

## Budget Deficit and Fiscal Administration in Selected Sub-Saharan African Countries

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### Abstract

**Purpose of the article:** An examination of budget performance' relationship with fiscal administration in selected countries of sub-saharan Africa is the thrust of this study. Secondary data from 12 countries in Sub-Saharan Africa (SSA) for the period (2002–2016) was sought and analysed.

**Methodology/methods:** Analytical tools deployed for statistical analysis include the Ordinary Least Square (OLS) regression method, correlation analysis, variance inflation factor (VIF) tests for multicollinearity, and Breusch-Pagan/Cook Weisberg test for heteroskedasticity. 5% level of test of significance was employed to measure the altitude of statistical association between all variables.

**Scientific aim:** Efforts were made to empirically ascertain by means of available statistics the relationship between budget deficits and fiscal administration in SSA.

**Findings:** Indications from this study implied that countries SSA recorded trends of significant levels of revenue decline and fiscal balances have deteriorated despite the various acclaimed adjustments in the expenditures profiles by governments in the region. Also a significant relationship was found between budget deficit and fiscal administration among countries in SSA.

**Conclusions:** Since budget deficit has remained a recurring decimal in SSA, countries in the region have resorted to high reliance on borrowed funds to finance the increasing amounts of budget deficits; the consequence being the exposure of countries in SSA to high cost of borrowing.

**Keywords:** Budgeting, Fiscal Deficit, Taxation, Revenue Generation, Government Expenditure, Sub-Saharan Africa

**JEL Classification:** H2, H24, H3, H5

## Introduction

Government budgets have remained crucial to the operation of various economies, and its reciprocal linkage with economic growth has continued to generate series of debates among scholars. Aigheyisi (2013) believes that the effectiveness of governments' actual expenditure (which presumably is a function of budgeted expenditure) in expanding and engendering rapid growth in any economy depends on whether such expenditures are productive or not.

Notwithstanding however, Obinyeluaku (2013) reiterated that in all regions of Sub Saharan Africa (East Africa, Mid Africa, Southern Africa and West Africa), public expenditure is found to have exceeded revenue consistently almost throughout a studied 33 year period (1980–2012). Findings from prior studies reveal that government revenue has dropped from an average of 22 percent of GDP recorded during the 1980s; whereas, public spendings have displayed remarkable increase at unprecedented pace to reach over 28 percent of GDP on the average (Obinyeluaku, 2013; Aigheyisi, 2013; and Chude, Chude, 2013).

The consequence of the perceived budget trends in Africa have resulted in widened deficits almost throughout the region. This is deemed a clear indicant of ineffective budgeting process in Sub Saharan Africa (SSA), thus resulting to failure in the promotion/achievement of the craved culture of balanced budget, budget discipline, and qualitative budgeting for both national and economic development. This is well captured by the instances of budget variances recorded over the years which Onakoya, Somoye (2013) blamed on budget mismatch rather than inadequate provisioning. In the views of Granof, Mayper (1991), large budget variances are evidence that public funds are not spent in line with budgets.

Basically, while the focus of most prior studies in Africa were majorly on budgeting

and economic growth/development nexus, few studies actually related to analyzing budget deficits as it concerns fiscal administration. Scholarly as this concept may be, it is observed that very few studies have bothered on empirically determining how these fiscal administration indices drive government budgets and budgeting patterns across SSA. Also, with the problems of budgetary allocations/mismatch and variances re-occurring continuously across countries in SSA and the near absence of researches designed to comparatively analyse the subject matter across the region creates further knowledge gap which needs to be filled. It is in a bid to fill these knowledge gaps that this study empirically examined budget deficit and fiscal administration among selected SSA Countries.

## 1. Literature and conceptual review government budgets and budgeting

A budget is a prominent financial document in all sectors of government. The word budget according to Edame, Ejue (2013) was derived from a French word "Bourgettee" which meant leather bag or wallet. Today, the meaning of the term has gone beyond just a wallet that contained papers on the financial plans for any country or organization, but has become a principal instrument of fiscal policy that exercises control over size and relationship of government receipts (revenue) and expenditures (Edame, 2010; and Edame, Ejue, 2013). Budgets are deliberate attempts specifically designed to achieve superior targets over time with available and expected resources that reflects government priorities and citizens' preferences (Rubin, 2006).

