FISCAL POLICY AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

Article · April 2023

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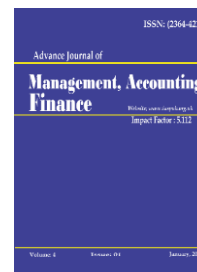**92** PUBLICATIONS   **109** CITATIONS

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FISCAL POLICY AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

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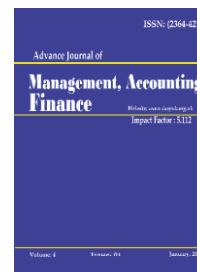| Keywords:	Abstract:
Fiscal Policy, Government revenue, Government Expenditure, Economic Growth Fiscal Deficit, Nigeria, ARDL. Sub-Saharan Africa.	*The part played by fiscal policy in the long –run economic growth is central in macroeconomics. Theoretically, this item is considered capable affecting the growth of economy through both macroeconomic and microeconomic routes. While majority of the past studies concerning the correlation between fiscal policy and economic growth did not take taxation into account, they emerged with conflicting results. This study attempted to further examine the impact of fiscal policy on economic growth in the sub=Sahara African nations using Nigeria as case study and covering the period from 2011to 2021. Auto Regressive Distributed Lag (ARDL) was employed as analytical technique, while ex post facto research design was utilized. Real Gross Domestic Product proxied economic growth. Fiscal Policy, the explanatory variable, was represented was represented by federal government expenditure, government revenue and fiscal deficits. The findings obtained suggest that the impact of fiscal policy on economic growth is positive but non-significant. It is recommended by this work that more regulatory guidelines ought to be provided for government institutions in Nigeria and the rest of sub-Sahara African to perform their policy intermediation functions effectively.*

1. Introduction

Proponents a market economy that is free like Milton Friedman, Pierre-Joseph Proudhon, Benjamin Tucker and the socialists li9ke dennis Ricardo contend that the market system is ruled entirely by the demand and supply from buyers and sellers, with little presence or complete absence of government regulation. In contrast, however, one other group of researchers postulate emphatically that it is essential to put in place some rule-making institutions external to the simple market forces which would create space for the forces to operate so as to control productive output as well as distribution. The latter assert that should an economy be allowed to be driven by free operations of market mechanism, it is not likely to function efficiently and come up with the outcomes that will be fair to every citizen for optimal performance. Consequently, this school considers it compulsory to guide every economy and complement the operations of the market

mechanism for better and desired outcomes (Cookey & Okorie, 2020). In a bid to achieve this purpose, many national governments often come up with fiscal policies which they modify regularly as they consider worthwhile. Fiscal policy refers to a policy chosen by government with the intention of using taxation and expenditure efficiently. Also, has to do with controlling public debt and government surplus income optimally. Government does this by channeling its economic strategies towards determining from where to generate revenue and the best way to spend same. Quite often, fiscal policy is considered as one of the most important avenues that government uses to intervene in activites related to the economy (Kasasbeh,2021). It is an instrument that government uses to move the national economy towards establishing some stability in their economy. (Farhi & Werning,2016). A country;s economic growth refers to the upward movement of the real income of the country cumulatively and continuously in a particular period in such a manner that the rate of increase in the county's income is higher than the rate of growth in its population. A strategy employed to intervene in the economy is through macro-economic policy. Cookey and Okorie (2020) assert that macro-economic policy has two broad categories, namely monetary policy and fiscal policy. Both categories almost, have similar tbroad objectives. For instance, both of them are used to ensure price stability, balance of payment viability, stability of exchange rate, employment generation and growth in the economy. For budgetary purposes, government revenues would at times absorb government expenditure. When this happens, the budget is regarde as balanced. However, in other instances

funds available becomes less than tha amount to be spent. A budget of this kind is termed deficit budget.

Problem statement

Theoretically, fiscal policy is considered capable of having a positive and significant impact on economic growth. However, going through extant literature, it was observed that a lot of past studies concerning the long=run connection between the two variables emerged with conflicting results. In addition a serious controversy exists concerning how effective fiscal policy is as a tool of macroeconomic literature (Cookey & Okorie,2020). For example, studies like Appa (2010 as well as Medee and Nembee (2011) concluded that fiscal policy has a positive and significant effect on economic growth, while Omitogun and Ayinla (2007) found the impact as weak. Furthermore, a lot of extant studies on this topic failed to introduce taxation either as an explanatory variable or even as control variable (Ngongang,2008). However, as remarked by Bleaney et al. (2000) and Benos (2009), any research that which does not take introduce both aspects of fiscal policy as explanatory variable while ascertaining the impact if fiscal policy on economic growth of a nation would invariably suffer from substantial biases with regard to the coefficients' estimation. This study considers it worthwhile finding out if government intervention in the economies of sub-Saharan Africa through fiscal policy instruments has been effective. To obtain the answers, it was considered essential to empirically investigate the *nexus* between fiscal policy and economic growth in the economy of sub-Saharan African countries, with Nigeria standing proxy for them. While doing this, both

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federal tax revenue, federal government expenditure and fiscal deficit were introduced as explanatory

At the moment, there exist about fifty-four countries in Sub-Saharan Africa. However, the justification for using Nigeria as the representative of all other countries in the sub-region is that, apart from finding it difficult to obtain reliable time-series data on most of them, Nigeria is not only a leader in the sub-region but also one among those countries that use fiscal policies regularly to guide their economies.

