

**BUDGETARY POLICY REFORMS AND FISCAL PERFORMANCE IN NIGERIA****EWEDAIRO HAFEEZ TAIWO****DEPARTMENT OF ACCOUNTING, UNIVERSITY OF PORT HARCOURT****And****CHRISTOPHER C. EBERE****DEPARTMENT OF ACCOUNTING, FACULTY OF MANAGEMENT SCIENCES,  
UNIVERSITY OF PORT HARCOURT****Abstract**

*With the return of democracy in Nigeria, the government commenced implementation of ambitious reforms to curtail waste of government resources and to raise standard of its fiscal management and financial discipline. The budget department and implementation procedures were targeted to enhance planned fiscal performance of the government using Medium Term Expenditure Framework (MTEF). Current and the next government rolled out more reforms in 2007 and piloted the process for the FY 2011-2015. However, the current administration has numerous budgetary setbacks as deficits are almost uncontrollable. This paper empirically discusses budgetary policy reforms and fiscal performance in Nigeria. Analytical data are from the Central Bank of Nigeria Bulletin and the Budget Office. Unlike numerous measures of fiscal performance, we conceptualize government fiscal performance from the perspective of deficits operationalized by public debts, while budgetary reforms assume dummy variables. the Akaike Info Criterion selected the lag length of the deficit series. Augmented Dickey-Fuller estimated the unit root prior to the application of Dynamic Ordinary Least Square (DOLS) method. Our evidence suggests that budgetary reforms declined fiscal deficits. The paper thus concludes that reforms are ideal for greater fiscal performance and resource management of the Federal government.*

*Keywords: Budgetary Reforms, Fiscal Performance, Dynamic OLS*

**Introduction**

Reforms in the budget of a country are part of a desperate move to accumulate more resources against many avoidable spending's not positively impacting the public. A sound political administration could fail when aggregate spending but declining revenue is uncontrollable. Budget reforms in Nigeria appeared impossible prior to the return of democracy in Nigeria. However, the president Obasanjo administration conquered such impossibility. Already there had been existing outcry in the fiscal management strategies in developing countries (Campos & Pradhan, 1999). The fiscal issues warranting a reform were probably the dilemma surrounding intertemporal decision of the Federal Government and resource allocation efficiency. Contemplated ray of hope would be to reduce public expenditure, re-examination of composition of spending and what expenditure heads need to be slashed or eliminated to curb deficits. Nigeria was no an exception. Everyone called Nigeria in the early 2000s unreformable, incorrigible, hopeless (Okonjo-Iweala, 2014). These conclusions were a response to a long-lasting reality of country riddled with

corruption, battery from economic volatility and bloated with debts.

For a developing oil-exporting country like Nigeria, the omens remained dangerous in that confidence in the general business of the country and leadership could not be responsibly trusted for invested resources. Thus, reclaiming lost confidence in a system drowning in inequality and pervasive corruption required establishing social trust, credibility and fairness (Okonjo-Iweala, 2014). A first order business is the implementation of radical sweeping reforms in the budgetary process of the government. This article provides discussions on budget reforms as a relationship to improved fiscal performance. Quite fortunately, the President Obasanjo administration ended achieving notable success and discipline in the public sector balance sheet. Unlike the immediate past administration that has records of fiscal maturity; civil commentaries think the present government has lost control in public sector financial management. The economy has high record of food inflation and foreign debts are not impacting the poor. Persistent fiscal deficits and

debts accumulations have eroded the resource management and discipline introduced by the past leadership of this country. As a result, political economy explanation of this phenomenon requires analysis through data and statistical procedure.

The current administration has thrown up conditions for deep budgetary reforms in the Nigerian fiscal life. In the recent years revenue sufficiency has been of immense necessity this also combines with poor accountability and system transparency. For instance, variance between actual collections and projections is partly attributed to continuing weaknesses in the revenue collection systems (Budget Office, 2019p.6). As it is well known, annual budget passage in these few years have been characterized by ridiculous rhetoric from the legislatures at the National Assembly. Notable amongst all was the new tag- *budget padding* and *yam budget*. This has consistently made mockery of ideals and sense of responsibility of the Federal Government and the civil service at large.