Government budgets set forth plans and broadly represent a mixture of how resources of any identified country/jurisdiction are allocated or used in various sectors. Expenditure decisions are therefore made through organised political process usually governed by sets of laws/provisions designed to

provide open deliberations about options to ensure accountability and prevent corruption, thus providing a mechanism for fiscal control (Mikesell, 2014).

Just like every investor, tax payers have the right to all the necessary information that will enable them judge the level of accountability of any government in place especially as it concerns the utilisation of public/national resources. Achieving accountability in this regards has a lot to do with the appropriate basis of accounting for the budget in place at that particular point in time. This is why Omolehinwa (2012), Wynne (2007), Edame (2010) and Edame, Ejue (2013) assert that regardless of the form it takes, through budgets, governments can engage constituents in the polity's process, and engender confidence by clear – cut representations of the masses' interests. Hence, budgets are gauged as effective tools needed to boost economic growth among nations (Morrison, Schwartz 1996).

### **Fiscal Administration**

Government as an institution, no doubt is saddled with a myriad of functions. The way and manner in which these functions are carried out however vary from one country to another. Prior to the popular Great Depression of the 1930s, the market system was generally seen as sacrosanct. The legendary law of “*supply creates demand*” was at the nucleus of this belief. Consequently, the market system was adjudged as being capable of allocating societal resources equitably to all manner of citizens (Medee, Nenbee, 2011). Impliedly, the general economy and stakeholders like experts, entrepreneurs, government officials, policy makers and the likes folded their hands and allowed the forces of demand and supply to dictate their economic fortune. The resulting complications under this era gave impetus for the increasing demand for a functioning fiscal administration.

Fiscal administration is a complex concept with varying connotations. It is the act

of managing all monetary transactions and budgets for governments, educational institutions, non-profit organizations, and other public service entities. It is clearly a concept that recognizes the divides of intent between private sector (profit oriented) and public service (non-profit) entities. It establishes a clear trail of agency responsibility for resources intended for use in the provision/rendering of public services by accommodating systems of governance in which government finances serve the interests of the citizenry (Mikesell, 2007).

Fiscal administration provides fiscal discipline and responsibility, by ensuring responsible resource allocation and fostering efficiency in government operations (Campos, Pradhan, 1996). Fiscal administration basically concerns itself with how public revenues are generated and allocated, and the direction of government expenditures relative to the pool of generated revenues. It embraces policy formulation, implementation and/or evaluation of decisions on taxation and revenue administration; resource allocation, budgeting, and public expenditure; public borrowing/debt management; and accounting/auditing.

Despite the above, operational fiscal policies among African countries have remained more fragile on the average than what is obtainable in other developing countries. Narrow tax bases, coupled with relatively low inflows from private capital, one-dimensionality of their industrial base, and under-developed financial markets leave African countries highly dependent on very volatile grants and foreign loans for financing government expenditure (Gollwitzer, 2010). Notably, a strong system of fiscal administration may promote fiscal discipline, sound allocation of public resources and technical efficiency of service delivery (Shah, 2007). This is why in Nigeria for instance, Osiyemi (2005) called for a provision in the Appropriation Act to make the implementation of approved budget compulsory in order to

insulate national objectives from undue political horse – trading.

## 2. Theoretical Framework

From a normative point of view, every activity that involves budgetary decision must have a goal, explicit or implicit. Such goals are expected to provide the basis for undertaking such activities; be it the provision of new services or the expansion of existing ones. This however, is the argument of Rubin (1990) in his budget decision process theory which this study is hinged on.

### Rubin's Budget Decision Process Theory (1990)

According to Rubin (1990), budgeting can be construed as the means that gives viability to the activities a government undertakes to achieve a defined goal or objective. It was this ideology that gave birth to his theory, "Budget Decision Process Theory". An important viewpoint of the Decision Process Theory (DPT) is that when any government undertakes an activity or allocates funds for it, it is often considered not in isolation but together in combination with other activities. The *raison d'être* of this contention is that any activity that has no appeal when considered in isolation may appear attractive when considered in combination, as a package with other activities.

