individuals use their position to enrich or favour them or people they consider more important in the society.

Bolgorian (2011) posited that globally, corruption is endemic and pervasive in nature, thereby constituting a major hindrance to economic and investment growth also impacts negatively the public service delivery as well as increases the social inequality. Natalia (2016) posited that corruption includes bribery, extortion, and misuse of insider information and thrives where policy enforcement is lacking. In it's in the light of this also that Omodero and Dandago (2018) defined corruption as any form of manipulation of corporate information and accounting data in which investors rely upon to believe in share prices and make investment decisions. The deduction from this literature is that corruption entails the misuse and abuse of one's position, opportunity and power for personal or selfish gains to the detriment of some persons or the society.

2.3 Empirical Review

Revenue allocation, corruption and economic growth have been extensively studied in extant literature, but is obvious is that there are variations in the results of these studies. For instance, Sunkanmi and Isola (2014) examined the relationship between corruption and economic growth in Nigeria using time series data spanning from 1980 to 2010. The study used the Ordinary Least Squares (OLS). The study found that corruption had a positive and significant relationship with the foreign direct investment, gross capital formation and government expenditure but found no significant relationship between corruption and GDP as well as openness of the economy and globalization. The study recommended that the anti-graft agencies in Nigeria should be more empowered to fight graft while more awareness should be created among young people on the importance of moral values. The strength of this study lies on the fact that it was on corruption and economic growth it also employed time series data. However, its major weakness is that it covers the period 1980 and 2010 and also used the OLS technique, while the current research covered 2001 to 2020 periods which is more current and the ARDL technique was employed. Nwankwo (2014) investigated the impact of corruption on the growth of Nigerian economy using the OLS regression techniques. The study made use of GDP as proxy for economic growth while corruption index was used as the independent variable. The result revealed a negative impact of corruption on the economic growth and recommended the need for the formulation of policies that could minimize corruption hindering the growth of the Nigerian economy. This study is relevant to the current work since it captures the corruption and economic growth, but failed to include impact of revenue allocation on growth in the economy.

Ogbonna and Osadume (2017) examined the effect of revenue allocation on economic growth in Nigeria using the Ordinary Least Squares (OLS). The

result found no significant impact of revenue allocation on economic growth and there was no Granger causality from any direction. The major strength of this study lies on the fact that it captures revenue allocation and economic growth as variables of interest. The current research on the other hand focused on real economic growth that takes care of inflation rate and used the ARDL techniques of estimation. Olayungbo and Adediran (2017) investigated the effects of government revenue on economic growth in Nigeria by using annual data from 1984 to 2014, using the Autoregressive Distributed Lag (ARDL) model. The study revealed that institutional quality is important in explaining the relationship between oil revenue and economic growth in Nigeria. The relevance of the present research to this study is that it focuses on economic growth, but their major defeat is that it was on government revenue, not revenue allocation which is the concern the current work.

Slyvester and Ade (2018) investigated the structure and formula for revenue allocation in Nigeria and its implications for sustainable national development. The study used the methodology of Error Correction Model (ECM), while Gross Domestic Product (GDP) as the dependent variable and revenue allocation to the three levels of government, inflation and lending interest rate as the independent variables. The results showed that revenue allocations and the other variables explanatory have a significant relationship with economic growth in Nigeria. The study recommended among others that there should be accountability and transparency in the federating units to achieve national goals and objectives and government should focus on optimal revenue allocation targeted at economic growth to improve the standard of living of the citizenry. The inclusion of revenue allocation to the three tiers of government as variable of interest justifies the choice of this study as empirical literature to be reviewed. However, its major shortcoming is that it concentrated on the Gross Domestic Product (GDP) as a major of nominal growth in the economic instead of real Gross Domestic Products that measures real economic growth.

Sani, Aondowase, Kabiru and Alhassan (2019) examined the impact of revenue allocation on economic development in Nigeria using the Dynamic Ordinary Least Squares (DOLS) for analyze. The results indicated that only revenue allocation to the federal government had positive and significant impact on economic development in Nigeria, revenue allocation to state and local government had positive but insignificant impact on economic development. The study recommended that federal government should increase its sources of revenue through economic diversification to reduce heavy reliance of the government on crude oil so as to promote economic development in Nigeria, and state and local government should improve their internally generated revenue so as to augment allocation received from federal government. The relevance of this study to the present research is predicated on the fact that it captures revenue allocation as a variable of interest, but while it examines its effect on national development which is a broader concept which is difficult to measure using just an indicator, the present study assesses its effect on real economic growth in Nigeria.

