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Managing the Nigerian Economy through Fiscal Deficit

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Abstract

This study examined how fiscal deficit, exchange rate, and inflation rate impacted the economic growth of the Nigerian economy from 1980 to 2019. The cointegration connection in the study was discovered using the autoregressive distributed lag (ARDL) bound test. The analysis found that, while inflation and the exchange rate have a positive and significant relationship with the Nigerian economy, the fiscal deficit has a negative but relatively insignificant effect on the country's GDP. The Nigerian government should stabilise the currency's external value and prevent it from falling in value in the short term. Such policies should be developed to encourage people to pay taxes while providing incentives to those who abide. The government should lower lender interest rates to boost small domestic investors to make investments and create jobs while increasing government revenue. Government agencies should reduce luxuries and wasteful spending to avoid a fiscal deficit.

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1. Introduction

The role of fiscal deficits in an economy is always acknowledged as a key topic of discussion in almost established economies and emerging nations, including African countries. Growing fiscal deficits are widely recognised as among the main factors

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holding back the progress of numerous emerging countries in the literature. Fisher argued that a significant budget deficit is just a sign of broad macroeconomic instability that is detrimental to the growth of an economy.

On the opposite argument Keynesian economics, which is addressed by John Maynard Keynes proposed to use fiscal deficit to promote economic growth. According to Keynesian Economics, the government can increase its spending during the economic slowdown, even running a budget deficit, to stimulate demand and jumpstart economic activity. This increased demand will increase intensive production and employment, which in turn, lead to economic growth. Keynes believed that the government's role in the economy should be active and interventionist, especially during times of crisis or recession, to ensure stability and growth.

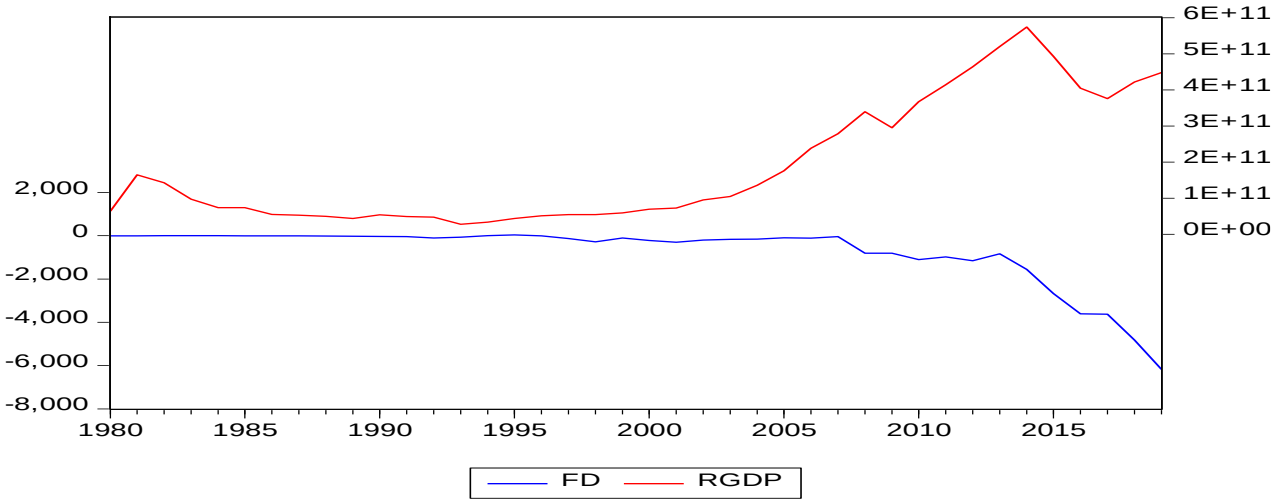
Increased growth can be aided by deficit spending, which will eventually lead to a reduction in the fiscal deficit as tax revenues rise. Among these objectives of fiscal deficits are the reduction of unemployment, price stability, rapid economic growth, and a strong balance of payments position. In developing countries, fiscal policy is viewed as a tool for guiding underdeveloped economies toward sustained economic growth and development. Most people think of the fiscal system as a set of tools for development goals (Ubi., & Inyang, 2018)