## 3. Empirical Literature

In relation to budgets and fiscal deficits, Nachecha (2005) examined fiscal dominance hypothesis in the Democratic Republic (DR) of Congo. Secondary data from 1981 to 2003 were the major considerations for analytical purpose which employed multivariate co-integration and the Vector Error Correction Model (VECM). Results indicated a strong and significant long-run relationship be-

tween budget deficits and seigniorage, and between money creation and inflation.

In another study, Baharumshah, Lau, Khalid (2006) examined how fiscal and current account deficits were affected by interest and nominal exchange rates in Asia. Data from 1976 to 2000 of 4 countries (Philippines, Indonesia, Malaysia, and Thailand) were analysed by the Johansen co-integration test. Results showed that there was a symmetric long run relationship in Indonesia, Malaysia and Thailand but the reverse was the case for Philippines where the results could not find any long-run relationship.

In Ethiopia, Wolde-Rufael (2008) examined the causal relationship between fiscal deficits, money growth and innovation by obtaining data from 1964–2003. Analyses were done by means of robust techniques and findings indicate the presence of a long-run relationship between fiscal deficits and innovation. Results also show that in the short-run, fiscal deficits was not having significant effect on innovation.

In Nigeria, Oladipo, Akinbobola (2011) also examined the causal link between fiscal deficits and innovation in Nigeria for the period 1970–2005. Several regression techniques/tests were conducted. Evidence from the results indicates a co-integrating long-run relationship between the macro-economic variables of interest to the extent that gross domestic product and exchange rate had causal effect on innovation, with causation from GDP to innovation; and exchange rate to innovation. There was also evidence of unidirectional causality from fiscal deficits to innovation, thus indicating the absence of a mix of fiscal policy instrument that would achieve sustainable growth and development.

Furthermore, in another econometric analysis in Nigeria Nendee (2011) examined the linkage between fiscal policy variables and Nigeria's economic growth (1970–2009) and used GDP as the dependent variable while Federal government expenditure, Federal

government revenue, inflation rate and capital inflow were taken as the regressors. The study adopted the arcane method of Vector auto-regression (VAR) and ECM techniques. The study found a long run equilibrium relationship between these fiscal policy variables of interest and economic growth in Nigeria.

Nkaku (2015) investigated budget deficits effects on macroeconomic/fiscal administration variables by focusing on Nigeria and Ghana. Time-series data were gotten from both countries during 1970 to 2013. Variables of interest included budget deficits, interest rates, inflation, and economic growth indicators. By adopting the Two-Stage Least Squares (2SLS) alongside the Seemingly Unrelated Regression (SUR) model, secondary data sourced were analysed. Findings demonstrated that budget deficit had statistical negative effect on interest rate, inflation, and economic growth, thus supporting the neoclassical argument in the literature that budget deficit slows economic growth owing to the crowding-out of resources.

Finally, Nwaeke, Korgbeelo (2016) examined how budget deficits are financed in Africa with Nigeria as a study point. Several sources of deficits' financing and their respective impact on selected variables (economic and financial) were examined also. To achieve this aim, yearly time-series data from 1981–2013 were analysed. Overall, the study found among others that deficits financed from external loans had insignificant negative influence on growth whereas; deficits financed from domestic sources had the capacity of stimulating economic growth.

#### 4. Methodology

This study is based on the *ex-post facto* design. Our justification for this choice is because the design enabled us to observe and measure existing data that are both quantitative and qualitative in nature over a long period of time without any form of manipu-

lation of data. It also helped in establishing the cause-and-effect relationship between the variables of interest in this study. The population of the study consists of the fifty (50) countries of the Sub Saharan African (SSA) region (Library of Congress, 2010). These countries are similarly referred to in this work as economies. They are all rated and classified as developing economies within the four regions of SSA (East Africa, Mid Africa, Southern Africa and West Africa).

