

Deficit financing and Macroeconomic Performance: the Nigeria experience

Moses O. Ichime^{1*}, Titus O. Awogbemi¹, Chigoziem T. Ezi¹.

¹Department of Economics, Faculty of Social Science, Delta State University, Abraka-Nigeria.

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Abstract: Due to the mixed order of integration, the study uses the ARDL model to examine the relationship between deficit financing and the performance of the macroeconomy proxy by GDP in Nigeria over a thirty-year period, from 1990 to 2019. In the model, the inflation rate, the government's fiscal deficit, and the domestic money supply served as stand-ins for deficit financing. And the outcome demonstrates that while the model satisfied the sufficient condition of stability, it failed the necessary condition due to an explosive divergence indicator. Additionally, the variables have a long-term relationship, and based on estimates from the long-run equation, all of the variables have a significant impact on the economy, with the domestic money supply having a positive effect and inflation and the government fiscal deficit having a negative impact.

Keywords: Deficit financing, Fiscal deficit, Macroeconomic Performance, Model, Nigeria

1. Introduction

Following the civil war, Nigeria began using deficit financing, which was made worse by the oil market's volatility and the country's current financial and economic difficulties. More than 85% of Nigeria's budget has been in deficit since the country's independence (Momodu & Monogbe, 2017). Budget deficits, also known as deficit financing, are financial arrangements that result in a temporary overabundance of expenses over income. Despite being a widespread practice at both the macro and micro levels, government spending has a macroeconomic impact on the economy (Okah, Chukwu, & Ananwude, 2019). A few important markers of deficit financing include public borrowing, money supply growth, grants and aid, etc. On the other hand, macroeconomic performance is determined by the amount of output generated by economic activity within the economy; in other words, it is the steady rise in the market value of economic activity within an economy over time.

In the Sub-Saharan region, deficit financing and macroeconomic performance as measured by economic growth have become major concerns in recent years. Academics and decision-makers are unsure of the precise relationship between the two. According to Ayuba and Khan (2019), the Sub-Saharan African countries are still at an impasse with citizens experiencing high levels of unemployment and insecurity, and poverty is still pervasive in both urban and rural areas, despite several fiscal policy measures introduced by governments to curb excessive deficit coupled with the huge quantum of domestic and external loans (Abubakar, 2021). Many people around the world believe that the current status of the Sub-Saharan African economy is related to governments in the region mismanaging both internal and external borrowed resources and financing deficits (Akinmulegun, 2014). A critical analysis of sub-Saharan Africa's budget has revealed that having budget overlaps on multiple occasions without having a significant impact on the timid populace's implementation of capital projects is counterproductive. Consequently, the debt and the capital project need to be connected (IMF, 2012).

In Nigeria, significant budget deficits have been documented over time, despite the fact that actual revenues realised are frequently higher than projected estimates (Anyanwu, 1997). Some of the macroeconomic issues plaguing the nation—such as high and rising rates of inflation, high and rising unemployment, balance of payments issues, excessive debt and debt crisis, subpar investment performance, etc.—have been attributed to this lack of fiscal discipline, which has led to ever-increasing fiscal deficits (Onwiodiukit, 1999; Nwaeke & Korgbeelo, 2016). Since rising public debt is known to be growing faster than economic growth in developing nations like Nigeria, as suggested by Audu (2004), it stands to reason that rising public debt will have an adverse effect on

GDP. But in the process of securing better economic conditions, the government is frequently compelled to enact costly fiscal policies, the goal of which is to encourage economic agents in the market to realise higher levels of economic growth (as proposed by Keynes, 1936). Deficits are acceptable in situations where total demand is significantly less than needed. Demand for products and services as well as tax revenue will rise when the economy picks back up, creating equiposing budgetary surpluses (Onuorah & Ogbonna, 2013).

Academics, decision-makers, and business leaders are becoming more concerned about how Nigeria's budget deficit is affecting the country's economy. While some believe it will have a positive impact, others assert that it will have a negative impact, and still others categorise the effect as neutral (Nwikina, Meekor, Cookey, & Gbarato, 2021). Although there are still differing opinions among academics, decision-makers, and administrators of the Nigerian economy, the empirical evidence of deficit-financed led growth in the economic literature is still encouraging (Aero & Ogundipe, 2018; Musa, 2021). Because of this, there is a general belief that the volatility of oil prices, which appears to be the seasonal fiscal benchmark, and rising deficit financing have a substantial effect on our economy. Investigating the relationship between these variables is therefore essential in order to give our macroeconomic administrators a framework for policy regarding the implications of financing deficits. The purpose of the study is to investigate how Nigeria's macroeconomy has been affected by deficit financing between 1990 and 2019.