A solid reform in the budget process can contribute to improved fiscal performance. As a social formula, reform is a tool for fighting corruption, curb resource wastages and misappropriation of civil resources provided by taxpayers. In the current administration persistence of deficits is weighing the machinery of the government down. It is argued that Korean fiscal performance has been good owing to reforms introduction (Kim, 2010). On necessity of fiscal turnaround IMF linked programmes (Gollwitzer, 2011) had previously advice perpetually deficit government running to consider option of budget reform for expected positive gains.

The current paper is structured as follows. Section 2 discusses a conceptual framework for discerning budgetary reforms in Nigeria. Section 3 outlines data and statistical methodology, in Section 4 sets out statistical findings and analysis using the methods. Lastly section 5 provides some discussions concluding remarks.

## **Section 2 Literature Review**

### **Conceptual Review of Budget Reform and Fiscal Performance**

Reforms alter the usual inefficient ways of achieving a certain outcome. Budget reform is a

conscious effort to change and improve fiscal "lifestyle" of federal government. Budget reforms involve making changes to the ways and manner in which the budget is formulated, implemented and evaluated for the purpose of facilitating. This involves the development of rules to mitigate performance imbalances. Drawing from the seminal framework of North (1991) on natural states implies adaptation of institutions, organization and behaviour. Therefore, reform of budgetary institution is almost related to development of political and economic institutions. This is to prevent among others the cynical distortion of policies in direction not favourable to the population. Benito and Bastida (2009) relate reforms to budget transparency which means construction of comprehensive index of budget transparency encompassing 40 budget attributes based on international standards for 41 countries.

When conceptualizing fiscal performance care needs to be taken given the multifaceted nature of what government fiscal performance should constitute. Prolific literature discloses this dilemma. Dhalokia (2005) indicates that fiscal performance parameters composition could be any of: government expenditure, sources and pattern of government finances, the magnitude of debt, subsidies and interest burden. The author compressed these multi-dimensional operational measures creating composite fiscal performance index for fiscal discipline as indirect measure of fiscal performance. Poterba (1994) discovers the use fiscal shocks. In the authors terminology shock is associated with the difference between planned and actual spending and revenues, given unexpected random events. Campos and Pradhan (1999) build constructs around aggregate level of spending and deficit, the composition of expenditures and technical efficiency in the use of budgeted resources.

In our case we substitute fiscal performance with deficits of Federal government of Nigeria. It is only logical to reasons that fitting budgetary reforms lead to significant declined on some government wasteful expenditures. A decline in deficit would suggest better performance. We define government deficits as size of resource variance between target revenue and actual whose gap is augmented by public borrowing. Thus, the deficit in the budget is

excess of planned expenditure over available revenue. Table 1 displays in aggregate terms gross revenue profile of Nigeria in 2018.

Fiscal items	2018 Approved Budget	Actual (JAN-DEC)	Variance Billions of Naira	
	Billions of Naira		Billions of Naira	%
<b>A OIL REVENUE</b>				
a Gross Oil and Gas Revenue	7,618.07	5,545.62	(2,072.45)	-27.2%
b Deductions*	1,456.52	1,528.24	71.73	4.9%
c Net Oil and Gas Revenue	6,161.55	4,017.38	(2,144.17)	-34.8%
<b>B NON-OIL REVENUE</b>	4,431.83	3,260.82		-26.4%
a Non-Oil Taxes	1,731.81	1,368.69	(1,171.02)	-21.0%
i Corporate Tax	1,546.49	1,108.04	(363.11)	-28.4%
ii VAT	848.53	716.26	(438.45)	-15.6%
iii Customs	305.00	67.83	(132.28)	
iv Tax Amnesty	226.63	163.09	(237.17)	-28.0%
b Deductions	4,205.20	3,097.72	(63.54)	-26.3%
c Net Non-Oil Taxes	321.68		(1,107.48)	-100.0%
d Other Revenues**	64.43		(321.68)	-100.0%
Dividend Payment (NLNG)	2.41		(64.43)	-100.0%
Net Solid Minerals Revenue after Derivation	2.41		(2.41)	-100.0%
Signature Bonus	235.67		(235.67)	
Actual Balances in Special Accounts	19.17		(19.17)	-100.0%
<b>e Net Non-Oil Revenue</b>	<b>4,526.88</b>	<b>3,097.72</b>	<b>(1,429.16)</b>	<b>-31.6%</b>