The sample size consists of twelve (12) countries of SSA. The economies sampled are Kenya, Ethiopia, Tanzania, Angola, D.R. Congo, Cameroon, South Africa, Botswana, Namibia, Nigeria, Ghana and Cote D'Ivoire. We selected the samples using Purposive/Judgmental Sampling Technique to cover the four regions of SSA. Using the size of GDP at current USD as at 2014, the largest 3 economies in each region (East Africa, Mid Africa, Southern Africa and West Africa) as at December, 2015, were selected and included as the sample for this study. The size of GDP which ranged between \$12.9 billion (Namibia) and \$568.5 billion (Nigeria) was based on available data of the African Development Bank (2015, 2017). Basically, for dependable and unbiased analysis, secondary data were sourced for 15 years (2002–2016). The data were however sourced from publications of respective ministries of finance and monetary authorities including apex banks of the selected countries. Data were also sourced from the African Statistical Year Book (a publication of the African Development Bank) for the relevant years.

Several analytical tools have been deployed in this study. They include the Ordinary Least Square (OLS) regression method, correlation analysis, variance inflation factor (VIF) tests for multicollinearity, and Breusch-Pagan/Cook Weisberg test for heteroskedasticity etc. In measuring the altitude of statistical association between all variables, a 5% level of test of significance was employed.

### 5. Hypotheses and Specification of Models

In furtherance of this study, the following hypothesis was made

$H_0$ : There is no significant relationship between budget deficit and fiscal administration among countries in Sub Saharan Africa.

#### Model Specification

This study’s composite model established the link between budget performance and fiscal administration indices like revenue generated, expenditure incurred, budget variance and fiscal deficit financing of countries in SSA. This relationship is specified in its implicit form as follows:

$$BuDef_t - f(GovRev_t, GovExp_t, Bvar_t, FisDefF_t) \tag{1}$$

where:

- $BuDef_t$  Budget Deficit in year  $t$ ,
- $GovRev_t$  Total Government Revenue in year  $t$ ,
- $GovExp_t$  Total Government Expenditure in year  $t$ ,
- $Bvar_t$  Budget Variance in year  $t$  (measured by 1 for surplus and 0 for deficit),
- $FisDefF_t$  Total Amount of Borrowed Fund used in financing budget deficit in year  $t$ .

The above model is however restated in an explicit form below:

$$BuDef_{it} - \beta_0 + \beta_1 GovRev_{it} + \beta_2 GovExp_{it} + \beta_3 Bvar_{it} + \beta_4 FisDefF_{it} + U_{it} \tag{2}$$

where:

- $BuDef_{it}$  Budget Deficit for country  $i$  in year  $t$ ,
- $GovRev_{it}$  Total Government Revenue for country  $i$  in year  $t$ ,
- $GovExp_{it}$  Total Government Expenditure for country  $i$  in year  $t$ ,
- $Bvar_{it}$  Budget Variance for country  $i$  in year  $t$  (measured by 1 for surplus

- and 0 for deficit),
- $FisDefF_{it}$  Total Amount of Borrowed Fund used in financing budget deficit for country  $i$  in year  $t$ ,
- $\beta_0, \beta_1 - \beta_4$  Regression Coefficients,
- $U_{it}$  Error term.

Since total revenue basically comprise of tax and non-tax revenue and expenditure is the summation of capital and recurrent expenditure, Eqns (1) and (2) were further modified to produce Eqn (3) which in its explicit form is stated thus:

$$BuDef_{it} - \beta_0 + \beta_1 TaxRev_{it} + \beta_2 NTaxRev_{it} + \beta_3 CapExp_{it} + \beta_4 RecExp_{it} + \beta_5 Bvar_{it} + \beta_6 FisDefF_{it} + U_{it} \tag{3}$$

where:

- $BuDef_{it}$  Budget deficit of country  $i$  in year  $t$ ,
- $TaxRev_{it}$  Tax revenue for country  $i$  in year  $t$ ,
- $NTaxRev_{it}$  Non Tax revenue for country  $i$  in year  $t$ ,
- $CapExp_{it}$  Capital Expenditure for country  $i$  in year  $t$ ,
- $RecExp_{it}$  Recurrent Expenditure for country  $i$  in year  $t$ ,
- $Bvar_{it}$  Budget Variance for country  $i$  in year  $t$  (measured by 1 for surplus and 0 for deficit),
- $FisDefF_{it}$  Total Amount of Borrowed Fund used in financing budget deficit for country  $i$  in year  $t$ ,
- $\beta_0, \beta_1 - \beta_6$  Regression Coefficients,
- $U_{it}$  Error term.

