FISCAL BALANCE AND SUSTAINABLE ECONOMIC DEVELOPMENT IN NIGERIA

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KEYWORDS
Fiscal balance, debt profile, debt service, sustainable economic development

ABSTRACT
This study analyzed the effects of fiscal balance on sustainable economic development in Nigeria from 1981 to 2022. Autoregressive Distributed Lag (ARDL) model was employed in estimating the variables. The ARDL results indicated that the relationship between fiscal balance and sustainable economic development followed a long-run path. The study found that fiscal balance to GDP ratio, external debt to export ratio, and public debt service to revenue ratio had negative impact on growth rate of real GDP per capita (GDPgr). Total debt stock to GDP ratio had positive effect on GDPgr. Domestic debt to domestic investments ratio and recurrent expenditure to GDP ratio exerted negative and non-significant effect on GDPgr. Debt for gross fixed capital formation as a percentage of GDPand trade openness exerted positive and significant effect on GDPgr. The study recommended that the government should focus on viable capital investments that have the potential to generate revenue that can service public debt in order not to create debt that are not sustainable. Government should take proactive measures to ensure that public debt is employed in key productive sectors of the economy to boost domestic production and enhance export receipts in foreign currency capable of repaying the externally borrowed funds. There is need for government to reduce recurrent

expenditures since it does not lead directly to revenue generation, capital formation, savings and investment in such manner that it would increase economic assets, boost production, and promote sustainable economic development.

***GEL* Classification**: H60, H62, H63, K23, Q01

1.0 Introduction

Sustainable economic development is the prerequisites for improving standard of living of societies and an important indicator of economic well- being. The most effective tool for economic developmentis sound macroeconomic policies that are focused on gross fixed capital formation (GFCF) to increase productivity, national income, reduce inflation, generate employment and create wealth. Most emerging market countries are unable to generate enough revenue to finance national budgets which make them rely on borrowing, thereby making public debt a major economic policy issue confronting governments (Mankiw, 2020). Fiscal balance also referred to as government budget balance is the difference between general government revenues and expenditures in a given year. Fiscal deficit arises when expenditure items of government are higher than the revenue items. Fiscal deficit are financed mainly through public borrowing. Continuous budget deficits by nations demonstrate that government expenditure is high relative to its revenue and this gap has been identified to be filled with public debt (Mankiw, 2020; Odili, 2022).

Borrowing is an important instrument of fiscal policy available to government to fund the development of a nation. Studies (Huang, Panizza, & Varghese, 2018; Muhammad, Ruhaini, Nathan & Arshad, 2017) have observed that public debt impacts negatively on the growth of most emerging market economies. These studies opined that when the cost of servicing debt expands beyond the coping capacity of the economy, it impacts negatively on its ability to achieve the desired fiscal and monetary policy objectives and this may constrain the ability of government to undertake productive investment projects thereby impeding economic growth and development (Mhlaba & Phiri, 2019).Public debt may promote economic development when the borrowed funds are invested in sustainable projects that generate revenue for servicing of the debt. Public debt accumulation therefore does not reduce economic growth but rather, not being able to utilize public debt for productive investment and gross fixed capital formation coupled with inability to service debt obligations that impedes growth and development (Odili, 2022).

Statement of the Problem

Nigeria began to experience debt problem from the early 1980s when foreign exchange earnings plummeted as a result of the collapse of prices in the international oil market and external loans began to be acquired indiscriminately (Ukwuoma & Imandojemu, 2019). The debt crisis, which is the combination of accumulated debt stock and difficulty servicing those loans, imposed debt burdens on Nigerians. This is reflected in the fall in real gross domestic product growth rates per capita, investment rate and export earnings.

In spite of the economic reforms such as the Structural Adjustment Programmes (SAP), adopted by Nigeria since 1986, Nigeria has continued to experience worsening economic conditions that encouraged high levels of foreign borrowing. Since the inception of the debt crisis, the growth performance has been very disappointing due mostly to the increased outflow of resources in debt service payments. The acquired loans appeared not to have yielded a rate of return higher than the cost of borrowing to repay the debt. Nigeria has a history of debt-servicing difficulties due to insufficient domestic resources evidenced by the fact that on several occasions the countries were in debt-service arrears(World Bank, 2018).

Numerous studies have been carried out on the impact of public debt on economic growth and development in Nigeria. Ajayi and Edewusi (2020) discovered that external debt had negative long-run and short-run impact on economic growth of Nigeria, while domestic debt exerted positive long-run and short-run

effect on economic growth of Nigeria. Other studies (Ajayi & Edewusi, 2020; Said & Yusuf, 2018; Favour, Ideniyi, Oge & Charity, 2017; Dada, 2012) revealed the accumulation of public debt and debt service paymentsare growth inhibiting,while (Ude, Ugwu & Onwuka, 2016; Bakare, Ogunlana, Adeyeye & Mudashiru, 2016)recorded that debt-financed fiscal imbalance positively affect economic growth and development. The lack of consensus in literature on public debt pressure on economic growth and development in Nigeria and across the globe is related to the methodological differences, geographical location, time differences, and the nature of the data employed, which were generally diverse and often contradictory, suggest the need for a further empirical investigation and consequently, this study contributed to the existing literature by providing new empirical evidence on the impact of fiscal balance on sustainable economic development in Nigeria.