The following particular goals serve as a guide for achieving this purpose:

1. To empirically examine the impact of government fiscal deficit on economic growth
1. To ascertain the extent to which inflation rate have affected economic growth and
2. To examine the impact of domestic money supply on economic growth

Hypotheses Formulated:

The formulated null hypothesis includes;

1. Government fiscal deficit has no significant impact on economic growth
2. Inflation rate is not significantly related with economic growth and
3. Domestic money supply has not significantly impact on economic growth

2. Theoretical Framework

Theoretically, when government initiates a project and her revenue is not sufficient enough in sponsoring the project, there are three major ways of financing such a project and they are taxes, borrowing and monetization. At the moment, borrowing is the most popular way to finance deficits. This is typically accomplished by issuing government bonds on the open market. It is important to remember that different schools of thought have argued that financing a deficit in the economy can have either positive or negative implications. Two theoretical frameworks were deemed relevant for this study's purposes: The Neo-classical school of thought and Keynesian economic growth theory. But the foundation of this work is the Keynesian understanding of budget deficits.

Keynesian Economic Growth Theory

British economist John Maynard Keynes created the Keynesian Economic Theory in 1936. According to Keynes, public spending can boost economic growth by boosting government consumption, which raises investment, productivity, and employment. Put another way, by taking out loans from the private sector and reimbursing them through a variety of spending initiatives, the federal government can stop the recession. According to the theory, the only way to guarantee growth and stability through effective resource allocation, market regulation, economic stabilisation, and resolution of social conflicts is for the government to actively intervene in the market through deficit financing (Abubakar, 2021). Keynes claims that overall economic spending has a significant short-term impact on economic growth via stability. According to this theory, in order to achieve economic stability, the government must actively intervene through spending because the economy is fundamentally unstable. Whether funded by domestic or foreign borrowing, deficit financing entails the public sector absorbing actual resources that would otherwise be available to the private sector (Okelo, Momanyi, Lucas & Alia, 2013).

Keynesian theory uses government expenditure to boost the economy, lower unemployment, and increase household wealth (Usher, 1998). In the Keynesian framework, the desired aggregate demand relationship in the goods market is expressed as follows:

$$Y = C + I + G + (X - M) \dots \dots \dots (1)$$

The behavioral equation is written as;

Where Y = output or economic growth

C = Consumption, which depends on disposable income, and tax revenue

I = Investment, which depends on interest rate

G = exogenous government expenditure

X = exports, exogenous in nature and

M = Imports, which depends on exchange rate

According to Okpanachi and Abimiku (2007), fiscal deficits boost economic activity temporarily by making households feel wealthier and subsequently leading to an increase in total consumption spending, both by the public and private sectors. In other words, Keynesian theory lowers investment because it raises the demand for money and the interest rate. According to Keynesian economists, private sector decisions frequently have inefficient macroeconomic effects that call for robust public sector policy responses. Two examples of such responses are the Federal Treasury's fiscal policy and the Nigerian Central Bank's monetary policy, which both aim to stabilise the economy's output.

Neoclassical School of Thought

According to the neoclassical economist, there is a negative correlation between fiscal deficits and economic development. This is because the neoclassical school takes into account people who plan their consumption over the course of their lifetimes. Fiscal deficits raise current consumption by pushing taxes onto future generations. They also contend that since full employment of resources is assumed, higher consumption entails lower savings (Ayuba & Khan, 2019). A rise in interest rates leads to a decrease in private investment, a rise in domestic production, and an overall rise in prices. The price of these resources rises when the public sector grows because of the government's excessive demand, which makes the private sector shrink and reduces investment and consumption. Consequently, the private sector is pushed out as the public sector grows (Aworinde, 2020).

But it's important to remember that resource concentration is a crucial factor to take into account when it comes to developing nations like Nigeria, where the private sector lacks the means to invest and where the expansion of government demand for loanable funds slows down the private sector's rate of productivity. Nevertheless, a key finding of the neoclassical analysis is that government borrowing discourages private investment (Ayadi & Ayadi, 2015).