\* These include Minerals after derivation as well as Actual balances in special account  
 \*\* The VAT includes surcharge on luxury items. Also, the Net Non-Oil Revenue refers to those accruable to the Federal and available for sharing by the tiers of Government; thus, it excludes FGN Independent Revenues  
 Source: Budget Office

According to the Budget Office (2019p.6), gross oil and gas revenues was N5,545.62 billion (N2,072.45 billion or 27.2% less than projected). After deductions for costs of production and derivation, net oil revenue was N4,017.38 billion. This represents N2,144.17 billion (or 34.8%) shortfall, mainly

attributable to the lower oil production volume as well as higher deductions.

### **Budget Reforms Objectives and Theoretical Underpinnings**

The historical basis for compulsory budgetary reforms in Nigeria took off from the re-introduction of democratic processes in the governance Nigeria as soon as President Olusegun Obasanjo received oath of office. This was a reflection to the necessity of transparency and accountability in the conduct of financial responsibilities of a ruling government. Egbide *et al.* (2016) disclose that Medium Term Expenditure Framework (MTEF) in year 2005 marks the beginning of an impressive process to the application of full-fledge reforms in the fiscal history of Nigeria. Closely followed was the legislative passage of Financial Responsibility Act (FRA) signed by President Umaru Musa Yar' Adua. The administration clear intent was in the best interest of the vast poor persons to drastically reduce rate of poverty in the country.

Generally, the reform impetus hinged on five prong strategic areas (1) Administrative procedures (2) Budget Preparation (3) Management of government spending (4) Budget implementation (5) Budget monitoring/evaluation. These five measures are projected to curatively curb wasteful government officials spending, promote budget discipline as well as to raise existing level of productivity and efficiency resulting from improved resource management.

President Goodluck Jonathan administration extended the reform in the direction of Treasury Single Account (TSA) to tighten prudent management of government resources.

### **Empirical Evidence**

On the assessment of fiscal performance from the lenses of budgetary reforms, many studies suggest that potential public outcome is a matter of capacity and strength of involved institutions in the budget making and delivery of the government. Alesina *et al* (1999) lead in focusing on analysis of involved institutions and collected detailed data on sample of 20 Latin America nations' budgetary institutions between 1980 and 1992. But to answer the question on the importance of budgetary institutions, the authors employ ratio of the primary deficits of the central government over GDP. Findings indicate a negative correlation between the index and

the value of the primary deficits. The regression beta also results in negative and significant coefficient. The evidence conclusively hints that fiscal institutions are not just a veil but, on the contrary, influence fiscal outcomes which is consistent with the US.

The US case suggests imposing stringency of budget laws for better fiscal result. The paper could not say much on transparency because of the associated problem of measurement. In another Latin America studies with institutional focus, Stein *et al.* (1999) comment on the experiences of institutional arrangement and fiscal performance. the listed institutional arrangements cut across electoral system and budgetary procedures. Findings reveal that electoral systems characterized by a large degree of proportionality, that is, a large district magnitude, in addition by large proportionality of political fragmentation, tend to have greater governments, higher deficits, and a more procyclical response to the business cycle. Moreover, more transparent and hierarchical budgetary procedures lead to lower deficits and debt. Also, the impacts of institutional variables tend to be large in economic terms. However, there is no evidence that federal budgetary arrangement budgetary arrangements neutralize the latent effect on fiscal deficits of a greater degree of proportionality of the electoral system. A two- country analysis of New Zealand and Australia in Campos and Pradhan (1999) examine how institutional arrangements (comprising the rules, norms, procedures) governing the budget process affect incentives governing the allocation and resource uses and further identify strong theoretical challenges confronting any public expenditure management system.