2.0 Literature Review

2.1 Conceptual Framework

Economic theory on open economies suggests that reasonable levels of public borrowing by a developing country can enhance its economic growth and development through capital accumulation and productivity growth which leads to improvement in per capita income and standard of living (Madow, Nimonka, Brigitte & Camarero, 2021; Odili, 2022). Countries at their early stage of development have small stocks of capital but may have investment opportunities with huge capital outlay and higher rates of return. The low level of revenue generation in developing countries should therefore be supplemented by borrowing. If borrowed funds are employed in productive investment and given suitable macroeconomic environment, sound policies and economic incentives, sustainable growth and development would be achieved and allow for timely debt repayments through borrowing (Matandare and Tito, 2018; Ndieupa, 2018).

Although the literature on debt hardly explains why these countries have not been able to use the borrowed funds to generate sufficient output for sustainable economic development, critics of external funding in general maintain that it does more harm than good (Udeh, Ugwu, & Onwuka, 2016). Furthermore, the debt financing and growth literature suggests that there is a unidirectional causal link between indebtedness and growth (Birini, Jemali, and Ferroukh (2016). World Bank (2022) indicates that since heavily indebted low-income countries have been servicing their debt by squeezing imports and investments to generate trade and equivalent saving surpluses, they have also been paying a high price in terms of forgone consumption and output growth. This study conceptualizes that a reasonable level of borrowing in developing countries starved of funds can foster sustainable economic development.

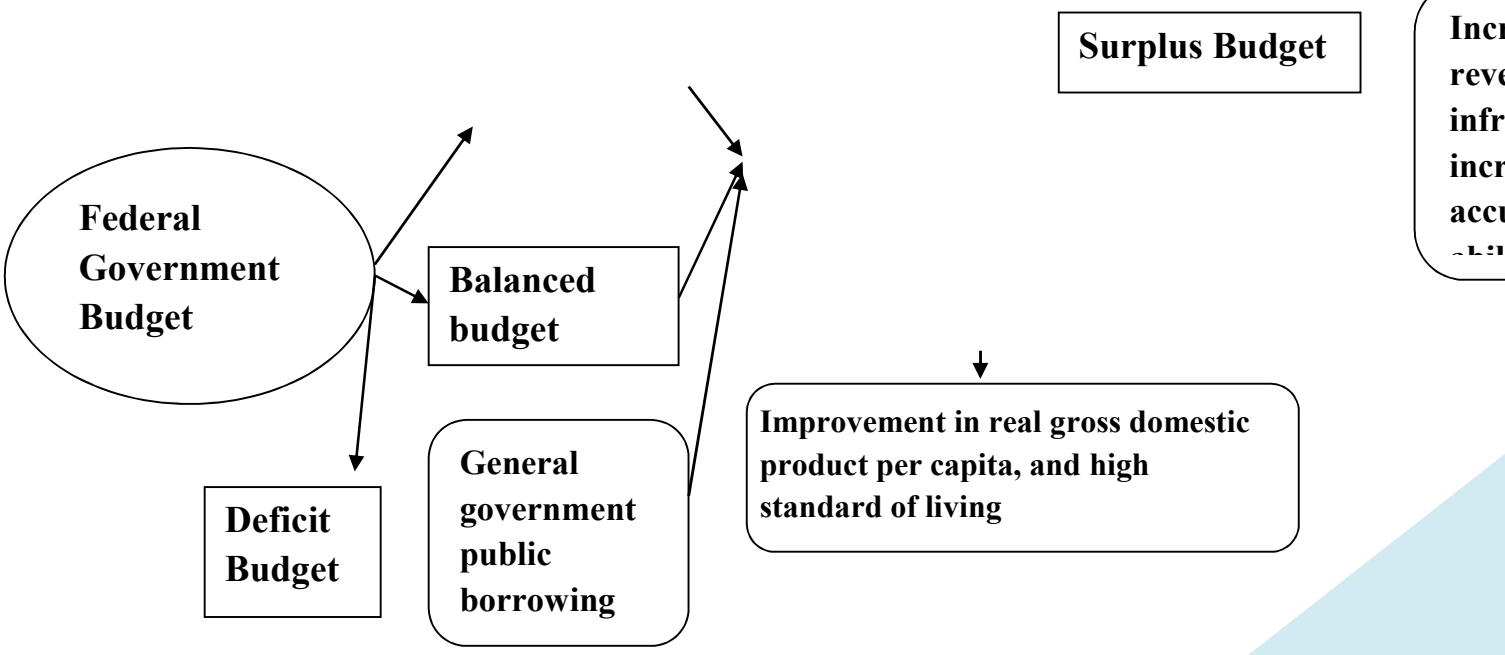




Figure 1: Conceptual framework on fiscal balance and sustainable economic development
Source: *Authors, 2024*

