

Government Revenue and Budget Implementation in Nigeria

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Abstract: The study examined the relationship between government revenues and budget implementation in Nigeria for a period of twenty years (20 years) spanning from 1997-2016. Specifically, it examined the short-run and long run effect of both oil and non-oil revenues on budget implementation in Nigeria also established the direction of relationship between these sources of revenue and budget implementation in Nigeria. Time series data used for the study were collected from Central Bank of Nigeria, (CBN) Statistical Bulletins of various years and National Bureau of Statistics (NBS) Bulletins. Error correction model was adopted for the estimation of the parameters in the short-run while Johansen Co-integration test was conducted to determine the long run relationship of the variables. Granger causality established the direction of causality among the variables. The study found out that oil revenue had a positive and significant impact on budget implementation in Nigeria in the short run with a co-efficient and probability value of 0.394331($p=0.0373$) whereas, actual non-oil revenue had a positive and significant effect on budget implementation in the long run with coefficient of 1.8055 and probability value of 0.0225. The Granger causality test established a unidirectional relationship between non-oil revenue between and budget implementation in Nigeria. This study concluded that oil revenue had positive and significant effect on budget implementation in Nigeria in the short-run while actual non-oil expenditure had a positive and significant effect in the long-run. This is a confirmation that Nigeria depends so much on revenue from oil and it implies that Nigeria is a mono-product economy.

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I. Introduction

The Government of Nigeria has several policies to implement in the overall task of performing its functions to meet the objectives of social and economic growth. For implementing these policies, it has to spend huge amount of funds on defense, administration, and development, welfare projects and various other relief operations. It is necessary to find out all possible sources of getting funds so that sufficient revenue can be generated to meet the mounting government expenditure in order to improve the budget implementation. An effectively implemented budget not only to ensure economic stability but also to generate employment opportunities and accelerate economic growth and development. It also plays a vital role in alleviating mass poverty and reducing the severity of income inequality and some other elementary problems. In total, an efficient and implemented budget encourages fiscal discipline and effective allocation of resources. According to Olaoye (2016) a budget is designed to arrest the declining growth in the production sector, check inflationary pressure, correct balance of payment deficit and maintaining a reasonable foreign exchange reserve but these purposes have been remained largely unachieved in Nigeria. In essence, budgeting and its process in Nigeria remain problematic both in the areas of preparation and implementation. (Oke, 2013).

Available data from the Central Bank of Nigeria Statistical Bulletin indicated that government expenditure increased every year in Nigeria as population grew and demographic changes took place. However, the question here is whether sufficient resources are available to fund these expenditures. As noted by Nwosu and Okafor (2014), the growing disparity between revenue and expenditure in many countries has been a source of concern for economists, analysts and researchers. Such fiscal imbalances with the attendant adverse effects on economies have provoked intensive research on the cause and effects of such disparities. This variance is also of a great concern to government and citizens of the affected countries. Budget implementation problems arise especially when the actual implementation varies from the budgeted estimation. Inability of the government to generate enough income will lead to issue of poor implementation with constrained achievement on most spelt-out development goals and objectives. These are manifested in many abandoned development projects.

An understanding of the relationship between government revenue and expenditure will go a long way in evaluating budget implementation in Nigeria, which is critical in the formulation of a sound or excellent fiscal policy to prevent or reduce unsustainable fiscal deficits. (Eita & Mbazima, 2008). The motivation for this study is premised on the need to carry out recent examination of the impact of oil and non-oil revenue on budget

implementation in Nigeria and to investigate if there is a long-run relationship between budget implementation and oil and non-oil revenues in Nigeria in addition to establishing the direction of causality between budget implementation and oil and non-oil revenues in Nigeria. Therefore, filling the gap between the past and the new empirical results. The paper structure is as follows: The first section is introduction, section two deals with literature review, the third part is methodology while the fourth section is on results and discussion. The last part deals with conclusion and recommendations.

II. Literature Review

A budget is a financial and quantitative statement prepared and approved prior to a defined period of time for the purpose of attaining a given objective. A budget is normally for a year, it is therefore a short-term plan. A Government budget shows authorized appropriations and estimated revenue. A budget is an economic and financial document. It highlights Government's policies which are designed to promote economic growth, full employment and enhance the quality of life of the citizenry. Budget is therefore, a useful guide for the allocation of available resources.

According to Olaoye (2014), Budget implementation is a period in which the approved appropriation is used in incurring expenditure, delivering services and accounting for the transaction and events that relate to them. The implementation of the budgeting provisions involves action and control, the aim been to have the end product as close as possible to what is intended or planned for. Budget implementation is the actual functioning, performance and execution of a specific revenue and expenditure estimation.