South Asian countries have consistently run fiscal deficits since gaining independence, owing to rising government spending. They had used welfare aids, petroleum and fertiliser subsidies to support their inability to generate sufficient income for their countries (World Bank, 2015). South Asia has experienced an unprecedented increase in fiscal deficit since the early 1980s (Ravinthirakumaran et al., 2016). It was noted that the South Asian Association for Regional Cooperation (SAARC) countries had the highest fiscal deficit of 7.52 per cent, growing 6.6 per cent between 2000 and 2013. The deficit was the second highest among developing regions, only behind East Asia and Pacific's 8.2 per cent.

In the scene of African countries, Nigeria has also been managing its economy through fiscal policy. It is believed that during a recession, when private sector spending decreases, government expenditure can boost aggregate demand for goods and services. Following this reasoning, the Nigerian government spending increased dramatically in the 1980s, inadvertently accumulating too much debt that can have negative long-term

consequences of fiscal difficulties and inflation. Figure 1 shows the relationship between fiscal deficit and economic growth in Nigeria from 1980-2019. Initially Nigeria experiences little fiscal deficit for several years from 1980- 2007 when the economic growth is not growing faster. Whereas, when Nigeria experiences rapid growth exposed the fiscal deficit from 2007-2019. That means the level of economic growth in Nigeria is negatively related to fiscal deficit.

Figure 1 Fiscal deficit and economic growth



Based on this backdrop, the objective of this study is to examine the management of the Nigerian economy through fiscal deficit from 1980 to 2019. Due to a lack of private sector development, the government relied on Nigeria's oil industry expansion. As a result, as part of its stabilisation and adjustment programs, the government significantly reduced public spending, including austerity measures enacted in 1982 and the Structural Adjustment Program (SAP) implemented in 1986. Because human resource development was halted due to these government spending cuts, there were unanticipated economic and social costs and negative long-run development costs (Oyinlola & Adam, 2003).

The next section of this paper reviews literature related to fiscal deficits and economic growth, to be followed by research methodology and research findings. This paper ends with a discussion and conclusion.

2. Empirical review

According to multiple studies from various countries and eras, the budget deficit is a critical determinant in predicting economic growth; however, actual research on the topic

yields contradictory results. Some studies discovered a positive influence, others a negative influence, and still others a neutral effect. Some evidence pointed to a successful conclusion. Maji and Achegbulu (2012) examined Nigeria's fiscal 'deficit's impact on economic development between 1970 and 2009. They applied the OLS estimation to calculate numerical estimates of GDP and total money in circulation. Their findings showed that the budget deficit positively influenced the economy. Similarly, Maji et al. (2012) investigated the connection between Nigeria's budget deficits, economic expansion, and money supply using the Granger Causality Test. Their results implied a link between Nigeria's budget deficits and growth. The results show that the amount of money in circulation in Nigeria is impacted by budget deficits. In Kenya, Odhiambo et al. (2013) investigated the relationship between fiscal deficits and economic growth between 1970 to 2007. They found that budget deficits and economic growth had a positive relationship.

To investigate possible links between Pakistan's budget deficit and economic expansion, Nayab (2015) applied the Johansen cointegration method, vector error correction model, Granger causality test, and vector autoregression (VAR) analysis. Based on time series data from 1976 to 2007, Nayab supported 'Keynes' view that fiscal deficit positively impacted economic growth. Another study in Vietnam (Thanh, 2018) used error correction model and found that fiscal deficit strongly affected economic growth.

Kameda (2014) examined the relationship between Japan's budget deficits, public debt, and long-term interest rates using 10 annual years of data from the Ministry of Finance of Japan. Kameda discovered that deficits had a positive long-term effect on real interest rates and national debt. Kurantin (2017) used a panel dataset from 1994 to 2014 to investigate how Ghana's budget deficit affected economic growth. Kurantin found that Ghana's budget deficit negatively impacted economic growth. Similarly, Zoto and Berisha (2016) used time series data from 1993 to 2 to examine Albania's budget deficit's short- and long-term effects on economic growth. The granger causality test and the cointegration approach were used in the study to determine the direction of causality among the model's variables. According to the findings, there was a causal relationship between economic growth and the budget deficit, but not between foreign direct investment and the deficit. The budget deficit prevented economic growth.