The authors report on Australia indicates that dramatic spending cuts were achieved by substantial variations in the composition of intra-sectorial expenditures savings accounts identified by line agencies themselves. It is observed that both countries share relevant principles in budget reform efforts. Still transparency remains a common feature. However, tight specified accountability mechanisms basically on output are observed to have been compromised at the same time as in New Zealand. Conclusively the paper argues that institutional arrangement can be effective only if there are

mechanisms that bind public officials to existing arrangements.

On the role of budgetary institutions too, El Husseiny (2016) in a written paper assesses the quality of Egypt's budgetary institutions alongside each of the main phases of the budget cycle. It further analyzes how such institutions probably affect the country's overall fiscal performance. The study concludes that Egypt's fiscal performance can be improved when budgetary institutions related to transparency and sustainability issues are strengthened. Therefore, Egypt poor fiscal performance is attributable to having weak budgetary institutions. Based on Cointegrated Vector Autoregressive model, Bwire *et al.* (2017) show that Uganda implementation of public expenditure and revenue management reforms from the beginning of 1990s aimed at improving budget planning and aligning aid with fiscal priorities show fiscal reforms improved aid and management of public expenditure.

Hagemann (2011) examines growing interest in the role of independent fiscal institutions to improve fiscal performance. The author concludes that good fiscal institutions are necessary condition for achieving disciplined fiscal performance. Dholakia (2005) presents an alternative approach to measuring fiscal performance of states. The author prepared a composite index of fiscal performance from eight fiscal indicators but argues that eleventh and twelfth Finance Commissions fully recognize the relevance of various fiscal parameters which includes: composition of government expenditure, sources and pattern of government finances, the measure of fiscal discipline, magnitude of debt, subsidies and interest burden, adopted by them is based on only one indicator. The study concludes that the paper's proposed fiscal performance index is the best is more robust because of its multidimensional features, more stable and ideal for state policy.

A summary of literature on challenges of budgetary reforms is found in Allen (2009). The author specifically analyzes the challenge of reforming budgetary institutions in developing countries. The reports that strengthening budgetary processes and systems in low- and middle-income countries could likely be constrained by the poor quality of public

institutions; weak centers of government and cabinet systems that generate policy problems coordination and efficient planning. Additionally, the study observes that this class of countries is burdened with limited financial resources to spend on relevant technical systems and capacity building. However, in key developing countries the study concludes that reform of budgetary institutions is generally an extremely slow and challenging process that has consumed more than two hundred years timespan in advanced countries (France, the United Kingdom, and the US) — in a series of slow moving waves as a resemblance of Kondratieff cycle which never gets completed.

Egbide *et al.* (2016) investigate the influence of budget reforms with emphasis on Medium Term Expenditure Framework (MTEF) and Fiscal Responsibility Act on related reforms and poverty reduction in Nigeria. Using historical time series collected 7 years prior to reform and 7 years after adoption of MTEF and 5 years before and 5 years enactment of FRA thereafter, the authors conclude that poverty index in Nigeria declined after introduction of MTEF and FRA which appears significant in the MTEF term but insignificant in FRA case. However, other study previously adopts three constructs: budget transparency, fiscal situation, and political turnout. For instance, Benito and Bastida (2009) for the first time apply an international approach to explore the relationships between budget transparency, fiscal situation, and political turnout. This is closely aided by the creation of new comprehensive index. Analytical methods include descriptive procedure, ANOVA, Pearson parametric coefficient.

Findings indicate a positive and significant relationship with transparency, as the majority of the literature defends. It precisely reveals that transparent budgets enhance politicians' commitment to be fiscally responsible. The implication is that by disclosing more information about the budget in an open way the less the politicians can capitalize on fiscal deficits to achieve personal opportunistic goals. Conclusively, the paper submits that the univariate analysis reveals a positive and significant link between political turnout and the transparency index.

### Section 3 Data and Statistical Methods

Systematic long-term data are lacking to demonstrate the long time periods required for budgetary reforms and improvement to yield target changes in the fiscal performance of developing economies like Nigeria, but relevant and suggestive constructs in the conceptual framework requires generating data on deficits. Size of deficits reflected in the government public borrowing. The dataset covered a period of 1999 to 2021.