Performance-based budgeting Theory is attributed to the innovations brought into public sector budgeting by Osborne and Gaebler in 1992. By way of definition performance-based budget can be described as a budgeting system that reflects the input of resources and the output of services for each unit of an organization. This type of budget is commonly used by the government to show the link between the funds provided to the public and the outcome of these services. Allocation of funds and resources are based on their measurable potential results. The theory indicated a five-point measure of budget which includes output, activity, outcomes, effectiveness and efficiency.

Musgrave Theory of Public Expenditure Growth was propounded by Musgrave in 1969. According to Musgrave, economies situated in an early development stage are faced with a high demand of public capital formation in order to install basic infrastructures such as health, education and transport starts to rise, thereby forcing government to increase expenditure on them. At later development phases, institutions for private capital formation become more developed and therefore the share of public expenditure may decrease.

Adolph Wagner Theory formulated a "Law of expanding state expenditures" in 1883 and the main point of his work is the growing importance of government activity and expenditure as an inevitable feature of a "progressive" state. The law states that "as the economy develops over time, the activities and functions of the government increase". Wagner's statements indicates that in Progressive societies, the activities of the central and local government increase on a regular basis; the increase in government activities is both extensive and intensive; the governments undertake new functions in the interest of the society; the old and the new functions are performed more efficiently and completely than before; the purpose of the government activities is to meet the economic needs of the people; the expansion and intensification of government function and activities lead to increase in public expenditure. This study hinged on Adolph Wagner Theory of the progressive economy.

Theoretically, many hypotheses can be used in determining the relationship between government revenue and expenditure. These hypotheses can be divided into four: revenue-and-spend hypothesis; spend-and-revenue hypothesis; fiscal synchronization hypothesis; and fiscal independence institutional separation hypothesis (Nwosu&Okafor, 2014)

The revenue-and-spend hypothesis theorized that the rise in revenues will lead to an increase in government expenditures and consequently worsens the governmental budgetary balance. The hypothesis suggests that government would spend all its revenues; therefore, raising government revenues would lead to higher government expenditures. Under this hypothesis, empirical results pre-empt a unidirectional causality running from government revenues to government expenditures. If the revenue-spend hypothesis holds, then budget deficits can be eliminated or avoided by implementing policies that stimulate or increase government revenue. (Nwosu&Okafor, 2014)

The second hypothesis, spend-and-revenue hypothesis is a reverse of the revenue-and spend hypothesis in which revenue responds to prior spending changes. This hypothesis suggests that government would raise the funds to cover its spending, and therefore, higher government expenditures lead to higher government revenues. Thus, empirical results are expected to show a

unidirectional relationship running from government expenditure to revenue. If the spend revenue hypothesis holds, it suggests that government's behavior is such that it spends first and raises taxes later in order to pay for the spending. (Nwosu&Okafor, 2014)

The third hypothesis, the fiscal synchronization hypothesis or the fiscal neutrality hypothesis indicates bidirectional relationship between revenue and spending. If the bidirectional causality between government revenue and government expenditure does not hold, it means that government expenditure decisions are made without reference to government revenue decisions and vice versa. This situation can bring about high budget deficits if government expenditure increases faster than government revenue. The last hypothesis is the fiscal independence or institutional separation hypothesis where decisions on revenue are taken independently from allocation of government expenditure, and therefore, no causal relationship between revenue and spending is expected. (Nwosu&Okafor, 2014).

Various empirical studies and researches about the relationship of government revenue and expenditure have been conducted by many scholars and researchers both in developed and developing countries. In the developed economies, for instance, Islam (2001) examined the determinant factors on government expenditure in U.S.A from 1929 to 1996 using Wagner's law. Johansen co-integration was employed for the study. The study established a long-run equilibrium relationship between the relative size of government spending and per capita income. Chang (2002) investigated the determinants of government expenditure in some developed countries which include South Korea, Taiwan, Thailand, Japan, U.S.A and U.K from 1951-1996. The statistical and inferential statistics employed by the researcher are Johansen co-integration and error correction modelling techniques. The study established that there is a relationship between income and government spending in South Korea, Taiwan, Thailand, Japan, U.S.A and U.K over the period of study. However, no relationship was established between income and government spending in Thailand.