The results of this study is expected to unravel the relationship between fiscal policy and economic growth in sub-Saharan Africa In addition, they will be useful to several regional and national governments by making available to them an informed instrument for policy improvement.

The rest of this paper was arranged as follows: Section 2 provides the review of the related literature. Section 3 contains the data and methods. Section 4 highlights the data analyses and presentation of results while section 5 concludes the paper.

2. Literature Review

2.1 Conceptual Review

2.1.1Fiscal Policy

Fiscal policy refers to a government policy that has to do with its optimal utilization of some economic instruments, namely tax revenue and expenditure. A country does this by channeling its economic rules of action towards determining the revenue sources as well as finding out the best way of spend them. Also, it is considered as a very important channel through which government intervenes in their country's economic affairs (Kasasbeh, 2021). It is the technique used by public authority to move its country's economy towards a completely stable one (Farhi & Werning, 2016). For Alkasasbeh and Haron (2018), the concept of fiscal policy has been subjected to serious alterations in both economic, social and financial history. Here, we considered it as an approach that a reflector of the economic and social task of governments. With it,public authorities are capable of driving the *quantum* of aggregate demand of their nations and the level of economic performance (Al-Khasawneh & Abu Aleqa, 2012). Tcherne and Va (2011) consider fiscal policy as the goals, directions, actions and activities taken by a country direct its economy towards preserving its general stability, its development, its problems and changing circumstances. Alam, Inchauste and Serajuddin (2017) consider fiscal policy as playing an essential role towards ensuring the achievement of a national economy's multiple goals. The instruments of fiscal policy include taxation and public expenditure. Others are the method for exercising control on public debt and surplus income (Cordes,Kinda, Muthoora & Weber,2015;Cai,Huo&Sun,2017).

2.1.2 Economic growth

Economic growth refers to a stable rise in the real production of goods and services coupled with the boosted capability of the economy to create goods and services. This increase should not just be nominal; it must be real. Consequently, it engenders an upward movement in per capita income of the residents (Panayotou, 2016). Ndubuisi (2017) considers economic growth as the economic indicator regarded most highly among others. Apart from driving the economy of nations, it increases their self-sufficiency (Cai, Huo, & Sun, 2017). In addition, economic growth guarantees the improvement in the health,

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educational and social services of the populace (Kim, 2017).

2.1.3 Fiscal Deficit

Agbo and Nwankwo (2021) affirm that fiscal deficit has several definitions by different scholars. These authors define fiscal deficit as the expenditure incurred by a government over and above the income at its disposal in a particular period - usually a year. Fiscal deficit, also called budget deposit, is considered as an important tool of fiscal policy and is all about employing public expenditure and taxation to drive and direct the pattern of economic activities.

For a government to use fiscal deficits efficiently, it must manage the economy properly.It has to do this by manipulating its revenue and expenditure towards achieving some targeted macroeconomic goals. Inevitably one of such goals would be the sustainable growth of the economy. Fiscal deficit can be funded through domestic and external borrowing. A proper harnessing of fiscal deficit will go together infrastructural and human resource development, substantial decrease in unemployment and recovery from depression/recession.

2.2 Theoretical framework

2.1The Keynesian Theory on Economic growth

This theory postulates that any rise in public expenditure will have a positive and expansionary impact on both income and employment. This is because such increase will have a multiplier effect on aggregate demand. (Jelilov & Musa,2016). Keynes (1936)) considers public expenditure as an exogenous variable that contributes positively to economic growth. Consequently, Keynes concludes that a rise in

government expenditure would certainly bring about some boost in the level of employment, profitability and output. Also, the keynesian theory posits that fiscal deficit is utilized to improve economic condition and optimize social wellbeing (Dritsakis & Stamatiou, 2016).

It assumes a negative correlation between fiscal deficit and unemployment and a positive relationship between fiscal deficit and real economic growth. Berheim (1989) asserts that whenever fiscal deficit is appropriately timed, it comes with some benefits.

2.2 Ricardian Equivalence Theory

This theory postulates that whether government expenditure is financed with current tax revenue or future tax receipts the effects on the entire economy will be the same (Investopedia (2021). The theory assumes that tax payers will do some savings in the expectation that there will be an increase in future taxes by government so as to pay off the debt borrowed by it.