### 6. Analyses, Results and Discussions

The results from all analyses made are highlighted in different phases and presented in sections as follows:

#### 6.1 Results and Descriptive Statistics

Panel data analysis was the basis of the regression analysis employed. Both descriptive statistics, correlation matrix and varian-

ce inflation test were conducted. Panel data regression corrected for heteroskedasticity was also conducted. Variables analysed include Budget Deficit (*BuDef*) measure (dependent variable) alongside components of the independent variables which included Tax revenue (*TaxRev*), Non Tax revenue (*NTaxRev*), Capital Expenditure (*CapExp*), Recurrent Expenditure (*RecExp*), Budget Variance (*Bvar*) and Borrowed Fund used in financing budget deficit (*FisDefF*).

## 6.2 Descriptive Statistics for Entire Panel Data

This section presents results' summary of the descriptive statistics, for the entire panel data.

Table 1 above reveals the mean (average) for all the variables and their degrees of dispersion. The result presented in Table 1 provides insight into the nature of the selected countries that were examined by this study.

As can be observed, tax revenue recorded the highest average with a mean of 24.5678, and was followed by recurrent expenditure which recorded a mean of 22.7314, and debt/borrowed funds (11.9659), capital expenditure (8.2922), non tax revenue (3.3765) and budget variance (0.35). The level of debt incurred by Governments to finance budget deficits recorded the highest dispersion with a standard deviation of 36.1664, while the least was budget variance (0.4783) and tax revenue (4.1469). The value of dispersion of 36.1664 for debt/borrowed funds shows that the level of reliance by governments of countries in SSA is dispersed from each other.

## 6.3 Correlation Analysis for Entire Panel Data

The correlation analysis was conducted to show the direction and relationship among the variables of concern. Table 2 presents the results for the correlation analysis.

Table 1. Descriptive statistics.

Variables	Mean	Degree of Dispersion	Min. Value	Max. Value
Budget Deficit ( <i>BuDef</i> )	-1.1948	12.5582	-78.81	33.08
Tax Revenue ( <i>TaxRev</i> )	24.5681	29.9445	0.95	213
Non Tax Revenue ( <i>NTaxRev</i> )	3.3765	4.1469	0	20.69
Rec. Expenditure ( <i>RecExp</i> )	8.2922	16.2803	0.08	128
Cap. Expenditure ( <i>CapExp</i> )	22.7314	30.6836	1.53	209.01
Debt/Borrowed Funds ( <i>FDefF</i> )	11.9659	36.1664	0	275.33
Budget Variance ( <i>BVar</i> )	0.3500	0.4783	0	1

Source: Authors' computation using Stata 13.0 Software, 2017.

Table 2. Correlation analysis (Entire Panel Data).

Variables	BuDef	TaxRev	NTaxRev	CapExp	RecExp	FDefF	Bvar
<b>BuDef</b>	1.0000						
<b>TaxRev</b>	-0.6857	1.0000					
<b>NTaxRev</b>	-0.0294	0.3374	1.0000				
<b>CapExp</b>	-0.7277	0.8730	0.3442	1.0000			
<b>RecExp</b>	-0.7098	0.8046	0.2863	0.8292	1.0000		
<b>FDefF</b>	-0.7131	0.7069	0.5414	0.7784	0.7977	1.0000	
<b>Bvar</b>	0.5005	-0.0368	0.3082	-0.0959	-0.1662	-0.0082	1.0000

Source: Authors' computation using Stata 13.0 Software, 2017.

As revealed from the table, the dependent variable (*BuDef*) is positively related to budget variance (*Bvar*). The result also indicates that *GovPerf* is negatively related to government revenue (*TaxRev* and *NTaxRev*), government expenditure (*CapExp* and *RecExp*) and government debt/borrowed funds (*FDefF*). The correlation matrix also revealed that no two explanatory variables were perfectly correlated.