Ohiomu and Oluyemi (2019) investigated the structure and formula for revenue allocation in Nigeria and its implications for sustainable national development. The study used Auto Regressive Distributed Lag (ARDL) Bounds Testing. The study used the Gross Domestic Product (GDP) as the dependent variable and revenue allocation to the three levels of government, and oil revenue as the independent variables. The results from the study showed that revenue allocations and the other variables have significant relationship with economic growth in Nigeria. The study recommended among others that the current revenue allocation formula should be reviewed to embrace autonomy in its entirety so as to achieve national goals and objectives. Furthermore, it was recommended that the different levels of government should be adequately funded to enable it carry out its expenditure responsibilities to accelerate grass root development. This study is also relevance to the current study because it was on revenue allocation which is also the concern of the present research. However, while the scholars focused on sustainable national development and only proxy national development with the GDP, this study used real Gross Domestic Product (GDP) cannot stand as a measure of economic growth in Nigeria.

3. Methodology

This study employed the *expost-facto* design approach because it focuses on studying variables whose estimates have been documented in secondary sources such that they cannot be manipulated. The study used annual time series data on revenue allocation to Federal, State and Local Government expressed in Billions of Nigeria, Corruption perception Index (CPI) as measure of corruption and real Gross Domestic product (RGDP) as a measure of real economic growth in Nigeria covering 2001 to 2020. The data on revenue allocation was sourced from the Central Bank of Nigeria while data on real GDP and CPI came from World Development Indicators (WDI) databank. The period 2001 was selected based on the fact that Nigeria was just two years as a democratically governed country where fiscal federalism is an essential feature, while 2020 was also used because Nigeria experienced another economic recession after the 2016 recession and it also captures the period of the Covid-19 pandemic that none of reviewed empirical studies captured despite its effect on the economy of Nigeria.

3.1 Model Specification/Estimation

The specification of the model captures the functional relationship between the dependent and independent variables. The dependent variable is economic growth and its proxy is real GDP, while Revenue allocated to Federal Government (RAF), revenue allocated to States Government (RAS) and revenue allocated to local Government (RAL) and corruption which is proxy by the corruption perception index (CPI) are the independent variables. Therefore, the unit root test revealed all the variables were integrated at their first difference or 1(1) order of integration, making the Error Correction Model (ECM) the most appropriate technique for estimating the model since it was a single equation model technique. Consequently, the implicit specification of the relationship between the variables is as follows

$$rGDP = f(RAF, RAS, RAL, CPI)$$

However, the explicit form of the Multiple regression model following the OLS assumption taken note of the parameters to be estimated takes the form:

$$\ln rGDP_t = \beta_0 + \beta_1 \ln RAF_t + \beta_2 \ln RAS_t + \beta_3 \ln RAL_t + \beta_4 \ln CPI_t + \varepsilon_t \quad (2)$$

Equation 2 shows the relationship between the variables in line with the Ordinary Least Square Multiple Regression modeling approach. Therefore, $\beta_1 - \beta_4$ are the parameters, to be estimated. The *apriori* expectation based on economics theory is that the estimates the slope parameters for revenue allocated to Federal Government (RAF), revenue allocated to State Government (RAS) and revenue allocated to Local Government (RAL),respectively are expected positive, indicating that an increase in these allocations should lead to an increase in real growth in the economy, all things being equal. The estimated estimates for corruption perception index (CPI) is expected to be negative, indicating that an inverse relationship is expected between corruption and real economic growth in Nigeria. It is important to note that since the unit root results revealed that all the variables were found to be integrated at first difference or 1(1), the Error Correction Model was employed. The study therefore employed the estimation method used in the empirical studies of Sylvester and Ade (2018), but with modification in terms of variables used: Therefore, based on its generic form, the model is expressed as follows:

$$\Delta \ln rGDP_t = \beta_0 + \beta_1 \Delta \ln RAF_t + \beta_2 \Delta \ln RAS_t + \beta_3 \Delta \ln RALG_t + \beta_3 \Delta \ln CPI_t + \lambda_i ECM_{t-1} + \varepsilon_t \quad (3)$$

The model in equation (3), shows that the parameter λ measures the coefficient of the speed of adjustment process of the Error Correction Model (ECM) from the long-run disequilibrium to a short-run equilibrium when evidence of long-run relationship between the variables is econometrically established. The advantage of using an Error Correction Model to test for relationship is that it allows testing for short-run causality through the lagged

differenced explanatory variables as well as the long-run relationship through the lagged ECM_{t-1} term.