2.2 Theoretical Framework

The theoretical underpinning of this study is hinged on the Keynesian theory of increasing economic activity. According to Keynes (1936) the growth and stability of an economy depends on the intervention of the federal government. The Keynesian economists are of the view that private sector decisions may lead to inefficiency in macro-economy of a nation. Keynes therefore suggested that monetary and fiscal policy actions by the government are necessary to direct the economy on the right path to growth. These policy actions will ensure stability in productivity and in business cycles and hence accelerates economic activities which will generate employment opportunities, increase output and foster sustainable growth and development (Odili, 2022). Keynes is of the opinion that during periods of low output, two approaches that have the potentials of pulling an economy out of recession are to reduce interest rate, and increase government expenditure in infrastructure. This can be achieved in a capital resource constricted economy by borrowing. This also implies a reduction of monetary policy rate to commercial banks by the CBN and the commercial banks to reduce its lending rate to their customers.

2.3 Review of Empirical Literature

Odili (2022) appraised Nigeria's debt status and its effect on macro-economic performance from 1981 to 2018. The study used Autoregressive-Distributed Lag (ARDL) bounds testing approach in estimating the variables that were sourced from the CBN statistical bulletin and the Debt Management Office. The short-run results showed that debt servicing had negative effect on real gross domestic product (RGDP), while long run result revealed insignificant effect. Domestic debt had positive and significant effect on RGDP. External debt was found to have negative andsignificant impact on RGDP. This study recommended that expansionary fiscal policies of government should focus on capital expenditure funding. It further suggested that massive investment is needed in agriculture, manufacturing, trade, logistics and tourism in Nigeria.

Similarly, Ikue, Medee, Denwi, and Sodipo (2021) examined the sustainability of public debt as well as the causal relationship between fiscal and trade deficits in Nigeria from 1960-2019. Co-integration and granger causality were employed to test the sustainability of budget and trade deficits. The results from the analysis show that Nigeria public debt policies are not sustainable. This implies that revenue generated was below expectation which made the federal government to depend on internal and external debt to meet expenditure needs.

Ajayi and Edewusi (2020) studied the effect of public debt on economic growth of Nigeria. In the study, secondary time series data spanning thirty-seven years (1982–2018) were analysed using Johansen co–integration test and Vector Error Correction Model and findings from the study show that external debt exerted a negative long-run and short - run effect on economic growth of Nigeria while domestic debt exerted a positive long–run and short–run effect on economic growth of Nigeria. The study recommended that policy makers should integrate appropriate measures towards ensuring suitable management of public debts and government should ensure that contracted national debts are directed towards productive investments to spur growth of the economy.

In Ghana, Adi (2019) studied the impact of public debt on economic growth spanning the

period 1965 to 2017 using Johansen co-integration test, Dickey fuller augmented unit root test and Vector Error Correction Model (VECM) to analyse the time series data. The result showed that public debt has a positive impact on economic growth in Ghana indicating that during the years 1965-2017, loans acquired were used for developmental projects that have had a positive impact on the economy.

In another study by Akhanolu, Babajide, Akinjare, Oladeji and Osuma, (2018), on the effect of public debt on economic growth in Nigeria, a quantitative research technique was adopted for the study and secondary data from 1982-2017 was gathered. Inferential analyses were conducted and findings from the study demonstrated that internal debt exerts a positive impact on economic growth while and external debt revealed an inverse relationship with economic growth. The study suggested that borrowed funds particularly external debt should be minimized.

In another related study, Anning, *et al.,* (2018) examined the impact of public debt on economic growth in Ghana by running Ordinary Least Squares (OLS) regression using time series data spanning from 1990 to 2015. They focused on external debt, domestic debt, investment spending, imports, inflation, government expenditure and national savings as their independent variables. In effect, they regressed economic growth on external and internal debt to find the relationship between the variables. They found that there is a negative relationship between debt (domestic and external) and growth in the economy of Ghana. Just as the previous researchers discussed earlier, Anning *et al.*, (2018) concluded that there are certain debt/GDP thresholds for sustainable and steady growth, but they failed to show it in their submission.

In South Africa, Ncanywa and Masaga (2018) explored how public debts impact on the investments and economic growth using quarterly data spanning from 1994-2016. Their objective was achieved through multiple econometrics tests. The incorporated variables were, gross domestic product, public debt, investment and government deficit. The results of VECM validated the short run association relating public debt and economic growth. Granger causality results have shown that public debts can Granger cause economic growth, and there is bi-direction association amongst the two variables.