**6.4 Multicollinearity Test for Entire Panel Data**

In studies involving panel data, where multicollinearity exist between variables (independent) arriving at wrong signs or implausible magnitudes in the estimated model

coefficients is inevitable. The long run effect is making wrong conclusion from bias standard errors and coefficients. On this note, multicollinearity test for the independent variables was conducted using the Variance Inflation Factors (VIF) test (see Table 3 for the result).

From the result in Table 3 above, the value of the Mean VIF of 5.91 is less than the accepted value of VIF (10), which shows that the specified models (Eq. 1a, 1b and 1c) are fit and devoid of multicollinearity problem.

**6.5 Comparative Results of Sampled Countries**

The comparative results for the sampled SSA countries are also presented.

*Table 3. Result of multicollinearity test (Entire Panel Data).*

Variables	VIF	
	Coefficient Variance	Centered VIF
TaxRev	6.44	0.155315
NTaxRev	1.80	0.556345
CapExp	8.02	0.124723
RecExp	13.87	0.072107
FDefF	4.09	0.244494
Bvar	1.26	0.791172
Mean VIF	5.91	

*Source: Authors' computation using Stata 13.0 Software, 2017.*

*Table 4. Government Revenue (TaxRev and NTaxRev) and Budget Performance (BuDef).*

Country	Tax Revenue (TaxRev)				Non-Tax Revenue (NTaxRev)			
	Coefficient	Std. Error	T-stat.	Prob	Coefficient	Std. Error	T-stat.	Prob
Kenya	1.005701	0.1808706	5.56	0.001	1.0481250	0.2350708	4.46	0.002
Ethiopia	0.099720	0.0041232	242.46	0.000	1.0009430	0.0026378	379.47	0.000
Tanzania	-0.0062791	0.1693154	0.971	0.494	-2.4038980	3.369888	-0.71	0.494
Angola	1.0118640	0.0137762	73.45	0.000	0.8991780	0.0976766	9.21	0.000
DR. Congo	0.1096335	0.2516469	0.44	0.675	-1.0393890	1.052176	-0.99	0.352
Cameroon	-0.0736513	0.0776337	-0.95	0.371	0.9278371	0.9069982	1.02	0.336
South Africa	1.59996700	0.2933873	5.45	0.002	0.7976875	1.223511	0.65	0.539
Botswana	0.76450490	0.2993235	2.55	0.034	0.9545712	0.4945752	1.93	0.090
Namibia	0.88256636	0.3310790	2.67	0.029	0.5393500	1.013558	0.53	0.609
Nigeria	0.95176860	0.6724450	14.15	0.000	5.8767160	1.625357	3.62	0.009
Ghana	0.87201770	0.0052402	166.41	0.000	1.7359630	0.0080392	215.94	0.000
Cote D'Ivoire	0.16073960	0.8587370	1.87	0.098	0.8082574	0.7443051	1.09	0.309

*Source: Authors' computation using Stata 13.0 Software, 2017.*

Table 5. Relationship between Budget Variance (Bvar), Fiscal Deficit Financing (FisDefF) and Budget Performance (BuDef).

Country	Budget Variance				Fiscal Deficit Financing			
	Coefficient	Std. Error	T-stat.	Prob	Coefficient	Std. Error	T-stat.	Prob
Kenya	-0.1503788	0.5004901	-0.30	0.771	-1.222106	2.439577	-0.50	0.630
Ethiopia	0.000	0.0000	0.000	N/A	-0.0018934	0.0035775	-0.53	0.611
Tanzania	0.000	0.0000	0.000	N/A	5.088799	7.919222	0.64	0.537
Angola	-0.897006	0.198481	-0.45	0.665	-0.0821954	0.0545451	-1.51	0.176
DR. Congo	6.374883	0.8587954	7.42	0.000	2.29913	2.178947	1.06	0.322
Cameroon	8.740541	7.052753	1.24	0.250	-0.1302394	0.0751636	-1.73	0.121
South Africa	-0.4208329	0.7350332	-0.57	0.588	0.1048067	0.5709052	0.18	0.860
Botswana	3.38071	2.996075	1.13	0.292	-1.183426	0.7109324	-1.66	0.135
Namibia	1.299217	1.748617	0.74	0.479	-0.0617102	0.6490467	-0.10	0.927
Nigeria	-0.8726716	0.8122976	-1.07	0.318	-14.87401	2.083834	-7.14	0.000
Ghana	0.000	0.0000	0.000	N/A	-0.1107976	0.0028459	-38.93	0.000
Cote D'Ivoire	2.362154	0.701214	-1.57	0.155	2.851573	7.041296	0.40	0.696

Source: Authors' computation using Stata 13.0 Software, 2017.