There is a wealth of empirical evidence regarding the connection between deficit financing and economic growth. Onuorah and Ogbonna (2013) examine this relationship by examining the impact of deficit financing on the Nigerian economy between 1981 and 2012. The results of their analysis, which included pairwise Granger causality testing, OLS, diagnostic testing, ADF unit root, Johansen Co-integration, and descriptive statistics, indicate that the variables were stationary at first difference data. At the 5% level of co-integration, all the variables were found to be statistically significant and positively correlated with economic growth in the case of deficit financing. This implies that the settlement of debt is effectively aided by both external and domestic debt obligations. It is clear from the regression result that both external and domestic debt continue to be major contributors to the financing deficit. As a result, the study came to the conclusion that, insofar as there is a long-term equilibrium relationship between the independent and dependent variables, deficit financing has a significant enough impact on the expansion of debt management and services in Nigeria.

Nkrumah, Owusu, and Orkoh (2016) use quarterly data from 2000 to 2015 and an ARDL approach with trend analysis to examine the relationship between Ghana's budget deficit and economic conditions. Since 2000, years with large budget deficits have typically been followed by years with weak economic growth, and vice versa, according to trend analysis. When the GDP growth rate decreased from 7.3 percent in 2008 to 4 percent in 2009,

the budget deficit increased from 8 percent in 2007 to 11.5 percent in 2008. This phenomenon was most noticeable in 2009. The years 2012 and 2015 saw the observation of the same phenomenon. The econometric findings demonstrate that budget deficits have a markedly detrimental impact on economic growth. All other things being equal, a 100% increase in the budget deficit would therefore eventually result in a 3% decline in real GDP. The findings support the neoclassical theory that suggests economic growth is not always correlated with a high budget deficit.

Osemwengie and Shaibu (2018) look into the connections between oil price fluctuations, deficit financing (DF), and economic growth in Nigeria between 1980 and 2014. The study took into account the identification status of the system's equations before utilising the semi-log form of the 2SLS estimation techniques and the Granger causality test. The model was identified according to both the rank and order conditions of identification. The results showed that real GDP and changes in oil prices have a strong correlation, but deficit financing (DF) has a weak correlation with real GDP. Only real GDP, at 5%, showed significance in the oil price movement model, while DF was able to explain oil price movement at a 10% level. It was found that real GDP and changes in oil prices were important factors in determining DF. Real GDP and DF, as well as the movement of oil prices and DF, have a unidirectional relationship, whereas real GDP and oil price movement have a bidirectional relationship.

Using quarterly data from 2005 to 2017, Kasasbeh and Alzoub (2019) investigate the impact of deficit financing on economic stability in Jordan by using the Vector Error Correction Model (VECM) after seasonally adjusting the variables. The results demonstrate the detrimental effects of domestic bank financing (BANK) and external borrowing (EBDT) on economic stability. Crowding out of the private sector is the cause of the bank effect. The negative impact of external borrowing is mostly caused by the high amount of outstanding public debt, which currently accounts for 98% of GDP. The primary use of public debt is to fund current expenses rather than capital expenditures, which has little effect on growth. The interest rate (REPO) effect is consistent with the finance theory since lower growth is a result of higher rates. lending without a bank (NonBank).

Lastly, from 1986 to 2019, Nwikina et al. (2021) investigate the efficiency of deficit financing as a real tool to advance economic development in Nigeria. The human development index was used as a stand-in for economic development, and government spending and the budget deficit were used to finance the deficit. They used the Granger causality techniques and the ARDL model in their analysis, and the outcome demonstrates that government spending and the budget deficit have a marginally positive impact on Nigeria's economic development. Moreover, a unidirectional causal relationship was found, suggesting that government spending on deficit financing fosters Nigeria's economic growth. The research's findings, when combined with Keynesian theory, show that Nigeria's deficit financing value is insufficient to propel the country's economy in the direction that is intended.

In order to contribute our share to the discussion of the effects of deficit financing on the macroeconomy of Nigeria, we are expanding on prior empirical findings with a small amount of departure from the conventional variables and an extension of the period under review. In this paper, we integrated the government fiscal deficit variable into the model to critically define its effects on the economy, as it has not been measured in previous studies on the subject.