The works of Said and Yusuf (2018) examined public debt and economic growth in Tanzania. The quantitative research approach was adopted as secondary time series data spanning forty-five years was collated. Co-integration and Vector Error Correction Mechanism (VECM) Approach were used in analysing data collated in the study. The VECM estimate showed that there is a negative relationship between public debt and economic growth in Tanzania over the study period. In addition, granger causality test revealed that there is no causal relationship between public debt and economic growth. Premise on these findings, the study suggested government and policy makers should stop the accumulation of external debt stock overtime and prevent concealing of the motive behind external debt; external debts should be used only for productive investment of highest priorities that would help in yielding returns for economic reasons (productive purposes) and not for social or political reasons.

Matandare and Tito (2018) evaluated the impact of public debt on economic growth in Zimbabwe. The study employed quantitative research design. Secondary time series data spanning thirty-six years (1986- 2016) were collected from the World Development Indicators database. Data were analysed using inferential statistics. Findings showed that external debt had negative impact on economic growth in Zimbabwe. It further ascertained that exchange rate and inflation were found to have negative significant effect economic growth in Zimbabwe and domestic debt exerts a significant positive effect on economic growth. Based on the findings, the authors advanced that the government should step up efforts to boost sources of domestic revenue to finance its growth plans as external debt accumulation weighs down economic growth and suggested the need to diversify the economy as crucial and government should develop new sectors which can generate revenue to contribute towards economic growth.

3.0 Methodology

3.1 Nature and Sources of Data

The data used for the study are secondary data spanning from 1981–2022collected from

the Central Bank of Nigeria (CBN) Statistical bulletins, and World Development Indicators (WDI).

3.2 Model Specification

The model used in this study followed the approach adopted in the work of Dombi and Dedak (2019) but was modified to capture sustainable economic development as stated in equation1.

GDPgr = F (FB, TD,ED, DD, DS, DR, DR,TO) …… (1)

Equation 1 is expressed in econometric form as:

GDPgr= α0 + α1FBt +α2TDt + α3EDt + α4DDt+ α5DSt+ α6DGt +α7DRt+α8$TO$$t$+ εt……. (2)

Where:

GDPgr = Growth rate of real GDP per capita;

FB = fiscal balance as a percentage of GDP;

TD= Total debt as a percentage of GDP;

ED= External debt as a percentage of export receipts;

DD, Domestic debt as a percentage of Domestic investments;

DS= Debt service payment as a percentage of revenue receipts;

DG= Debt on gross fixed capital formation as a percentage of GDP;

DR= Debt on recurrent expenditure as a percentage of GDP;

TO= Trade openness;

α0 = intercept;

α1−α8 = regression coefficients;

ε1 = error term; and

t = the period in years.

Table 1: Model variables, definition, *a priori* expectation, and source

Variables	Definition	*a priori* expectation	Source
GDPgr, Growth rate of real GDP per capita	The ratio of real GDP to the average population of a specific year.	+-	World Bank, (2018; Eberhardt (2019).
FB,Fiscal balance	Difference between government's revenues (taxes and proceeds from sales of assets) and its expenditures expressed as a ratio of GDP.	-if (α_1<0)	Dombi and Delak, 2019
TD, Total Debt	The ratio of all government financial contingent liabilities (external and domestic) to GDP.	-if (α_2<0)	Dombi and Delak, 2019 Alusiba, A (2020).
ED External debt	Measured as a percentage of export receipts.	- if (α_3<0)	Dombi and Delak, 2019
DD, Domestic debt	Measuredas a percentage of Domestic investments;	- if (α_4<0)	Dombi and Delak, 2019
DS, Debt service payment.	The ratio of all financial expenditures made by the government to cover the repayment of principal and interest on both external and domestic debts to revenue receipts for a particular period of time.	-if (α_5<0)	Dombi and Delak, 2019

DG, Debt on gross fixed capital formation.	Includes government financial contingent liabilities incurred for the purpose of capital development in the country expressed as a percentage of GDP.	+if (α_6>0)	Adi, B.S (2019); Alusiba, A (2020).
DR, Debt on recurrent expenditure.	Government financial contingent liabilities incurred for recurrent expenditures expressed as a percentage of GDP.	-if (α_7<0)	Adi, B.S (2019) Alusiba, A (2020).
TO,Trade openness	Measured as the total sum of Nigeria's exports and imports as percentage of GDP.	+if (α_8>0)	Dombi and Delak, 2019

4.0 Results and Discussion

4.1 Descriptive Statistic

The descriptive statistic of the set of data under consideration in this study was carried out to show their basic features. The outcome of the descriptive statistic is displayed in Table 2