As proposed by Stock and Watson (1993), we proceed to apply Dynamic Ordinary Least Square (DOLS) in the current empirical due to its advantage over conventional Ordinary Least Square (OLS). The Stock Watson technique is, by contrast, a robust single equation approach which corrects for endogeneity in explanatory variables by the inclusion of leads and lags of first differences and contemporaneous values of the regressors in first order of integration (Kao & Chiang, 2000), and for serially correlated errors by a GLS procedure. Asymptotic bias in OLS is corrected in DOLS which at the same time has the capacity to detect a long run cointegrating relationship. Resultantly, DOLS is a parametric estimator using lags and leads of explanatory variables. Consequently, we apply it in a single-equation linear regression to cope with the problem of serial autocorrelation and changing variance irrespective of the order of integration and

$$\Delta y_t = \beta D_t + \phi y_{t-1} + \sum_{j=1}^p \psi_j \Delta y_{t-j} + \varepsilon_t \quad (1)$$

Where

$D_t$  Sector of is deterministic terms (constant, trend). The  $p$  lagged difference terms,  $\Delta y_{t-j}$ , are used to approximate the ARMA structure of the errors, and the value of  $p$  is set so that the error  $\varepsilon_t$  is serially uncorrelated.

Provided the deficit series is I(1) integrated, the Dynamic OLS (DOLS) is employed to estimate a single cointegrating vector characterizing a long run relationship in the fiscal performance equation. Stock and Watson (1983) DOLS equation is specified as follows:

$$Y_t = \varphi_0 + \overline{\varphi X} + \sum_{j=-q}^p \vec{d}_j \Delta X_{t-j} + \mu_t \quad (2)$$

Where;

$Y_t$  is the dependent variable;  $X$  is matrix of predictor variables;  $\overline{\varphi}$  stands for cointegrating vector representing the long-run cumulative multipliers or, alternatively, the

existence of or absence of integration. This method is celebrated for having strategic advantage of coping with small sample and dynamic sources of bias (Al-Azzam & Hawdon, 1997) which is clearly lacking in OLS and Maximum Likelihood estimators.

Here we build a time series model construction to estimate the coefficient of budgetary reform coded according to standard dummy variable. We dummy the reform series according to data of reform introduction. This takes binary figure (1) and (0) if otherwise. The literature follows specifications in Camacho (2010). We determine the lag of the dependent series with Akaike Info Criterion. Furthermore, the order of integration is estimated with Augmented-Dickey Fuller (ADF) technique. Estimates from unit root tests would determine the next process to be employed to estimate Nigerian budgetary reforms and fiscal performance. For instance, if all series are integrated at levels, the OLS estimator may be used. Conversely, if series are unit root non-stationary, then OLS would render a spurious regression. The ADF unit root test involves estimating regression for each series and, then, testing the null hypothesis of a unit root,  $H_0: \rho = 0$ , versus the alternative of a stationary process,  $H_1: \rho < 0$ . The test is based on the typical t-ratio. Accepting the alternative hypothesis implies absence of unit root in the deficit series. the ADF takes the following specifications:

long-run effect of a change in  $X$  on  $Y$ ;  $p$  is the lag length selected by AIC;  $q$  implies lead length in Camacho-Gutiérrez (2010);  $\mu_t$  is error term;  $\Delta X_{t-j}$  is the lag of predictor variable associated with variations with time;  $d$  implies the lead parameter. We further specify the dynamic model of budgetary reforms and fiscal performance by including its cointegrating functions as follows:

$$\ln DEFICIT_t = \varphi_0 + \varphi_1 DUMMY + \sum_{j=-q}^p \vec{d}_1 \Delta \ln DUMMY_{t-j} + \varepsilon_t \quad (3)$$

Where,

DEFICIT is fiscal gap representing outcome variable;  $DUMMY_{t-1}$  is the lag of the explanatory variable,  $\varphi_0 - \varphi_1$  are coefficient of parameters;  $DUMMY$  is the dummy variable on budgetary reforms with binary digits of 1 or 0. The deficit transformed into natural logarithm to capture variations in trend;  $\varepsilon_t$  implies the error term. We expect via empirical insight that reform would yielding declining effects on the level of fiscal deficit.