Table 4 reports the comparative analysis of the results of sampled countries. It is clear from the table above that the coefficients of all the sampled countries except Tanzania (-0.0062791) and Cameroon (-0.0736513) are carrying positive signs for tax revenue. The coefficients of non-tax revenue for Tanzania (-2.403898) and DR. Congo (-1.039389) are also carrying negative signs. The negative sign in the coefficient for Tanzania and Cameroon (Tax Revenue) is an indication that government revenue negatively influenced budget performance for the period.

However, government revenue has some insightful revelations; first, tax revenue (TaxRev) is statistically significant for countries like Kenya, Ethiopia, Angola, South Africa, Botswana, Namibia, Nigeria, Ghana and Cote D'Ivoire except that for countries like Tanzania, DR. Congo and Cameroon, the results were statistically flawed (see p-values for tax revenue). Secondly, non-tax revenue (NTaxRev) was found to be statistically significant for some of the countries (Kenya, Ethiopia, Angola, Botswana, Nigeria and Ghana). Although, for countries like

Tanzania, DR. Congo, Cameroon, South Africa, Namibia and Cote D'Ivoire the results were statistically flawed (see p-values for non-tax revenue). On the whole, we found that budget performance was positively influenced by government revenue for most of the countries in SSA.

Table 5 reports the comparative analysis of the results of sampled countries with respect to budget variance, fiscal deficit financing and their relationship with budget performance. It is clear from the table above that apart from Kenya, Angola, South Africa and Nigeria, the coefficients of most of the sampled countries carried positive signs for budget variance. The coefficients of fiscal deficit financing for Tanzania (5.088799), DR. Congo (2.29913), South Africa (0.1048067) and Cote D'Ivoire (2.851573) are also carrying positive signs. These positive signs indicate that government budget performance had positive relationship budget variance and fiscal deficit financing where applicable.

However, for countries like Kenya, Angola, South Africa and Nigeria, we observe that budget variance had a negative relationship with budget performance. Similarly, fiscal

deficit financing was found to be negatively related with budget performance for countries like Kenya, Ethiopia, Angola, Cameroon, Botswana, Namibia, Nigeria and Ghana. This relationship was statistically flawed for most of the countries except for Nigeria and Ghana.

**6.6 Test of Hypotheses**

The hypothesis tested in this study was based on the following decision (acceptance/rejection) rule:

**Decision Rule**

Reject the null hypothesis ( $H_0$ ) where the value of the  $F_{calculated}$  is found to be higher than that of the  $F_{tabulated}$  ( $F_{cal} \geq F_{critical\ value}$ ) and accept the alternate hypothesis. Conversely, if the value of the  $F_{calculated}$  is found to be less than that of the  $F_{tabulated}$  ( $F_{cal} \leq F_{critical\ value}$ ), accept the null hypothesis ( $H_0$ ) and reject the alternate hypothesis.

**Test of Hypothesis**

$H_0$ : There is no significant relationship between budget deficit and fiscal administration among countries in Sub Saharan Africa.

In testing the this hypothesis, we analyzed the relationship between budget deficit and

fiscal administration. The result is however presented in Table 6.

Table 6 presents the model summary as regards budgeting/budgeting patterns and fiscal administration. It can be seen that the  $R^2$  is 0.8759 which suggests a 87.59% explanatory ability of the estimation for the systematic variations in the dependent variable with an adjusted value of 0.8716 (87.16%).

**Decision**

The F-stat (203.45) and p-value (0.0000) indicate a significant linear relationship between the dependent variable (budget deficit) and independent variables (fiscal administration – tax revenue, non-tax revenue, recurrent and capital expenditure, debt/borrowed funds and budget variance). This implies the rejection of the null hypothesis and acceptance of the alternate hypothesis. Impliedly, there is significant relationship between budget deficit and fiscal administration among countries in SSA.