4. Results and Discussion

Table 1: Results of Descriptive Analysis

Variable	CPI	RAF	RAL	RAS	RGDP
Mean	2.321053	2322.655	1088.073	1426.449	5.661301
Median	2.500000	2416.510	1151.530	1511.510	6.666848
Maximum	2.900000	3711.750	1867.430	2389.650	14.60438
Minimum	1.000000	723.9200	324.2300	404.6100	-1.920000
Std. Dev.	0.562316	992.6670	501.5116	663.1405	4.207187
Skewness	-0.980913	-0.153827	-0.094227	-0.141889	-0.058009
Kurtosis	2.790918	2.746073	2.726632	2.729468	2.703271
Jarque-Bera	3.081546	2.319696	3.311776	3.341702	3.080361
Probability	0.214215	0.516930	0.518981	0.511273	0.960616
Sum	44.10000	44130.45	20673.39	27102.54	107.5647
Sum Sq. Dev.	5.691579	17736981	4527250.	7915597.	318.6076
Observations	19	19	19	19	19

The findings revealed that federal government share of revenue had a mean value of 2322.655, revenue allocated to state government had a mean of 1426.449, while revenue allocated to local government was 1088.073. This implies that Federal Government had a higher share of the federally collected revenue. Furthermore, it was found that corruption had a mean of 2.321 and real Gross Domestic Product had a mean of 5.661. The estimates of the skewness and kurtosis indicated that the distribution was normal based on the rule of thumb. The estimated coefficient of the Jarque-Bera (JB) statistic as attested to this since its value was approximately 3 in line with the JB bench mark for normality of a distribution.

Table 2: Augmented Dickey Fuller Unit Root Test

Variable	Coefficient at 5%	ADF Coefficient at 5%	p-value	Order of Integration
RGDP	-3.065585	-5.569145	0.0004	1(1)
RAF	-3.040391	-3.514909	0.0199	1(1)
RAS	-3.040391	-3.166064	0.0394	1(1)
RAL	-3.081002	-3.105204	0.0479	1(1)
CPI	-3.040391	-7.276335	0.0000	1(1)

The findings from the ADF unit root test revealed that the presence of non-stationarity because all the variables were integrated at their first difference,1(1). What this implies is that the conventional Ordinary Least Square Regression cannot be used for estimation, rather long-run test statistic and specifically the Error Correction Model becomes the most appropriate estimation technique.

Table 3: Results of Engle Granger Cointegration Test

Test Statistic		Value	Prob.*	
Engle-Granger tau-statistic		-3.691893	0.3595	
Engle-Granger z-statistic		-15.91622	0.3199	

The null hypothesis tested is that there is cointegration. However, since the $p>0.05$, the null hypothesis was accepted and the conclusion drawn is that there is cointegration among the variables. What this means is that there is long-run relationship between in the model such that even if there is shock in the short-run that leads

to disequilibrium, the variables will converge at equilibrium in the long-run. However, the fact that the variables are cointegrated implies that there is some adjustment process preventing the errors in the long-run relationship from becoming larger and larger which can best be explained using the ECM test. Kilishi (2017) pointed out that if variables are found to be integrated of 1(1) and there is cointegration, the model can be estimated by ECM or cointegrating Ordinary Least Square Regression such as Fully Modified OLS and Dynamic OLS technique.

Table 4: Results of Fully Modified OLS Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.990027	3.397835	-0.879980	0.4018
D(RAF)	-0.150776	0.008301	-0.093464	0.0276
D(RAS)	0.087656	0.019212	0.398506	0.6995
D(RAL)	0.024957	0.056747	0.439786	0.6705
D(CPI)	-0.220160	4.064180	-0.546275	0.5982
ECM(-1)	-0.427988	0.044932	-0.622888	0.5488
R-squared	0.453894	Mean dependent var		-0.831493
Adjusted R-squared	0.360610	S.D. dependent var		2.501637
S.E. of regression	2.695054	Akaike info criterion		5.109888
Sum squared resid	65.36983	Schwarz criterion		5.393108
Log likelihood	-32.32416	Hannan-Quinn criter.		5.106871
F-statistic	0.612525	Durbin-Watson stat		1.826545
Prob(F-statistic)	0.693808			