2.3 The Social-Political Theory of Taxation

One of the primary aims of taxation is to raise revenue to enable government to settle its expenditures bills. Ogbonna and Appah(2012) explain that the social-political theory of taxation advocates that a tax system should be designed to solve the problems of the society holistically. Consequently, the theory suggests that the tax system should be directed towards providing for the health of the entire society (Chigbu, Akujuobi, & Appah ,2012),

This work was anchored on all the theories highlighted above.

2.3 Empirical review

Easterly and Rebelo (1993) investigated the connection between fiscal policy and economic growth. The paper described regularities that

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connect the variables of fiscal policy, development level and growth rate. The authors constructed and employed time series data and public investment series. The study concluded that (i)level of development and fiscal structure are strongly linked together;(ii) It is the scale of the economy measured by its population that determines a country's fiscal policy;(iii) investment in transport and communication is consistently correlated with growth and (iv) it is not easy to set aside the effects of taxation on economic growth empirically.

Baballola and Amino (2011) investigated the effect of fiscal policy on Nigerian economic growth. The study used historical data covering from 1977 to 2009. It also employed the enhanced Dickey Fuller model and performed the Engel-Granger cointegration test

The results indicated that production expenditure affected economic growth positively, while the cointegration test confirmed the presence of long-term correlation between them.

Audu (2012) researched on the effect of fiscal policy on the Nigerian economy for the period from1970 to 2010.Co-integration error correction model was used to carry out the tests. The study found that there was stability in the causal relationship between the two variables and a causal relation between exports and GDP.

Al-Shatti (2014) intended to ascertain it fiscal policy affected the economic development of Jordan. Consequently, the author designed some mathematical model and analyzed the historical data for the period 1989 to 2013.The result was that fiscal policy (represented by expenses and tax revenues) affects economic development of Jordan positively but that public capital expenditures affect Jordan's economic development negatively.

Shihab (2014) equally wanted to ascertain effect of fiscal policy on the economic growth of Jordan. This being the case, Shihab designed some mathematical model that relied on the methodology of Granger. This was employed to determine the causal relationship between the variables. The author used time series data spanning from 2000 to 2012.The outcome of the study was that movements in budget deficit could explain the movements in economic growth in Jordan. Osuala and Ebieri (2014) analyzed the effect of fiscal policy on Nigerian economic growth. The historical data for the study covering from 1986 to2010 were sourced from the Central Bank of Nigeria statistical bulletin, Volume 22 and the national Bureau of Statistics

The Ordinary Least Squares (OLS) method of multivariate regression was employed in analyzing the log-linearized model. The Augmented Dickey Fuller stationarity test was also employed. Also, General-to-Specific approach to ARDL econometric tool was employed for checking the presence of long term and short-run equilibrium conditions. The study concluded that long run equilibrium existed between the two variables in Nigeria.

Nawaz and Khawaja (2016) conducted some research in order to determine the effect of fiscal policy on economic growth across a sample of 56 countries. It was found that the effect of fiscal policy on economic growth is positive in developed countries but negative in developing economies.

Further, Alam, Inchauste and Serajuddin (2017) investigated the distributional impact offiscal policy in Jordan. It used the historical data sourced from the Department of Statistics.It also

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conducted interviews with approximately 11,000 families from 2010 to 2011.The study found that indirect to system is inefficient and increases the gap existing between the poor and the rich.

Ndubuisi (2017) studied the connection between fiscal policy and economic growth in Nigeria. The period covered by the study was from 1985 to 2015.The data for the study were analyzed with OLS, unit root test, Error Correction Model and co-integration tests. The findings indicate that fiscal policy significantly influenced economic growth in Nigeria

Ngakosso (2018) studied the impact of fiscal policy on economic growth cycles in Congo. Ngakosso analyzed some quarterly data spanning the period from 1989 to 2015. He Huart.Base on the outcome of the study, there was preference for counter - cyclical restraint fiscal policy as against restrictive fiscal policy.

. A more recent work done by Kim, Wang, Park and Petalcorin (2021) was intended establish the important characteristics of the fiscal system of China and its impact on China's economic growth. The intention was to ascertaining the connection between the two variables. The study concluded that local expenditures growth has a larger impact on output growth than central expenditures growth. The authors also found that the response of output growth to anticipated volatility in taxation was hindered by liquidity constraints. Kasasbeh (2021) examined the impact of fiscal policy on economic growth. The author observed that two types of fiscal policy exist, namely pubic spending and taxation and that the relationship between fiscal policy and economic growth is neither clear nor consistent.

3. Methodology

3.1 Research Design

The *ex post facto* research design was employed in this work. The study used historical data spanning the period from 2011 to 2021). These comprised the data on Real Gross Domestic Product (RGDP), Total Federal Government Expenditure (TOTFEDEX), Total Federal Government Tax Revenue((TOTFEDRE) and Fiscal Deficit (FISDE).The historical data were sourced from the Central Bank of Nigeria's (CBN) annual report of 2022 and the Federal Inland Revenue Service Tax Statistics Report 2022.The variables are expressed in millions of Naira.