Table 2: Descriptive statistics

	GDPGR	FB	TD	ED	DD	DS	DG	DR	TO
Mean	0.348536	-2.61502	31.65801	131.2381	37.67902	14.73610	3.041709	5.181751	133.5002
Median	1.190000	-2.51000	24.19000	83.19000	34.17000	10.67000	2.640000	4.900000	128.6616
Maximum	12.37000	0.690000	80.71000	444.6200	74.46000	42.06000	8.080000	10.85000	234.6431
Minimum	-15.80000	-7.67000	7.130000	5.040000	8.930000	3.250000	0.540000	2.890000	44.87754
Std. Dev.	5.338724	1.648482	23.06367	150.0226	14.36210	10.26019	1.829982	1.542606	56.30941
Skewness	-0.87726	-0.83371	0.822401	1.004828	0.528616	1.090682	1.027423	1.292302	0.358626
Kurtosis	5.093254	4.385342	2.190624	2.993741	2.456653	3.235424	4.127712	5.554296	1.742420
Jarque-Bera	10.75232	7.721754	5.092013	5.899480	1.744554	8.223529	9.385554	23.55787	3.219722
Probability	0.003525	0.031053	0.064612	0.031456	0.378225	0.016379	0.009130	0.000014	0.230164
Observations	41	41	41	41	41	41	41	41	41

Source: *Authors, 2024*

The mean values of GDPgr show that on average, Nigeria has a GDPgr of 0.35%. Within the period, as shown by the minimum and maximum values, GDPgr of Nigeria ranged from -15.80% to 12.37%. The standard deviation of GDPgr shows that the Nigerian GDPgr was volatile with an index point of 5.338724. Based on the skewness, GDPgr had a distribution that was negatively skewed (long left tail). The Kurtosis value for the GDPgr was greater than 3, implying the series has higher values than the sample. The null hypothesis of "normal distribution" based on the Jarque-Bera test was not normally distributed.

Fiscal balance, the average of -2.61502 was recorded, implying that Nigeria has been on fiscal deficit. The range of values of FB in Nigeria was from -7.67000 low and 0.690000 high. The standard deviation was 1.648482. In terms of skewness, the FB was negatively skewed. The Kurtosis was greater than the threshold of 3, implying the series of FB had higher values than that reported by the mean. Regarding the Jarque-Bera test, the null hypothesis of non-normally distributed was obtained.

4.2 Tests for Stationarity

Stationarity of the variables were tested with Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) to avoid spurious regressions. The results of these tests are reported in Table 3

Table 3: Unit root test results

Variable	ADF @ level; I(0)		ADF first difference; I(1)		Status
	t-Statistic	Prob.	t-Statistic	Prob.	
Augmented	**Dickey**	**Fuller(ADF)**	**test for**	**unit root**	
GDPgr	-2.814199	0.2010	-10.57081	0.0000	I(1)
FB	-3.166641	0.1057	-7.198292	0.0000	I(1)
TD	-2.765478	0.2180	-4.286670	0.0083	I(1)
ED	-3.327219	0.0765	-7.549509	0.0000	I(1)
DD	-2.724627	0.2329	-4.671211	0.0030	I(1)
DS	-2.209247	0.4717	-5.831124	0.0001	I(1)
DG	-2.967623	0.1537	-9.276235	0.0000	I(1)
DR	-3.794656	0.0272	-	-	I(0)
TO	-2.230861	0.4603	-5.915052	0.0001	I(1)
Phillips-Perron (PP) test for unit root					
GDPgr	-4.108831	0.0127	-	-	I(0)
FB	-3.249644	0.0896	-10.01450	0.0000	I(1)
TD	-2.489698	0.3313	-4.286670	0.0083	I(1)
ED	-3.322390	0.0772	-7.554206	0.0000	I(1)
DD	-2.113011	0.5231	-4.634847	0.0033	I(1)
DS	-1.975815	0.5964	-9.074698	0.0000	I(1)
DG	-3.007474	0.1429	-9.256354	0.0000	I(1)
DR	-3.794656	0.0272	-	-	I(0)
TO	-2.223828	0.4640	-5.910600	0.0001	I(1)

Source: *Authors, 2024*

The results of the ADF and PP show that the stationairty of the variables are either integrated at level (I(0)) or first difference I(1)) and no variable was integrated oforder two (I(2)). This result makes the ARDL approach to co-integration appropriate (Pesaran, Shin, & Smith 2001).

4.3 Lag Selection Criteria

The optimal lag length was selected based on the lag selection criteria presented in Table 4.