The findings from the ECM in Table 5 revealed that RAF had a coefficient of -0.150776 and p-value of 0.4018. This implies that a unit increase in revenue allocated to the Federal Government leads to 15.07 percent decrease in real GDP in Nigeria, but the effect is insignificant. It was also revealed that a unit increase in revenue allocated to States lead to 8.77 percent increase in real growth in the economic, but the effect is insignificant. Furthermore, it was found that a unit increase in revenue allocated to the local government leas to 2.50 percent increase in real GDP, and a unit increase in CPI leads to a 22.02 percent decrease in real GDP in Nigeria. The findings that showed that while RAF had significant effect of RGDP, it was revealed that RAS, RAL and CPI respectively had insignificant effect on RGDP in Nigeria. The adjusted R square coefficient indicated that only 36.06 percent of the variables in the dependent variable (RGDP) was explained by the independent variables, while a greater variable of the changes was attributed to other factors captured by the error term in the model. Similarly, the ECM coefficient showed that about 42.81 percent of the errors will be corrected to bring back the model to a state of equilibrium in the short-run after a shock or disequilibrium. Durbin Watson (DW) coefficient of 1.826545 which is approximately 2 implies that the model is free from the problem of serial correlation.

Table 5: Results of Pairwise Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
RAF does not Granger Cause CPI	18	0.04873	0.9526
CPI does not Granger Cause RAF		3.69368	0.0537
RAL does not Granger Cause CPI	15	0.04044	0.9605
CPI does not Granger Cause RAL		6.00164	0.0194
RAS does not Granger Cause CPI	18	0.02855	0.9719
CPI does not Granger Cause RAS		3.83554	0.0491

RGDP does not Granger Cause CPI	18	1.70375	0.2202
CPI does not Granger Cause RGDP		0.17389	0.8423
RAL does not Granger Cause RAF	15	13.0957	0.0016
RAF does not Granger Cause RAL		24.1596	0.0001
RAS does not Granger Cause RAF	18	4.27773	0.0374
RAF does not Granger Cause RAS		4.73169	0.0286
RGDP does not Granger Cause RAF	18	1.22961	0.3243
RAF does not Granger Cause RGDP		1.37704	0.2868
RAS does not Granger Cause RAL	15	4.15720	0.0485
RAL does not Granger Cause RAS		3.45478	0.0723
RGDP does not Granger Cause RAL	15	3.70948	0.0624
RAL does not Granger Cause RGDP		2.24965	0.1561
RGDP does not Granger Cause RAS	18	1.80830	0.2028
RAS does not Granger Cause RGDP		2.35611	0.1339

The findings from the pairwise granger causality showed a uni-directional causality running from CPI to RAS, which implies that corruption granger caused revenue allocated to State. Furthermore, uni-directional causality exists running from CPI to RAL, indicating that corruption granger caused revenue allocated to local government. Similarly, it was found that a bi-directional causality exists between revenue allocated to local government and revenue allocated to the federal government. In order words, the amount of revenue allocated to the local governments had effect on federal government share of the federally collected revenue. The results also revealed a bi-directional causality between revenue allocated to States and revenue allocated to the Federal Government. This means the amount of revenue allocated to State governments had significant effect on revenue allocated to the federal government.

Table 6: Results of Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.004801	Prob. F(2,12)	0.9952
Obs*R-squared	0.015190	Prob. Chi-Square (2)	0.9924

The findings from the test of serial correlation revealed that F(2,12) has an estimated coefficient of 0.004801 and a p-value of 0.9952. Therefore, since p>0.05, the null hypothesis of no serial correlation was accepted and the conclusion is that the error terms do not correlate; hence the issue of spurious regression is rule out.

Table 7: Results Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.881729	Prob. F(4,14)	0.1696
Obs*R-squared	6.643377	Prob. Chi-Square (4)	0.1560
Scaled explained SS	3.728096	Prob. Chi-Square (4)	0.4441

The heteroskedasticity test is carried out to examine the constant variables assumption of regression analysis. The findings showed that F(4,14=1.881729 ,p=0.1696), which implies that p>0.04. Based on this, the null hypothesis of no heteroscedasticity was accepted. The conclusion drawn is that the error terms were homoscedastic or their variance was found to be constant in line with the rule of thumb.

Table 8: Results of Ramsey RESET Test of Linearity				
	Value	df	Probability	
t-statistic	1.125312	13	0.2808	
F-statistic	1.266328	(1, 13)	0.2808	
Likelihood ratio	1.766102	1	0.1839	

The Ramsey RESET test is an econometric diagnostic test used to find out whether the model was correctly specified. It is also seen as the test of linearity because it measures a linear relationship between variables. Thus, the results of analysis indicated that the p-values for the t-statistic, F-statistic and Likelihood ratio respectively were found to be greater than 0.05 level of significance. This implies that the null hypothesis that the model was correctly specified was accepted. In order words, no specification error was detected in their linear specification of the model estimated.