## Result and Analysis

### Table 2: Augmented Dickey-Fuller Estimate

Null Hypothesis: D(LNDEFICIT) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=4)

Augmented Dickey-Fuller test		t-statistic	P-value
Test critical values:	5%	-3.644963	
	10%	-3.261452	
*MacKinnon (1996) one-sided p-values			
ADF: drift & trend	-3.834800		0.0349

### Source: Author

The table above contains the unit root test estimated with ADF statistics. At 5% and 10% critical values we do not have sufficient evidence to accept the null of unit root, thus the deficit series using debt

is stationary after first differencing. this is because the ADF statistic of -3.834800 is less than the corresponding critical values in 5% and 10% respectively. Therefore, fiscal deficit is stationary.

### Table 3: Akaike Info Criterion

VAR Lag Order Selection Criteria

Endogenous variables: REFORM DUMMY

Exogenous variables: C

Date: 11/01/22 Time: 13:20

Sample: 1999 2021

Included observations: 22

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-42.69222	NA	0.1993	4.0629	4.1621	4.0862
1	0.850	75.209*	0.0054*	0.4681*	0.7657*	0.5382*

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

From the table 3 above the lag selection criteria required in DOLS has been chosen from the AIC estimator. Fortunately, all the lag selecting methods

identified lag length 1, thus the maximum lag in empirical estimation is 1 in DOLS estimation.

#### Table 4: Dynamic OLS Estimates

Dependent Variable: LNDEFICIT

Method: Dynamic Least Squares (DOLS)

Date: 10/31/22 Time: 21:00

Sample (adjusted): 2000 2017

Included observations: 18 after adjustments

Cointegrating equation deterministics: C

Automatic leads and lags specification (lead=4 and lag=0 based on AIC criterion, max=4)

Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

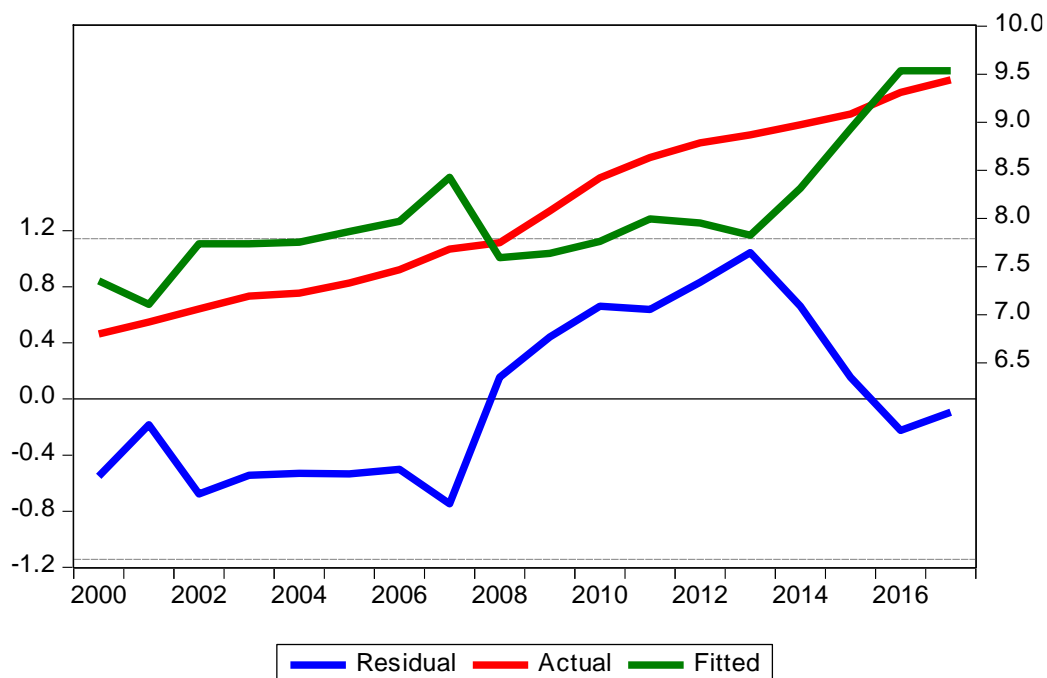
Variable	Coefficient	Std. Error	t-Statistic	P-value
DUMMY	-3.479382	1.465364	-2.374414	0.0369**
C	9.535057	0.686907	13.88114	0.0000**
R <sup>2</sup>	0.566760		Mean dependent var	8.057774
Adjusted-R <sup>2</sup>	0.330447		S.D. dependent var	0.889630
S.E. of regression	0.727950		Sum squared residue	5.829031
Long-run variance	1.307010			

\* insignificant at 0.05 level.