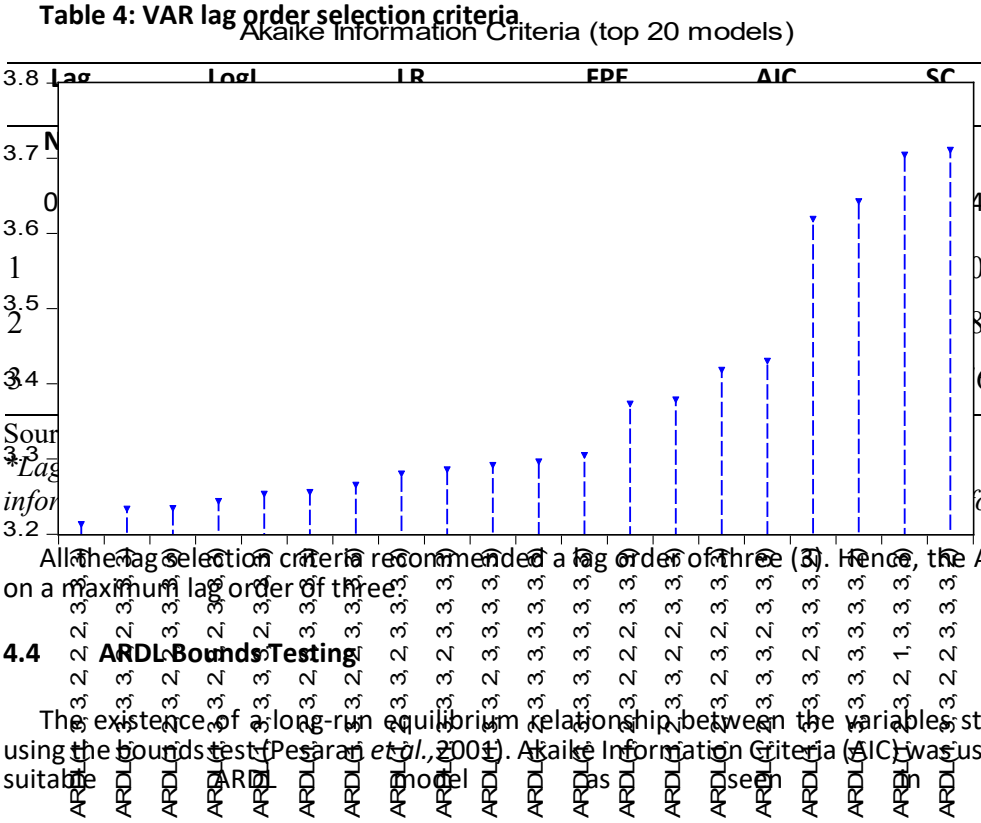
Table 4: VAR lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
N						
0					49725	58.24745
1					057	53.02212
2					839	51.68123
3					634*	46.38047*

Sour

**Lag* 5% level);AIC; Akaike*

infor formation criterion.



All the lag selection criteria recommended a lag order of three (3). Hence, the ARDL model was based on a maximum lag order of three.

4.4 ARDL Bounds Testing

The existence of a long-run equilibrium relationship between the variables studied was established using the bounds test (Pesaran *et al.*, 2001). Akaike Information Criteria (AIC) was used to identify the most suitable ARDL model as seen in Figure 2.

Fig. 2: AIC model selection plot

Source: *Authors, 2024*Among the top 20 models, the optimum models that produced the lowest AI Care ARDL (1, 3, 3, 2, 2, 2, 3, 3, 3).

The results of the ARDL bounds tests are given in Table 5.

Table 5: Bounds test for co-integration

Test Statistic	Value	K
F-statistic	7.003652	8
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
5%	2.65	3.78

Source: *Authors, 2024*

The results of the bounds test show that the values of the F-statistic (7.003652) is significantly greater than the upper bound critical values at 5% levels, which implies the rejection of the null hypothesis of no co-integration and confirms the existence of a long-run relationship between the dependent variable (GDPgr) and the explanatory variables.

4.5 Long-Run ARDL Estimates

The long-run estimates of the variables are presented in Table 6.

Table 6: Results of long-run ARDL estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FB	-0.027525	0.011421	-2.410112	0.0243
TD	0.077198	0.067698	1.140334	0.2976
ED	-0.088929	0.015783	-5.634435	0.0013
DD	-0.077959	0.049964	-1.560311	0.1697
DS	-0.197415	0.074010	-2.667414	0.0138
DG	2.099297	0.495434	4.237285	0.0055
DR	-2.068324	1.397346	-1.480180	0.1893
TO	0.131760	0.025034	5.263127	0.0019

Source: *Authors, 2024*

The fiscal balance to GDP ratio,external debt to export ratio, and public debt service to revenue ratio, show that a unit increase in FB, ED and DS negatively influenced GDPgrby 0.027525, 0.088929, and 0.197415units respectively.Total debt stock to GDP ratio was observed to be positive and implies that GDPgr increased by 0.077198 units due to an increase in TD. Domestic debt to domestic investments ratioand recurrent expenditure to GDP ratio exerted negative and non-significant effect on GDPgr. The negative estimated coefficients show that a unit increase in DD and DR resulted in 0.077959 and 2.068324units decrease in GDPgr. Debt for capital expenditure to GDP ratio and trade openness turned out positive and significant. The estimated coefficient showed that a unit increase in DG and TO resulted in 2.099297 and 0.131760 units increase in GDPgr.