3.2 Model Specification

The formulation of the assumed hypotheses was anchored on the assumption that fiscal policy impacts positively on the economic growth of Nigeria. Specifically, arising from what was observed in the studies reviewed before, the model employed in Appah (2010) and Osuala and Ebieri (2014) was adopted with some modifications. Consequently, the functional presentation of the model model specification was: RGDP = f (TOTFEDEX, TOTFEDRE, FISDE).. (1)

Explicitly, it is possible to display the equation 1 as:

$$RGDP = \beta_0 + \beta_1 TOTFEDEX_1 + \beta_2 TOTFEDRE_1 + \beta_3 FISDE_1 + U_t \quad ....(2)$$
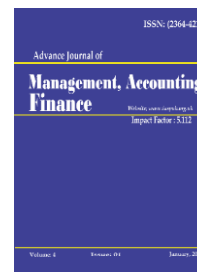
Where:

RGDP = Real Gross Domestic Product (proxy for economic growth);

TOTFEDEX= Total Federal Government Expenditure

TOTFEDRE= Total Federal Government Tax Revenue

FISDE = Fiscal Deficits

Where β_0 = Y-intercept term. This provides the average value of RGDP should all the explanatory variables included in the model be

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put at zero.
And $ß_1$, $ß_2$, $ß_3$ are parameters. They are partial regression coefficients or partial slope coefficients (Gujarati &Porter, 2009; Gujarati, 2006; Osuala, 2010).
U_t= the stochastic term, the unexplained changes that may take place in RGDP.
U_t is said to be accounting for the variability in the dependent variable that the linear impact of the explanatory variables in the model cannot explain.
t = the time period in years.

3.3 Data Estimation Technique

The ARDL Bounds testing technique was used to test the long run co-integrating relationship among the variables ARDL was considered appropriate since theory indicates that it is very appropriate to use it in circumstances like this when there is found a mixed combination of stationarity of the variables data at several levels. Another benefit of this technique is its high degree of robustness and ability to perform well when the sample size of the study is small. Further, Osualla and Ebieri(2014) opine that the Bounds testing methodology that Pesaran and Shine(1999) developed has a lot of advantages over the usual co-integration testing approaches as it can be employed even where there is a mixture of the order of integration –I(0) and I(1).Secondly, the method requires only a single equation set-up

Generically, the "unrestricted" error correction model (ECM) of Pesaran and Shin is given as presented inequation (3):

$$\Delta lnY_t = a_{oy}+ \sum_{i=1}^{n} \quad a_{yi} \Delta Y_{t-1}+\sum_{i=1}^{n} \quad a_{yi} \Delta X_{it-1} + ß_{1y}lnY_{it-1} + ß_{2y}lnX_{it-1} + e_{it} ....(3)$$

where Δ is the first difference operator the ' α's are the short-run dynamic coefficients of the model, and 'ß's are the long-run effects.
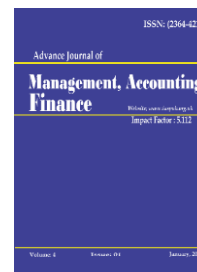
4. Data Analysis and Discussion of Empirical Results

4.2 Table 1: Data on Real Gross Domestic Product (GDP), Total Federal Government Expenditure (TOFEDTEX), Total Federal Government Tax Revenue (TOTFEDTRE) and Fiscal Deficit (FISDE) in Nigeria from 2011 to 2021((in Million Naira).

YEAR	RGDP	TOTFEDEX	TOTFEDRE	FISDE
2011	89,351.68	12,499.49	4628.4757	-310,865.5
2012	95,341.96	120,713.7	5007.6528	-117,3626.4
2013	98,141.85	12,797.27	4805.6420	-1,500,789.4
2014	102,333	12,211.62	4714.5603	-2,759,578.6
2015	106,137	14,766.17	3741.7574	-1,932,149.3
2016	110,496	14,650.78	3307.4614	-1,964,078.4
2017	121,383	15,061.34	4027.9452	-1,992,321.6
2018	127,736.83	7,813.7	5320.8914	-1,489.5
2019	144,219.49	9,714.6	5261,9163	-2,103.2
2020	152,324.07	10,231.7	4952.2245	-4,205.7
2021	173,527.66	12,164.1	6402.71	,-4,099.7