In developing countries, Tsen and Kian-Ping (2005) examined the relationship between government revenue and expenditure in Malaysia for the period from 1965 to 2002. The researchers used Augmented Dickey-Fuller and Phillips-Perron for the Unit root tests, Johansen co-integration and error correction models were applied to determine the long-run relationship of the variables. Government revenue was found to Granger cause expenditure in Malaysia. The results supported tax-spend hypothesis indicating that changes in government revenue induce changes in government expenditure. Al-Qudair (2005) examined the long-run equilibrium relationship between government expenditure and revenues in the Kingdom of Saudi Arabia using cointegration technique, Error Correction Model (ECM) and Granger causality test. The cointegration test indicated the existence of long run equilibrium between government expenditure and revenues. The causality tests showed the existence of a bi-directional causal relationship between government expenditure and revenues in the long and short run.

There are also some studies carried out in Nigeria on the relationship between government revenue and expenditure. Emelogu and Uche (2010) studied the relationship between government revenue and government expenditure in Nigeria using time series data from 1970 to 2007. They utilized the Engel-Granger two-step co-integration technique, the Johansen co-integration method and the Granger causality test within the Error Correction Modeling (ECM) framework and found a long-run relationship between the two variables and a unidirectional causality running from government revenue to government expenditure in Nigeria. Aregbeyen and Mohammed (2012) examined the long run relationships and dynamic interactions between the government revenues and expenditures in Nigeria over the period 1970 to 2008. Using Autoregressive Distributed Lag (ARDL) bound test the results, indicate that there is the existence of a long run relationship between government expenditures and revenues when government expenditure is made the dependent variable. When revenue was made the dependent variable, no evidence of a long run relationship was found. The tax-spend hypothesis was therefore confirmed. Ogujiuba and Abraham (2012) also examined the revenue-spending hypothesis for Nigeria using macro data from 1970 to 2011. Applying correlation analysis, granger causality test, regression analysis, lag regression model, vector error correction model and impulse response analysis, they report that revenue and expenditure are highly correlated and that causality runs from revenue to expenditure in Nigeria. The vector error correction model also proves that there is a significant long run relationship between revenue and expenditure. The aim of this study, therefore, is to carry out a recent study in Nigeria in order to establish the relationship between revenue and budget implementation both in the short-run and in the long-run and to establish the direction of causality between government revenues and budget implementation in Nigeria.

III. Methodology

This study used time series secondary data from the Budget office of the Federation and Central Bank of Nigeria (CBN) Statistical Bulletins.

Model Specification

$$AEX = \alpha_0 + \alpha_1 ACORE_t + \alpha_2 OREG_t + \alpha_3 ACNORE_t + \alpha_4 NOREG_t + \mu \quad (1)$$

Where:

AEX= Actual expenditure: Capital and recurrent expenditure. (Budget implementation)

$$\Delta Y_t = \delta_0 + \sum_{k=1}^{n_1} \delta_1 \Delta Y_{t-k} + \sum_{k=0}^{n_2} \delta_2 k \Delta X_{t-k} + \gamma \varepsilon_{t-1} + \mu_t$$

From the above equation, γ expresses the speed of adjustment. If the value of the speed of adjustment is negative and significant, it connotes that there exist co-integration between Y and other explanatory variables.

Granger Causality

Granger causality is a way to investigate causality between two variables. It was conducted to determine whether one time series is useful in forecasting another.

This can be estimated below as:

$$X_t = \sum_{\tau=1}^L A_\tau X(t - \tau) + \varepsilon(t)$$

Where $\varepsilon(t)$ is a white Gaussian random vector, and A_τ is a matrix for every τ . A time series X_i is called a Granger cause of another time series X_j , if at least one of the element $A_\tau(j, i)$ for $\tau = 1, \dots, L$ is significantly larger than zero in absolute value, Lutkepohl, Helmut (2005).

IV. Results and Discussion

Table 4.1: Augmented Dickey-Fuller Test Results

VARAIBLES	LEVEL		FIRST DIFFERENCE		ORDER OF INTEGRATION
	T-STATISTICS	PROB.	T-STATISTICS	PROB.	
LOGAEX	2.898860	0.9978	-3.060268	0.0045	I(1)
LOGARE	2.276182	0.9918	-3.109314	0.0039	I(1)
LOGACE	-0.341145	0.5486	-4.789895	0.0001	I(1)
LOGACORE	0.580618	0.8316	-3.012685	0.0048	I(1)
LOGACNORE	1.337041	0.9483	-4.623278	0.0001	I(1)
ORG	-2.757676	0.0832	-4.278425	0.0043	I(1)
LOGNOREG	1.617470	0.9989	-5.890510	0.0002	I(1)

Source: Data analysis (2019)

Table 4.1 showed the unit-root test result using ADF unit-root test for all the variables. The result revealed that all the variables are integrated of the same order i.e. they are integrated of order one I (1). This makes it possible to proceed to Johansen co-integration test and error correction model.