4.6 Short-Run Dynamics

The essence of the ECM is to study the pressure of the estimated long-run equilibrium on the short-run dynamics and the *a priori* is that error-correction coefficients, which examines the adjustment from shock, are expected to be statistically significant, negatively signed, and have a sizable range of values which has to be between zero and one. Table 7 displays the results of the ECM.

Table 7: ECM model results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-62.49682	3.401557	-18.37300	0.0000
D(FB)	-5.564257	0.433572	-12.83352	0.0001
D(TD)	-0.027092	0.056581	-0.478816	0.6190
D(ED)	-0.001762	0.004901	-0.359518	0.8816

D(DD)	-0.254375	0.041531	-6.124947	0.0009
D(DS)	-0.631913	0.052579	-12.01834	0.0000
D(DG)	-2.420587	0.514636	-4.703493	0.0041
D(DR)	-1.399166	0.382928	-3.653862	0.0106
D(TO)	0.099636	0.008207	12.14028	0.0001
ECM(-1)	-0.212347	0.008651	-24.54595	0.0000
R-squared	0.886926			
Adjusted R-squared	0.865447			
F-statistic	40.94836			
Prob (F-statistic)	0.000000			
Durbin-Watson stat	1.917593			

Source: *Authors, 2024*

The short-run estimates of the independent variables indicate that DS, TD, ED, DD, DG and DR had adverse effect on the GDPgr. This implies that the impact of public debt on the Nigerian economy could be felt within a short period. This could be attributed to the fact that Nigeria is a highly indebted country experiencing exchange rate depreciation coupled with foreign reserves depletion.

The ECM presented in Tables 7 shows the speed of adjustments from a short-run shock (disequilibrium) to long-run equilibrium adjustments. The estimated coefficient of the ECM was-0.212347. This indicates that approximately 21% deviation of GDPgr from its long-run level is adjusted in one year. However, the adjustment mechanism was relatively slow, which implies that any short-run disequilibrium would last long before stability is observed.

The adjusted R-squared associated with the regression model shows the collective effect of the independent variables on GDPgr. The adjusted R-squared shows that the explanatory variables collectively explained approximately 87%, of the total variations in GDPgr in Nigeria. The overall fit of the regression models measured by the F- statistic, is statistically significant, implying that the explanatory variables jointly explain the dependent variable.

4.7 Diagnostic Tests

The robustness of the outcome of the results were ascertained based on diagnostic tests which ensure that the stability and the correct functional form of the models were specified to avoidance serial correlation and heteroscedasticity (Jarque & Bera, 1987). The results are presented in Table 8.**Table 8:**

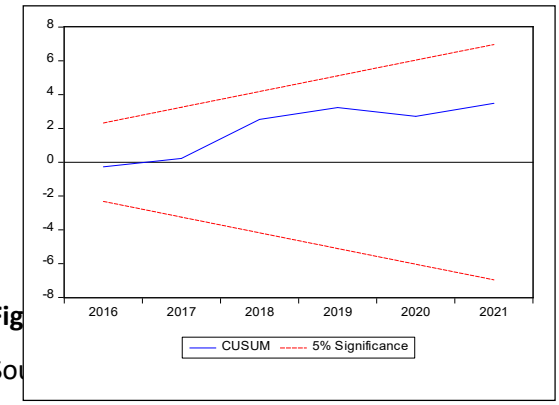
Diagnostic tests

Test	**Prob.**
Breusch-Godfrey Serial Correlation LM Test:	0.4697
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.8901
Jarque-Bera	0.8205

Source: *Authors, 2024*

The tests of serial correlation based on the Breusch-Godfrey Serial Correlation LM test of residuals confirmed the absence of any serious serial correlation since the F-Statistic was statistically insignificant. The test of heteroscedasticity based on the Breusch-Pagan-Godfrey test also reported a statistically insignificant F-statistic at 5% level, thus indicating the absence of heteroscedasticity among the residuals, that is, the residuals were homoscedastic. The Jarque-Bera test confirmed that the residuals of the ARDL were normally distributed since its probability value was greater than 0.05. This gives the assurance that the results from the models are reliable, efficient and suitable for forecasting, policy formulation and decision making.

Figure 3 and 4show that the cumulative sum of recursive residues (CUSUM) and the cumulative sum of recursive residues of squares (CUSUMSQ) for the ARDL model was within critical limits for the 5% significance level, indicating that the ARDL model specification is stable.