Source: CBN Annual Statistical Bulletin 2022 and FIRS Tax Statistics Report 2022

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4.2 Results
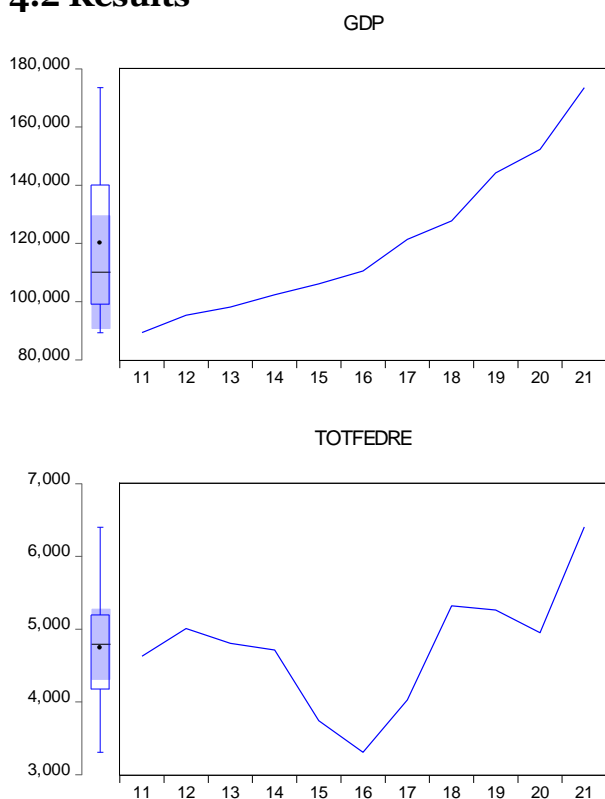
Fig 1: Line plot of the variables

4.2. Descriptive Statistics

Table 2 summarizes the statistical information of the variables employed in this study. The table shows that the means (average value) of Real gross domestic product, Toal Federal Government Expenditure, Total Federal Government Revenue and Fiscal Deficits were 120090.2,22056.77,4742.840 and -1058664, respectively. Also, the table indicates that the
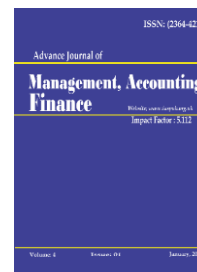
mean values of all the variables were greater than their median values which implies that their distributions are skewed to the right, suggesting that all of them are lower than their average value. The descriptive statistics on table 2 also showed that the average value of Gross domestic Product (GDP), Total Federal Government Expenditure (TOTFEDEX); Total federal government tax revenue and Fiscal Deficit (FISDE) are 120, 090.2(N' Million);22,056.7(N' Million)); 4742.840(N' Million)) and -1.58664(N'(Million) respectively. The standard deviation shows that total federal government expenditure (TOTFEDEX) and gross domestic product (GDP) are the most volatile while Total federal government tax revenue and fiscal deposit are the least volatile.

The table also demonstrates that the skewness statistics for Gross domestic product; total federal government expenditure and fiscal deposit are favorably skewed, whereas total federal government expenditure is highly or adversely skewed. The Jarque-Bera statistic for the null hypothesis of the normal distribution for all the variables are rejected at 5% significant level as they are not significant at 5% confidence level. We would not fully rely on this to assume that all the variables contain some unit root until we carry out an Augmented dickey fuller test

Table 2: Descriptive Statistics

	GDP	TOTFEDEX	TOTFEDRE	FISDE
Mean	120090.2	22056.77	4742.840	-1058664.
Median	110496.0	12499.49	4805.642	-1173626.
Maximum	173527.7	120713.7	6402.710	-1489.500
Minimum	89351.68	7813.700	3307.461	-2759579.
Std. Dev.	26791.92	32797.91	840.4817	1028270.
Skewness	0.745017	2.821430	0.107186	-0.203261
Kurtosis	2.395770	9.017779	2.930159	1.545115
Jarque-Bera	1.184927	31.19212	0.023299	1.045893

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Probability	0.552963	0.000000	0.988418	0.592771
Sum	1320993.	242624.5	52171.24	-11645307
Sum Sq. Dev.	7.18E+09	1.08E+10	7064095.	1.06E+13
Observations	11	11	11	11

4.3. Unit Root Test

Differentiating can be used to eliminate the stochastic tendency that frequently characterizes time series data. As a result, the unit root test examines the stationarity or non-stationarity of the model's series data. This will reveal whether the connection between the economic aspects is robust or unreasonable. The lagged values of the dependent variable are added for this test, producing a serially uncorrelated error term. As a result, the study employed the Augmented Dickey-fuller (ADF) technique to assess and confirm the unit root property of the series as well as the stationarity of the model. The study investigated the time series properties of each of the variable used in the model to ascertain the stationary properties of each variable. It is advisable to carry out this test to determine the state of stationarity of the variables because carrying out regression analysis on non-stationary variable can lead to a fallacious regression. The study made use of augmented Dickey–Fuller test to determine the stationarity of each variable. Given the outcome of the test (table 3), this study employed ARDL technique. ARDL was proposed by Pesaran, Shin and Smith (2001) to solve the problem created when variables have mix levels of stationarity.
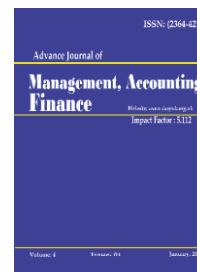
Table 3: ADF Stationarity Test