Umaru and Gatawa (2014) investigated the relationships between economic growth, government spending and fiscal deficit in Nigeria's economic growth between 1970 and 2011. In contrast to earlier studies, they found no significant evidence that fiscal deficit and ongoing costs could improve economic output or growth. Bhoir and Dayre (2015) examined how India's budget deficit affected the country's economic growth between 1991 and 2014. The OLS estimation method was used in the study to investigate the relationships between variables using time series data. Based on projected data, there was no evidence that India's budget deficit and economic growth were significantly related. The public sector was advised to focus on developing human welfare to ensure positive social well-being. Kumar, (2018) also confirms that the fiscal deficit has adverse effect on economic growth.

Edame and Okoi (2015) conducted a study between 1980 and 2013 examining the relative effects of budget deficits on economic growth in Nigeria under both democratic and military rule. Their findings showed that when interest rates were low, capital formation and budget deficits had a significant and beneficial impact on economic growth in pre-democratic regimes. However, in a democratic administration, fixed capital formation is important, whereas the budget deficit and interest rate had little impact. Iya et al. (2014) investigated the relationship between Nigeria's budget deficit and economic $_{\text{growth}}$ using annual time series between 1981 and 2009. The budget deficit, domestic investment, and the exchange rate had a one-way causal relationship with real GDP. There was no long-run relationship between the variables.

Likewise, Ajlouni (2018) examined how the fiscal deficit affected the Jordanian economy. The study investigated the relationship between budget deficits before and after grants and economic growth. The fundamental linear regression model was estimated using time series data from 1990 to 2009. The findings revealed a modest and negligible positive link between GDP growth and the fiscal deficit prior to grants, and a negative correlation following grants in both the short and long-run periods. The findings were unable to support that a budget deficit hurts economic growth. Recently, (Mavodyo, (2022) used dynamic OLS approach in South Africa to analyse the impact of fiscal deficit on economic growth. The results revealed that increases in fiscal deficit slow the growth level.

3. Research Methodology

This paper models the impact of fiscal deficit on the economy of Nigeria based on Equation (1).

$$RGDP = F\ (EXC, FD, IFR) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where RGDP stands for real gross domestic product, EXC for exchange rate, FD for fiscal deficit, and IFR for inflation rate in this equation. These factors are considered by including an error term or random variable (disturbance term) in the model to account for all types of disturbances that may cause the model's structure to be distorted. Equation (1) can be rewritten as Equation (2).

$$RGDP_t = \beta_0 + \beta_1 FD_t + \beta_2 EXC_t + \beta_3 IFR_t + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Equation (2) is further transformed into a natural logarithm to facilitate accurate estimation and to reduce the problem of heteroscedasticity and autocorrelation. The budget deficit, however, will not be a log because the variable is negative. Logarithmic transformations can also be used to approximate the normality of strongly skewed variables (Benoit, 2011; Ozcan et al., 2017; Lund et al., 2020).

Unit root tests are used to determine the order of integration or the differentiations required to reach stationarity. The Augmented Dickey-Fuller (ADF) and Philips Perron tests are the unit root tests used in the study. The ARDL limits test is estimated after the Pesaran, Shin (1999) and Shin & Smith (2001) cointegration between variables is determined. The ARDL statistical advantage is its validity for variables that are I(0), I(1), or mutually co-integrated. The ARDL also produces consistently accurate estimates in small and large sample size models. The ARDL long-run model for this study is specified in Equation (3).

$$\ln RGDP_t = \beta_0 + \sum_{i=1}^{k} \phi_i \ln RGDP_{t-1} + \sum_{i=0}^{k} \varphi_i FD_{t-1} + \sum_{i=0}^{k} \lambda_i InEXC_{t-1} + \sum_{i=0}^{k} \lambda_i \ln IFR_{t-1} + \varepsilon_t \quad (3)$$

The long-run error correction model is modelled as Equation (4).