4.2 Johansen Co-Integration Test

Co-integration tests are used to ascertain the presence of potential long run equilibrium relationship between two variables. Two non-stationary time series are co-integrated if they tend to move together through time. In the opaque terminology used in the time series literature, each series is said to be “**integrated of order 1**” or **I (1)**. If the two non-stationary series move together through time then we say they are “co-integrated.”

Table 4.2: Johansen Co-Integration Test

HYPOTHESIZED NO. OF CE(S)	EIGENVALUE	TRACE STATISTIC	5% CRITICAL VALUE	PROB.
NONE *	0.979841	154.3426	69.81889	0.0000
AT MOST 1*	0.956105	84.06843	47.85613	0.0000
AT MOST 2	0.627673	27.80132	29.79707	0.0835
AT MOST 3	0.419636	10.01763	15.49471	0.2794
AT MOST 4	0.012358	0.223826	3.841466	0.6361

Source: Data analysis (2019)

Table 4.2 presented the Johansen co-integration test result with the null hypothesis stated in the first column and their respective probability values in the last column. From the result in this table, it can be ascertained that at most two of the variables are co-integrated in the long-run as indicated by the Trace statistics and the 5% critical value.

2.3 Long-Run And Short-Run Estimation Co-Efficient

Having verified that there is long-run co-integration among the variables, the research work proceed to estimate the long-run and short-run parameters of the model.

2.3.1 Long-Run Co-Efficient

Table 4.3: long-run co-efficient:

Dependent Variable: LOGAEX

VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROB.
LOGACORE	-0.288976	0.411071	-0.702984	0.5048
LOGACNORE	1.805582	0.619528	2.914448	0.0225
OREG	-0.000056	0.000088	-0.640461	0.5423
NOREG	0.000233	0.000245	0.952405	0.3726
C	-2.996359	1.798016	-1.666481	0.1396

Source: Data analysis (2019)

Table 4.3 presented the long-run co-efficient of the model. From the table, LOGACORE has a negative and insignificant relationship with LOGAEX in the long-run. This implies that a percent change in Acore will result to -0.288976 percent change in AEX, however, this value is not significant at 5% level of significance. LOGACNORE has a positive and significant relationship with LOGAEX in the long-run. One percent change in ACNORE will result to 1.805582 percent change in AEX. ORG has a negative and insignificant relationship with LOGAEX in the long-run. A unit change in ORG will result to -0.000056 percent unit change in LOGAEX, this value is not significant at 5% level of significance. NORG has a positive and insignificant relationship with LOGAEX in the long-run. A unit change in NORG will result to 0.000233 percent AEX, it is also not significant at 5% level of significance. The constant term which represent the intercept showed the value of AEX when all its explanatory variables are zero. LOGAEX will stand at -2.996359 when all variables are at zero percent or level, however, this value is insignificant at 5% level of significance.

The reasons for the above disparity may be as a result of poor implementation of actual expenditure owing factors like corruption, political and economic instability among others, also Acore is not affecting AEX in the long-run because many public expenditures in Nigeria might be carried out with other source of finance like external and domestic borrowings among others. This same proposition may account for the reason for insignificant relationship between AEX and ORG and NORG.

4.4. ERROR CORRECTION MODEL AND SHORT-RUN CO-EFFICIENT

Table 4.4: Error Correction Model And Short-Run Co-Efficient

Dependent Variable: LOGAEX

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGACORE)	0.394331	0.153758	2.564624	0.0373
D(LOGACNORE)	-0.419305	0.158005	-2.653746	0.0328
D(ORG)	0.000021	0.000035	0.593205	0.5717
D(NORG)	-0.000085	0.000083	-1.025348	0.3393
ECM(-1)	-0.365917	0.170675	2.143946	0.0492

Source: Data analysis (2019)

Table 4.4 presented the error correction model and short-run co-efficient of the model. From the result above, LOGACORE has a positive and significant relationship with LOGAEX in the short-run. This implies that a percent change in Acore will result to 0.394331 percent change in AEX, however, this value is significant at 5% level of significance. LOGACNORE has a negative and significant relationship with LOGAEX in the short-run. One percent change in ACNORE will result to -0.419305 percent change in AEX. ORG has a positive and insignificant relationship with LOGAEX in the short-run. A unit change in ORG will result to 0.000021 percent unit change in LOGAEX, this value is not significant at 5% level of significance. NORG has a negative and insignificant relationship with LOGAEX in the short-run. A unit change in NORG will result to -0.000085 percent LOGAEX, it is also not significant at 5% level of significance. The error correction term ECM (-1) is the adjustment or feedback mechanism which signifies long-run relationship. From the result of ECM (-1), there is a potential of long-run relationship among the variables because it is negative and significant at 5% level of significance. This implies that disequilibrium in LOGAEX is corrected annually by 36.5 percent.