Variable	ADF		Decision	Order
	Level	P-Value		
Gross Domestic Product	7.079388	1.0000	Not Stationary	I (0)
Total Fed Government Expenditure	-3.124051	0.0571	Not Stationary	I (0)
Total Fed Government Tax Revenue	-0.748968	0.7890	Not Stationary	I (0)
Fiscal Deficit	-1.225640	0.6178	Not Stationary	I (0)
	Ist Difference	P-Value		
Gross Domestic Product	0.764614	0.9839	Not Stationary	I (1)
Total Fed Government Expenditure	-8.941924	0.0001	Stationarity achieved	I (1)
Total Fed Government Tax Revenue	-1.873324	0.3280	Not Stationary	I (1)
Fiscal Deficit	-3.024429	0.0698	Not Stationary	I (1)
	Ist Difference	P-Value		
Gross Domestic Product	-10.6070	0.0000	Stationarity achieved	I (2)
Total Fed Government Tax Revenue	-2.936096	0.0487	Stationarity achieved	I (2)
Fiscal Deficit	-5.863006	0.0145	Stationarity achieved	I (2)

According to table 3, no variable was found to be stationary at the level stage. At the 1st difference stage, only total federal government expenditure was found to be stationary. Real Gross domestic product, Total federal government revenue and fiscal deficits attained stationarity after the 2nd differencing. Because of the mixed combination of stationarity at several levels, it is theoretically correct to use the ARDL Bound cointegration test to compute the cointegration test.

4.4 Breuch-Godfrey Serial Correlation and heteroskedasticity ARCH tests

Diagnostic tests are conducted in table 4 to determine the appropriateness and robustness of the estimate. This study conducted Breuch-Godfrey Serial Correlation and Heteroskedasticity ARCH tests. The results of Breuch-Godfrey Serial Correlation and heteroskedasticity ARCH tests show that the residual is homeoskedastic.

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Advance Journal of Management, Accounting and Finance
Adv. J. Man. Acc. Fin
Volume: 8; Issue: 04,
April, 2023
ISSN: 2364 – 4219
Impact Factor: 6.93
Advance Scholars Publication
Published by International Institute of Advance Scholars Development
https://aspjournals.org/ajmaf/

$$\Delta RGDP_t = \alpha_0 + \beta_1 TOTFEDEX_{t-1} + \beta_2 TOTFEDRE_{t1} + \beta_3 FISDE_{t-1} + +\sum i=1q\theta_1 i\Delta TOTFEDRE_{t1} + +\sum i=1q\theta_2 i\Delta TOTFEDEX_{t-1} + \sum i=1q\theta_3 i\Delta FISDE_{t-1} + U_t \dots\dots(3)$$

Table 5 shows that the F-statistics for ARDL Bound test, which is 9.085523, which is higher than both the lower and upper bound critical values of 10%, 5%, and 1%, implying that there is co-integration among the variables in the model. As a result, the null hypothesis of no cointegration is rejected, and we can conclude that the variables have a long-term relationship.

Table 4: Residual Test
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	45.66902	Prob. F(2,3)	0.0557
Obs*R-squared	9.681995	Prob. Chi-Square(2)	0.0079

Heteroskedasticity Test: Breusch-Pagan-Godfrey

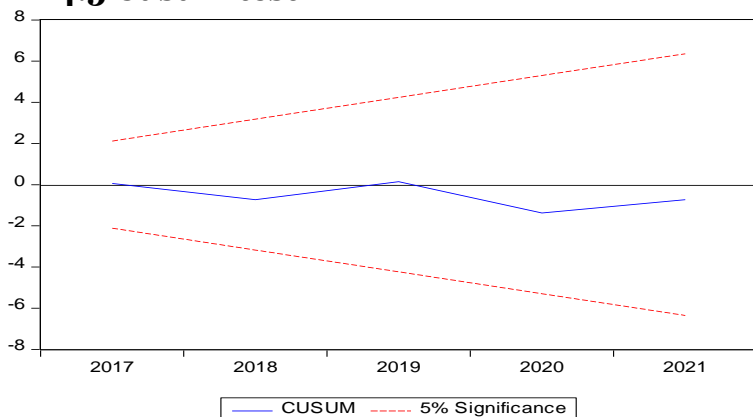|			
F-statistic	0.759407	Prob. F(4,5)	0.5936
Obs*R-squared	3.779261	Prob. Chi-Square(4)	0.4367
Scaled explained SS	0.793270	Prob. Chi-Square(4)	0.9393

4.5 Cusum test

Fig 4: The Cusum test above which is used to check for the stability of the model indicates that the model used is dynamically stable since the blue trend line lies between the red boundaries