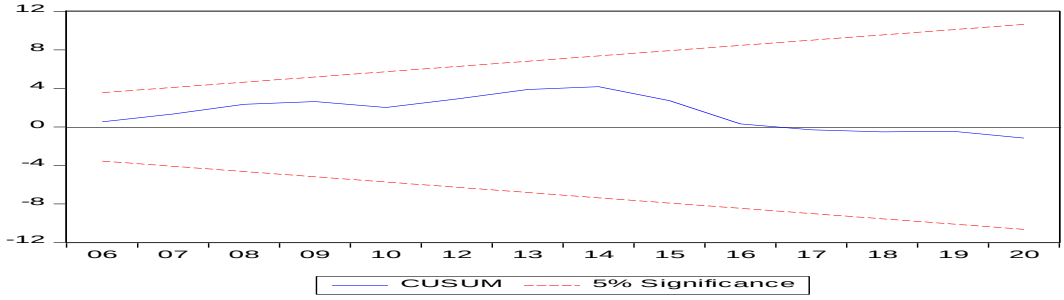

Figure 1: CUSUM Plot of Parameter Stability

In econometric analysis, the stability of the estimated parameter is important because it provide empirical evidence of the relevance of the estimates in policy formulation. Consequently, the CUSUM plot in figure 1.0 revealed that the parameters were found to be stable at 0.05 level since the green graph was found in-between the two red lines used as the boundaries.

4.1 Discussion of Findings

The analysis of the effect of government revenue on real economic growth in Nigeria revealed that federal government share of revenue had a mean value of 2,322.655, revenue allocated to state government had a mean of 1,426.449, while revenue allocated to local government was 1,088.073. This implies that Federal Government had a higher share of the federally collected revenue. Furthermore, it revealed that corruption had a mean of 2.321 and real Gross Domestic Product had a mean of 5.661. This implies that government revenue to the Federal Government within the study period was higher than the amount allocated to other tiers of government. The results of revealed that revenue allocated to the Federal Government had a significant negative effect on real economic growth in Nigeria. Sani *et'al*.,(2019) found in their study that only revenue allocation to the federal government had positive and significant impact on economic development in Nigeria, revenue allocation to state and local government had positive but insignificant impact on economic development.

Similarly, the results indicated that a unit increase in revenue allocated to the Federal Government leads to 15.07 percent decrease in real GDP in Nigeria. The results established that revenue allocated to State government had an insignificant positive effect on real Gross Domestic Product or real economic growth. The coefficients showed that a unit increase in revenue allocated to States lead to 8.77 percent increase in real growth in the economic, but the effect is insignificant. Similarly, the results indicated revenue allocated to local governments had an insignificant positive effect on real Gross Domestic Product in Nigeria. Ogbonna and Osadume (2017) had examined the effect of revenue allocation on economic growth in Nigeria and found no significant impact of revenue allocation on economic growth and there was no Granger causality from any

direction. Furthermore, the findings revealed that corruption perception index (CPI) used to proxy corruption had an insignificant negative effect on real growth in the economy. This supports the findings of Nwankwo (2014) that revealed that corruption had impact on the economic growth and recommended the need for the formulation of policies that could minimize corruption hindering the growth of the Nigerian economy. The estimate revealed that a unit increase in revenue allocated to the local government leas to 2.50 percent increase in real GDP, and a unit increase in corruption leads to a 22.02 percent decrease in real GDP in Nigeria. But, Sunkanmi and Isola (2014) examined the relationship between corruption and economic growth in Nigeria and found no significant relationship between corruption and Gross Domestic Product (GDP) in Nigeria.

5. Conclusion and Recommendations

Revenue allocation is a fiscal policy issue that has attracted the attention of many scholars. Findings from extant literature revealed that federally collected revenue from different sources constitute part of the money shared by the federal government and its component units. The study found that a larger share of the revenue goes to the federal government. The results of analysis also revealed that revenue allocation to federal government had a significant and a negative effect on real economic growth, but revenue allocation to States and Local Governments has an insignificant positive effect on real growth in the economy. More so, corruption had an insignificant negative effect of real economic growth in Nigeria. The study concluded that revenue allocation to federal government and corruption have negative on real economic growth, while state and local governments share of the allocation had positive and insignificant effect on real economic growth in Nigeria.

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

i. The Federal government should allocate more revenue to local and State governments so as to boost economic activities and their contribution to the real Gross Domestic Product in the economy
ii. State governments should diversify their internally generated revenue sources in order to improve on their contributions to the real Gross Domestic Product
iii. The government at all levels should intensify efforts in fighting corruption that tends to limit real economic growth rate in the economy.

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