4.5 GRANGER CAUSALTY TEST

Table 4.5: Granger-Causalty Test

PAIRWISE GRANGER CAUSALITY TESTS

Null Hypothesis:	Obs	F-Statistic	Prob.
D(LOGACORE) does not Granger Cause D(LOGAEX) D(LOGAEX) does not Granger Cause D(LOGACORE)	17	0.61242 3.69442	0.5581 0.0562
D(LOGACNORE) does not Granger Cause D(LOGAEX) D(LOGAEX) does not Granger Cause D(LOGACNORE)	17	0.44201 4.48067	0.6528 0.0352
D(ORG) does not Granger Cause D(LOGAEX) D(LOGAEX) does not Granger Cause D(ORG)	17	0.14921 0.37013	0.8630 0.6983
D(NOREG) does not Granger Cause D(LOGAEX) D(LOGAEX) does not Granger Cause D(NOREG)	17	1.00497 2.20615	0.3949 0.1528
D(LOGACNORE) does not Granger Cause D(LOGACORE) D(LOGACORE) does not Granger Cause D(LOGACNORE)	17	1.63468 0.98524	0.2356 0.4016

Table 4.5 presented the Granger casualty result for the variables. The null hypothesis is that there exist no direction of casualty as against the alternative hypothesis of existence of casualty. The result showed that LOGAEX granger cause LOGACORE and LOGACNORE based on the fact that there probability value is less than 10% and 5% respectively which led to the rejection of null hypothesis of no causality and existence of causality, also, there is only unidirectional casualty between LOGAXE and LOGACORE and LOGAXE and LOGACNORE. Others variables showed no existence of any direction of causality.

V. Conclusion and Recommendations

The study concluded that actual oil revenue had a positive and significant effect on actual total expenditure in Nigeria in the short-run while actual non-oil revenue had a negative and significant effect on budget implementation. The implication is that government revenue from non-oil sources are not sufficient enough to have significant effect on the budget implementation, and the result also implied that even the actual non-oil revenue are not judiciously spent hence its negative effect in the short run.

In the long run, oil revenue had a negative and insignificant effect on actual total expenditure in Nigeria. This is a confirmation of short-fall in revenue receivable from oil and it confirmed the country over- dependence on oil as a source of revenue. However, it is interested to note that non-oil revenue had a positive and significant effect on budget implementation in the long run. Perhaps, the government has enhanced the non-oil revenue generation sources. The study established that actual total expenditure granger cause actual non-oil revenue in Nigeria. There is unidirectional causality between the two variables. The finding supports Spend-and revenue hypothesis in Nigeria indicating that changes in government expenditure investigates changes in actual non-oil revenue in Nigeria.

The above findings have important policy implications for the country. The following recommendations are therefore offered:

- (i) Nigeria government depended so much on revenue from oil which confirm the monoprodukt nature of the country. Therefore, attention should be paid on how best to generate more revenue from non-oil sectors in order to improve the budget implementation in Nigeria.
- (ii) Government should keep on encouraging the diversification of the economy. Other sources of revenue should be explored especially the non-oil mineral sectors in order to boost the government revenue.
- (iii) Taxes have a role to play in the economy especially in deemphasizing the mono-economic (petroleum sector) nature of Nigeria. Government should therefore employ better ways of improving the revenue from taxes especially from individuals who are not in government service and other non-registered businesses.

- (iv) Government should embark on Capital projects that have value for money. Capital projects should be geared towards the achievement of macro-economic objectives in meeting the needs of the society rather than political consideration which may not be of immense benefit. Government should therefore consider expenditure reforms analysis.

The study has contributed to the knowledge by evaluating the effect of oil revenue and non-oil revenue on budget implementation in Nigeria. The outcome of the study has confirmed that Nigerian depended so much on oil revenue. It is a further pointer to the government for them to appreciate the need to diversify the economy for better result on budget implementation in Nigeria.

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