4.6. Cointegration Estiamte
To implement the ARDL bound test procedure, an ARDL framework equation had to be specified as it is written in Eq 3

Table 5: ARDL BOUND TEST

Estimated Model		F-Statistics
		9.085523
Critical values	Lower bound I(0)	Upper bound I(1)
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Table 6: Short Run Estimate

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.256354	0.028349	9.042661	0.0003

R-squared	0.689270	Mean dependent var	8417.598
Adjusted R-squared	0.689270	S.D. dependent var	6074.105
S.E. of regression	3385.899	Akaike info criterion	19.18727
Sum squared resid	1.03E+08	Schwarz criterion	19.21752
Log likelihood	-94.93633	Hannan-Quinn criter.	19.15407
Durbin-Watson stat	3.251106		

* p-value incompatible with t-Bounds distribution.
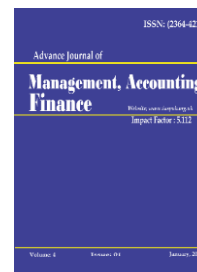
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Table 6 is the short run ARDL Result, and the one period lagged error correction term on bold and italics, also our one period error correction term passed the three basic error correction criteria which include being less than 1 and being statistically significant and negative. Therefore 25.6354% show us there is a speed of adjustment from the short run to the long run. Therefore, if there is any equilibrium in this system it takes about 25.6354% to adjust from the short run to the long run. The R square statistic suggests that the model has a good fit which is 68.9270%.

Table 7: Long Run Estimate

Levels Equation Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOTFEDEX	-0.143161	0.186016	-0.769619	0.4763
TOTFEDRE	-9.196344	12.29860	-0.747755	0.4883
FISDE	0.007004	0.008666	0.808245	0.4557
C	136866.3	54020.16	2.533615	0.0523

Tale 7 shows the long-run result of the ARDL test. The estimates suggest that none of the explanatory variable has a statistically significant effect on the dependent variable at 5% level of significance. The coefficient of TOTFEDEX, TOTFEDRE and FISDE are -0.143161; -9.196344 and 0.007004 respectively. The implication is that the impact of fiscal policy (measured by TOTFEDEX, TOTFEDRE and FISDE) on economic growthiNigeria is positive but weak. These findings partially contradict Appa (2010), Madee and Nembee(2021) and the apriori expectation assumptions. However, they perfectly agree with the results obtained in Omitogun and Ayinla as well as Nuhu (2020) that showed fiscal policies have weak influence on economic growth.

5. Conclusion
This research was aimed at determining the impact of fiscal policy on the economic growth of sub-Sahara African countries with particular interest on Nigeria. Total Federal Government Expenditure, Total Federal Government Tax Revenue and Fiscal Deficit were the exy variables that represented fiscal policy, while Real GDP stood in for economic growth as dependent variable. The analysis was carried out with ADRL model approach. The findings obtained suggest that, each of the explanatory variables had a positive and non=significant effect on real Gdp at 5% level of significance

This study recommends that more regulatory guidelines be provided for government agencies perform their policy intermediation functions effectively.

Suggestion for further studies
The result of this study vis-à-vis other previous studies tends to lend credibility the observation by Kasasbeh (2021) that the link between fiscal policy and economic growth neither clear nor consistent. Consequently, we suggest that further studies on this topic be made to involve more nations in sub-Saharan Africa. As suggested by Nuhu (2020) we also recommend using Humman Development index (HDI) as proxy economic growth of development instead of RealGDP/

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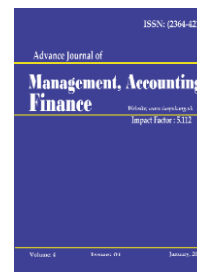
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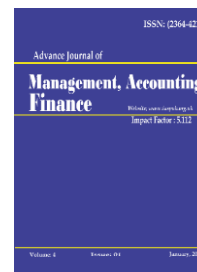
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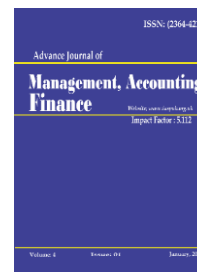
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APPENDICES
ADF Level Stage (Intercept No Trend) GDP

		t-Statistic	Prob.*
Null Hypothesis: GDP has a unit root			
Exogenous: Constant			
Lag Length: 1 (Automatic - based on SIC, maxlag=1)			
Augmented Dickey-Fuller test statistic		7.079388	1.0000
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 9

ADF Level Stage (Intercept No Trend) First Difference GDP

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Null Hypothesis: D(GDP) has a unit root Exogenous: Constant Lag Length: 1 (Automatic - based on SIC, maxlag=1)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.764614	0.9839
Test critical values: 1% level	-4.582648	
5% level	-3.320969	
10% level	-2.801384	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
  and may not be accurate for a sample size of 8