$$\Delta \ln RGDP_t = \beta_0 + \sum_{i=1}^{k} \phi_i \Delta lnRGDP_{t-1} + \sum_{i=0}^{k} \varphi_i \Delta InFD + \sum_{i=0}^{k} \lambda_i \Delta InEXC_{t-1} \ \sum_{i=0}^{k} \lambda_i \Delta lnIFR_{t-1} + \lambda ECT_{t-1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

The ECT in the equation is defined in Equation (5).

$$ECT_t = RGDP_t - \alpha_o - \sum_{i=1}^{k} \psi_i RGDP_{t-1} - \sum_{i=0}^{k} \varphi_i FD_{t-1} - \sum_{t=_0}^{k} \lambda_i EXC - \sum_{i=0}^{k} \lambda_i IFR_{t-1} - \varepsilon_t \quad (5)$$

The sign and magnitude of the calculated parameters are examined to determine whether the economic apriori expectation is consistent with theoretical expectation. We look to see if the correlation between the exogenous and indigenous variables matches the a priori prediction of signs (i.e., positive or negative relationship). While EXC and IFR are predicted to have a positive relationship with RGDP, this study finds a negative relationship between FD and RGDP.

Table 1 A Priori Expectation

Variables	Expected signs
Fiscal deficit	Negative (-)
Exchange rate	Positive (+)
Inflation rate	Positive (+)

4. Data and data source

The data used in this investigation came from secondary sources. The World Development Indicators (WDI) and the Central Bank of Nigeria provided all of the data for the study (CBN). The variables listed below will be used: The variables include the exchange rate (EXC), fiscal deficit (FD), inflation rate (IFR), and real gross domestic product (GDP) (RGDP).

5. Results

The ADF and Philips Perron test results are shown in Table 2. The FD and IFR are stationary at I(0). The RGDP and EXC are stationary at I(1). The ADF and PP statistics are presented in Table 2.

Table 2 Unit root test

	ADF Test Statistics				PP Test Statistics			
	Constant		Trend		Constant		Trend	
	Level	First difference	Level	First Difference	Level	First Difference	Level	First Difference

RGDP								-7.0925
	-2.2467	-8.1776	-2.2467	-8.1776	-2.2467	-7.1868	-1.4766	(0.0000)***
	(0.1939)	(0.0000)***	(0.1939)	(0.0000)***	(0.1939)	(0.0000)***	(0.8206)	
IFR	-3.4940	-6.5433	-3.4940	-6.5433	-3.3710	-13.7846	-3.3929	-13.3635
	(0.0134)**	(0.0000)***	(0.0134)**	(0.0000)***	(0.0182)**	(0.0000)***	(0.0670)*	(0.0000)***
EXC	-1.9492	-5.2698	-1.9492	-5.2698	-1.9519	-5.2698	-1.1956	-5.6422
	(0.3072)	(0.0001)***	(0.3072)	(0.0001)***	(0.3061)	(0.0001)***	(0.8975)	(0.0002)***
FD	-7.3175	-14.7232	-7.3175	-14.7232	-7.2227	-17.3005	-7.1453	-17.1029
	(0.0000)***	(0.0000)***	(0.0000)***	(0.0000)***	(0.0000)***	(0.0000)***	(0.000)***	(0.0000)***

***, ** and * Denotes 1%,5% and 10% significance level respectively

To avoid misleading regression, selecting the optimal lag time before testing for cointegration between the variables is critical. As a result, the optimal lag selection test result is shown in Table 3.

Table 3 lag selection criteria

Lag	*LogL*	*LR*	*FPE*	*AIC*	*SC*	*HQ*
0	-437.7841	NA	276167.8	23.88022	24.05437	23.94162
1	-269.1513	291.6890	72.59878	15.62980	16.50057*	15.93679
2	-253.4812	23.71696	76.39570	15.64763	17.21501	16.20021
3	-227.1526	34.15606*	47.60256*	15.08933*	17.35332	15.88749*

Using these criteria, the Akaike Information Criterion (AIC), the Schwarz Information Criterion (SC), and the Hannan Quin information criterion were used to select the optimal lag from Table 3. The ARDL limits test was performed after the optimal lag was determined to look for any signs of a cointegration link between the variables. Table 4 displays the results of the bound test.