Table 3 presents DOLS statistical results and as stated the number of lead and lags are selected by the AIC method. Estimated specification shows that budgetary reform dummy variable beta is statistically significant ( $0.0369 < 0.05$ ). The coefficient indicates a decline in deficits of the Nigerian government due to

reform. This finding shows that budgetary reform has a negative relationship with growing budget deficit. In other words, 3.479 percent decline in the revenue-expenditure gap is as a result of implementation of reforms in the federal budget of the country.





**Figure 1: Residual Diagnostic graph**

On the figure 1 above the fitted and actual graphical trends tend to comove such that there is no significant gap. Hence, our model is well fitted for the analysis. This supports the  $R^2$  coefficient of 0.566760. Intermittent budgetary reform explains approximately 56.67 percent changes in deficit budget.

### Discussion and Conclusion

Plugging revenue leakage centres is necessary for greater fiscal performance of the Nigerian budget. Our finding points to this assertion. We measured fiscal performance with deficits where corresponding data is public debts deployed to provide for insufficient revenue against wide expenditure. Result reveals that budgetary reform significantly leads to the decline in the revenue gap experienced in the government. Consequently, reform is a feasible fiscal solution to resources wastes and mismanagement by the government. In this context the finding aligns with EL Hussein (2016) conclusion that reforms in budgetary institutions improves fiscal performance in Egypt. The negative and significant coefficient in the current study affirms this conclusion, hence complying with a *a priori* expectation.

This tends to suggest that Medium Term Expenditure Framework (MTEF) and associated reforms backed by the National Assembly yields expected outcome. It is an important policy strategy which should dominate the government plan on its revenue and expenditure. This study therefore recommends a performance-based system of evaluating the Nigerian budget from the executive arm of the government and the National Assembly. The real difficulty is the honest use and reporting of accurate size of revenue to government revenue collecting institutions. Stiff supervision and control are necessary. Thus, Economic and Financial Crime Commission is expected to probe government revenue agents in various MDAs to detect instances of vanishing huge revenues of the government.

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## Appendix

Null Hypothesis: D(LNDEBT) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.834800	0.0349
Test critical values: 1% level	-4.467895	
5% level	-3.644963	
10% level	-3.261452	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LNDEBT,2)

Method: Least Squares

Date: 10/31/22 Time: 21:09

Sample (adjusted): 2001 2021

Included observations: 21 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNDEBT(-1))	-0.899409	0.234539	-3.834800	0.0012
C	0.164699	0.082027	2.007860	0.0599
@TREND("1999")	-0.004299	0.005322	-0.807826	0.4297
R-squared	0.449637	Mean dependent var		0.000349
Adjusted R-squared	0.388486	S.D. dependent var		0.184578
S.E. of regression	0.144339	Akaike info criterion		-0.901746
Sum squared resid	0.375005	Schwarz criterion		-0.752528
Log likelihood	12.46833	Hannan-Quinn criter.		-0.869362
F-statistic	7.352847	Durbin-Watson stat		1.984698
Prob(F-statistic)	0.004633			

Dependent Variable: LNDEBT

Method: Dynamic Least Squares (DOLS)

Date: 10/31/22 Time: 21:00

Sample (adjusted): 2000 2017

Included observations: 18 after adjustments

Cointegrating equation deterministics: C

Automatic leads and lags specification (lead=4 and lag=0 based on AIC criterion, max=4)

Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DUMMY	-3.479382	1.465364	-2.374414	0.0369
C	9.535057	0.686907	13.88114	0.0000
R-squared	0.566760	Mean dependent var		8.057774
Adjusted R-squared	0.330447	S.D. dependent var		0.889630
S.E. of regression	0.727950	Sum squared resid		5.829031
Long-run variance	1.307010			