ADF Level Stage (Intercept No Trend) 2nd Difference GDP

Null Hypothesis: D(GDP,2) has a unit root Exogenous: Constant Lag Length: 0 (Automatic - based on SIC, maxlag=1)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-10.60707	0.0000
Test critical values: 1% level	-4.582648	
5% level	-3.320969	
10% level	-2.801384	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
  and may not be accurate for a sample size of 8

ADF Level Stage (Intercept No Trend) TOT FEDEX

Null Hypothesis: TOTFEDEX has a unit root Exogenous: Constant Lag Length: 0 (Automatic - based on SIC, maxlag=1)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.124051	0.0571

Test critical values: 1% level	-4.297073
5% level	-3.212696
10% level	-2.747676

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
  and may not be accurate for a sample size of 10

ADF Level Stage (Intercept No Trend) First Difference TOTFEDEX

Null Hypothesis: D(TOTFEDEX) has a unit root Exogenous: Constant Lag Length: 0 (Automatic - based on SIC, maxlag=1)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-8.941924	0.0001
Test critical values: 1% level	-4.420595	
5% level	-3.259808	
10% level	-2.771129	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
  and may not be accurate for a sample size of 9

ADF Level Stage (Intercept No Trend) TOTFEDRE

Null Hypothesis: TOTFEDRE has a unit root Exogenous: Constant Lag Length: 0 (Automatic - based on SIC, maxlag=1)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.748968	0.7890
Test critical values: 1% level	-4.297073	
5% level	-3.212696	
10% level	-2.747676	

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

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Warning: Probabilities and critical values calculated for 20 observations
 and may not be accurate for a sample size of 10

Warning: Probabilities and critical values calculated for 20 observations
  and may not be accurate for a sample size of 7

ADF First Difference (Intercept No Trend) TOTFEDRE

Null Hypothesis: D(TOTFEDRE) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.873324	0.3280
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
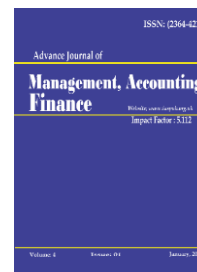 and may not be accurate for a sample size of 9

ADF 2nd Difference (Intercept No Trend) TOTFEDRE

Null Hypothesis: D(TOTFEDRE,2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.936016	0.0487
Test critical values:	1% level	-4.803492	
	5% level	-3.403313	
	10% level	-2.841819	

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

ADF Level Stage (Intercept No Trend) FISDE

Null Hypothesis: FISDE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.225604	0.6178
Test critical values:	1% level	-4.297073	
	5% level	-3.212696	
	10% level	-2.747676	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
 and may not be accurate for a sample size of 10
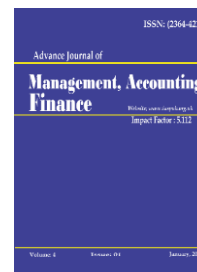
ADF FIRST DIFFERENCE (Intercept No Trend) FISDE

Null Hypothesis: D(FISDE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.024429	0.0698
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
 and may not be accurate for a sample size of 9

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Durbin-Watson stat	3.251106

* p-value incompatible with t-Bounds distribution.

ADF 2ND DIFFERENCE (Intercept No Trend) FISDE

Null Hypothesis: D(FISDE,2) has a unit root			
Exogenous: Constant, Linear Trend			
Lag Length: 1 (Automatic - based on SIC, maxlag=1)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.863006	0.0145
Test critical values:	1% level	-6.292057	
	5% level	-4.450425	
	10% level	-3.701534	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
 and may not be accurate for a sample size of 7

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	9.085523	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

OLS Result

Dependent Variable: GDP
Method: Least Squares
Date: 07/15/22 Time: 08:27
Sample: 2011 2021
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOTFEDEX	-0.274433	0.214501	-1.279400	0.2415
TOTFEDRE	14.06274	11.37337	1.236462	0.2562
FISDE	0.006880	0.009315	0.738595	0.4842
C	66729.35	60887.81	1.095940	0.3094

R-squared	0.533359	Mean dependent var	120090.2
Adjusted R-squared	0.333370	S.D. dependent var	26791.92
S.E. of regression	21874.91	Akaike info criterion	23.09936
Sum squared resid	3.35E+09	Schwarz criterion	23.24405
Log likelihood	-123.0465	Hannan-Quinn criter.	23.00815
F-statistic	2.666942	Durbin-Watson stat	1.042239
Prob(F-statistic)	0.128730		

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	0.256354	0.028349	9.042661	0.0003
R-squared	0.689270	Mean dependent var		8417.598
Adjusted R-squared	0.689270	S.D. dependent var		6074.105
S.E. of regression	3385.899	Akaike info criterion		19.18727
Sum squared resid	1.03E+08	Schwarz criterion		19.21752
Log likelihood	-94.93633	Hannan-Quinn criter.		19.15407

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