**Discussion**

The test of hypothesis revealed some insightful findings on budgeting/budgeting

Table 6. Model Summary (Fiscal Administration and Budgeting/Budgeting pattern).

Dependent Variable: Government Budget Performance (BuDef) Obs.=180				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.065774	0.644671	-1.65	0.100
Tax Revenue ( <i>TaxRev</i> )	-0.059375	0.0285045	-2.08	0.039
Non Tax Revenue ( <i>NTaxRev</i> )	0.8466597	0.1087533	7.79	0.000
Rec. Expenditure ( <i>RecExp</i> )	-0.125091	0.0408266	-3.06	0.003
Cap. Expenditure ( <i>CapExp</i> )	0.0409476	0.0585065	0.70	0.485
Debt/Borrowed Funds ( <i>FDefF</i> )	-0.194077	0.0188105	-10.32	0.000
Budget Variance ( <i>Bvar</i> )	9.420706	0.7906837	11.91	0.000
R-squared	0.8759	Mean Sq. Resid.		4120.95801
Adjusted R-squared	0.8716	Sum. Sq. Resid.		3504.09799
F (6, 173)	203.45	Root MSE		4.5005
Prob>F	0.0000	Df		6/173

Source: Authors' computation using Stata 13.0 Software, 2017.

patterns and fiscal administration among countries in SSA. The findings of the study are generally in agreement with prior empirical studies (Perotti, 2004; Gollwitzer, 2010; Taiwo, Abayomi, 2011; Peter, Simeon, 2011; Edame, Ejue, 2013; Feger, 2014; Onyemaechi, 2014; Tchouassi, Ngwen, 2015; Veiga, *et al.*, 2015 and Xolani, Amanja, 2015) that efficiency in budgeting as evidenced in the magnitude of budget deficit is affected by the strings of fiscal administration among countries in SSA.

However, the above findings are not totally in agreement with those of Nkaku (2015) and Nwaeke, Korgbeelo (2016) who believes that budget deficit had negative statistical effect on economic indices and by extension, fiscal administration. The above positions call for policy strings targeted at improving growth and fiscal administration across countries in the sub region.

## 7. Conclusion

This study was able to establish the fact that economic activity of countries in SSA has weakened with large variations among the countries due to country-specific circumstances. Most countries of the region have recorded trends of significant levels of revenue decline and fiscal balances have deteriorated despite the various acclaimed adjustments in the expenditures profiles by governments in the region. Available data and results from this study reveal that most countries in SSA relied heavily on borrowed funds to finance the increasing amounts of budget deficits. This has however contributed to the increase in the debt profile of countries in the sub region.

With the increase in the level of debt profile of countries in SSA, it is expected that borrowing costs would have increased on a general note. In this study, efforts were made to obtain secondary data from 12 sampled

countries for a period of 15 years spanning from 2002–2016. The data obtained were presented and analysed and the results obtained formed the basis of our tests of hypotheses. Interestingly, the results from the analyses and test of hypotheses in this study gave important insights on budgeting and fiscal administration of countries in SSA.

Findings from this study further indicated a significant relationship between budget performance and fiscal administration of countries in Sub-Sahara Africa. Overall, the findings of this study are in agreement with most of the findings of prior studies

## 8. Recommendations

In view of the findings and conclusions of this study, the following recommendations have been made:

1. Where the governments of countries in Sub-Saharan Africa must continue to rely on debt to finance budget deficits, efforts must thus be made to instill among political office holders and leaders in Sub Saharan Africa, fiscal discipline and high sense of responsibility when it comes to the handling of public funds.
2. Since fiscal administration components have significant relationship with government budgets across the region, governments in SSA countries, should make efforts to improve the abysmal tax ratio and dismal growth rate which Feger (2014) estimated at 15% and 2% respectively. There should also be in place, effective system of fiscal administration through autonomous tax administration mechanics that is capable of optimizing the yield and at the same time promoting voluntary compliance and autonomy. This will not only increase the revenue base of countries in the region, but to a large extent, it will reduce over reliance on deficit financing by countries in the region.

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