Table 4 ARDL bounds test result

		Bounds critical values Constant(Level)

Model	F-statistics	Lag	Level of significance	I(0)	I(1)
$RGDP = F\ (EXC, FD, IFR)$	12.6708	3	10%	2.72	3.77
			5%	3.23	4.35
			2.5%	3.69	4.89
			1%	4.29	5.61

The results in Table 4 show that the computed F-statistic, 12.6708, is greater than the upper bound critical value at all significance levels. As a result, the null hypothesis that there is no cointegration between RGDP, FD, EXC, and IFR and that the variables are in long-run equilibrium can be safely rejected because it demonstrates that the variables have a meaningful cointegration connection. The long-run model was estimated after identifying the cointegration connection between the variables. The results are shown in Table 5 below.

Table 5 Long-run ARDL cointegration result

	Dependent Variable, ***RGDP***			
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FD	-0.0001	0.0001	-1.0465	0.3039
EXC	1.0458	0.0476	21.9525	0.0000***
IFR	0.6675	0.2088	3.1961	0.0034***
C	6.7487	0.5032	13.4091	0.0000***

The long-run influence of the exchange rate EXC on economic development is positive and statistically significant (Table 5) the coefficient and probability values are 1.0458 and 0.0000, respectively. With every 1% change in EXC, Nigeria's economy grows by 1.0458 per cent. The long-run coefficient and probability value of the inflation rate's effect on Nigeria's economic growth are 0.6675 and 0.0034, respectively. For every 1% change in IFR, economic growth will increase by 0.6675 per cent. Furthermore, during the study period, FD had negative and statistically insignificant. With an R-squared of 0.9992, the model's error term explained only 1% of the variation, although explanatory factors clarified 99% of the variation.

Table 6 Error correction and short-run result

Dependent Variable, $\boldsymbol{RGDP}$				
Regressors	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
$D(FD)$	-0.0000	0.0000	-1.0671	0.2947
$D(LEXC)$	0.0254	0.0372	0.6814	0.5010
$D(LEXC(-1))$	0.0980	0.0541	1.8097	0.0807*
$D(LEXC(-2))$	-0.1498	0.0416	-3.5949	0.0012***
$D(LIFR)$	0.0872	0.0180	4.8467	0.0000***
$ECT(-1)$	-0.1307	0.0223	-5.8519	0.0000***

Note: * and *** denote 1% and 10% significance levels.

According to the findings in Table 6, the EXC significantly and positively impacts Nigeria's economic development. the coefficient is 0.0980 and significant at 5% level.. IFR has a positive and significant short-run impact on Nigeria's economic growth as its coefficient is 0.0872. In the short term, every 1% change in IFR increases economic growth by 0.0087. Furthermore, FD has a negative and insignificant short-run impact. The results are consistent with previous finding Ajlouni (2018).

The absolute value of the error correction term (ECT) is negative and the ECT coefficient is -0.1307. This shows that only 1% of the explained and explanatory variables' short-run disequilibrium will eventually converge to equilibrium.

6. Discussion and Conclusion

This study aims to examine the budget deficits, exchange rate, inflation rate and economic growth of Nigeria from 1980 to 2019. The study assesses the fiscal deficit, exchange rate, and inflation rate impact the economic growth. It determines whether there is a long-term or short-term relationship between the fiscal deficit and the independent variables. According to the long-run estimation results, inflation and the exchange rate positively impacted Nigerian economic growth throughout the study period. The fiscal deficit (FD) had a negative but insignificant impact. The error

correction shows there is convergent based on the speed of adjustment that carries a negative sign.

To prevent the adverse effects of a budget deficit, it is recommended that the Nigerian government control the expansion of excessive domestic credit in the economy. The Nigerian government should maintain a slim public sector and reduce unproductive public spending. Such prudent public policies would portray responsible governance and boost private sector's confidence to invest and pay taxes. The government could also implement targeted financing with lower loan interest rates for small domestic businesses to increase household economic and create job opportunities.

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