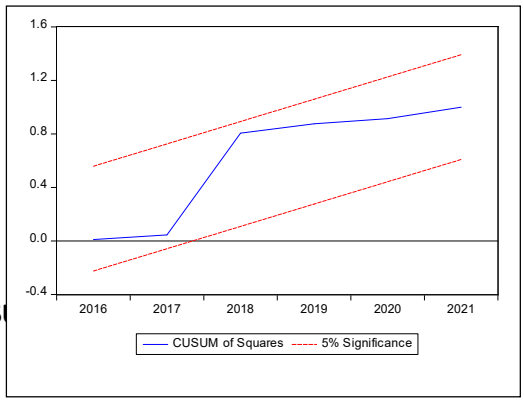


Fig **4: CUS**

So

4.8 Discussion of Findings

Fiscal balance to GDP ratio, external debt to export ratio, and public debt service to revenue ratio, show that a unit increase in FB, ED and DS negatively influenced GDPgr. This is an indication that Nigeria has been running fiscal deficits due to her inability to generate adequate revenue to cover expenditure and the amount of government revenue committed to debt servicing in Nigeria discouraged capital accumulation and investment and hence economic growth and development. This finding is inconsonance with the findings of Ajayi and Edewusi (2020); Mhlaba and Phiri, (2019); and Owusu-Nantwi and Erickson (2016) that the ability of countries to borrow and service their debts is largely dependent on the countries' ability to invest the borrowed funds into viable economic activities that could generate adequate revenue for debt servicing. Favour *et al.,* (2017) have shown that there is gross mismanagement of public debt and revenue in which could explain the adverse result of fiscal balance. The findings are also in consonance with Oyedele et al. (2016); Mwaniki (2016) who showed that external debt becomes less burdensome and enhances economic growth when the debtor is able to generate adequate export revenue to service the debt, thus averting the problem of exchange rate risk.

Total debt stock to GDP ratio was observed to be positive and implies that GDPgr increased due to an increase in TD. This is in line with prior studies by Odili, 2022; Akhanolu, *et al*., (2018); Mhlaba and Phiri, (2019) and Adi (2019) in which it was observed that total debt did not significantly explain economic growth in Nigeria. This scenario was attributed to over indebtedness or debt overhang, that is, when a country borrows more than it can cover from its GDP or a situation where total debt is growing rapidly than the rate of GDP growth, causing the inability to raise funds to cover the debt in the future.

Domestic debt to domestic investments ratio and recurrent expenditure to GDP ratio exerted

negative and non-significant effect on GDPgr. This is a clear indication that domestic debt may have crowding–out effect thereby reducing the quantum of investible funds in the hands of private investors, hence low private investments. This is because when the government borrows from domestic financial institutions or issues bonds they tend to reduce the funds available to private investors thus reducing investments in the country. This finding is in tandem with Idris and Ahmad (2017); Siew-Peng and Yan-Ling (2015) which showed that the crowding out of domestic investments would likely become inevitable when the government continuously borrow domestically for a long time. Similarly, the works of Matandare and Tito, 2018; Idiniyi *et al*., 2016; Bakare *et al*., 2016 were in agreement with the findings of this study and indicated that recurrent expenditure of government do not go directly into economically productive ventures rather they are mostly channelled to consumption. This explains why the DR did not have a statistically significant effect on GDPgr in the long-run.

Debt on capital expenditure to GDP ratio and trade openness turned out positive. The significance of the DGand TO variables indicated that public debt on capital expenditure and infrastructural development enhanced economic growth, while foreign trade assisted indebted countries to generate foreign exchange through exports and enhance productivity through the importation of foreign capital goods and other resources that are not available domestically to boost production. These findings were in tandem with those of Matandare and Tito (2018); Ndieupa (2018); Idiniyi *et a,l*. (2016) reported that accumulating capital stock with public debt brings about sustainable economic growth and development.

Conclusion and Recommendations

The study investigated the effect of fiscal balance on sustainable economic development in Nigeria. Results showed that sustainable economic development of Nigeria was majorly determined by FB, DS, ED, and DG. This study concludes that government borrowing by a developing country has the potential of fostering economic growth and development through capital accumulation and productivity growth which leads to improvement in real gross domestic product growth rate per capita income and standard of living. This is only possible when public debt is not too high and the borrowed fund is employed in capital accumulation and productive investments. This study therefore recommends that the government should focus on viable capital investments that have the potential of generating returns that can service public debt. Government should take deliberate efforts in ensuring that public debt is employed in key productive sectors of the economy to boost domestic production and enhance export receipts in foreign currency capable of repaying the externally borrowed funds. Development of infant industries is therefore imperative. There is need for government to reduce recurrent expenditures since it does not lead directly to revenue generation, capital formation, savings and investment in such manner that it would boost production, improve standard of living and promote sustainable economic development.

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