3. Methodology

The gross domestic product, public debt, money supply, budget deficit, and external reserve are the variables taken into consideration in this study. External assets that are easily accessible and under the jurisdiction of a nation's monetary regulatory bodies are referred to as external reserves (also called international reserves or balance of payments assets) (IMF, 2020). The total amount of money in the economy that is in a usable form is known as the broad money supply (CBN, 2020). It consists of the quasi money (M2) in an economy as well as the narrow money supply (M1), which consists of the coins and banknotes that are in circulation as well as balances on demand with deposit money banks. The market value of goods produced domestically at the going rate is known as the GDP.

With minimal modification based on our objectives, we analyse the effects of fiscal deficit on the performance of the Nigerian economy in accordance with the works of Okah, Chukwu and Ananwude (2019), Nwana and Umeh (2019), and Abubakar (2021). We indicated that fiscal policy indicators (public domestic and external debt) have a significant impact on GDP-based measures of economic growth. Therefore, the relationship between deficit

financing and economic growth in this study is as follows:

$$GDP = f (PUBDEBT, M2, BDEFCIT, EXRESV) \dots\dots\dots 2$$

Econometrically, eqn. 2 is transform to eqn. 3 with the introduction of the random term

$$GDP = \beta_0 + \beta_1PUBDEBT + \beta_2M2 + \beta_3BDEFCIT + \beta_4EXRESV + \mu \dots \dots 3$$

Where GDP is economic growth (gross domestic product), PUBDEBT is public debt, M2 is broad money supply, BDEFCIT is budget deficit, and EXRESV is external reserve of the country, while β_i is vector of coefficients

Data and Method of Analysis

The majority of the data used in this study are time series obtained from secondary sources in the CBN statistical bulletin of 2020 volume, which spans the years 1981 to 2020. This data's source is thought to be trustworthy and capable of yielding high-quality research results. Prior to doing any analysis, we turn every piece of data into a single digit. For the period under consideration, all variables were tested using the Augmented Dickey-Fuller (ADF) method of unit root tests to confirm the presence or absence of unit root problems. Whether to use the Johansen Cointegration, Autoregressive Distributed Lag, or classical least square analysis, depended on the test's result.

4. Result and Discussion

Table 4.1: Stationarity test result

Variables	ADF stats	ADF stats diff	CV level	CV diff.	Decision
LGDP	-4.5989		-2.9678		I(0)
LDMS	-3.0764		-2.9678		I(0)
LINFR	-2.3218	-4.4406	-2.9678	-2.9718	I(1)
LGFD	-1.1757	-5.3288	-2.9678	-2.9718	I(1)

Two of the data variables are stationarity after first difference, while the other two are stationary at level, according to the results of the unit root test. This indicates a mixed order of integration, and using the classical least squares will result in spurious analysis rather than an accurate and consistent estimate. As a result, the Autoregressive and Distributed Lag (ARDL) model, also known as the Bound test model, is the best analytical technique. The ADF statistics and the 5% critical values are compared in the test, and the null of the unit root problem is rejected if the absolute value of the ADF statistics is larger than the CV value; otherwise, it is accepted. While LGFD and LINFR are stationary at first difference, LGDP and LDMS are data variables that are stationary at level. In order to determine whether there is a long-term relationship between the variables shown in table 4.1A, we thus move forward with the bound test. The short- and long-term impacts of interest rate determinants on interest rates in the economy are critically assessed with the aid of this test.

Table 4.1A: Bound test

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	6.50	3
Lag Selection	(2, 3, 1, 1)	
Significance	I0 Bound	I1 Bound

5%	3.23	4.35
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We found that the computed f-statistics of 6.50 are higher than the I1 (4.35) bound of the 5 percent critical level based on the bound test result mentioned above. Put differently, the test is definitive in determining the presence of a long-term relationship between the variables, as demonstrated by Pesaran et al (2001), because the computed f-statistics fall within the rejection region. As a result, we reject the null hypothesis and come to the conclusion that macroeconomic performance and fiscal deficit financing are related over the long term. Given that the model satisfies the required stability condition, we estimate the long run and cointegration estimation in order to validate this claim. The estimated results are displayed in table 4.1B below.

Table 4.1B: Cointegration and Long run result

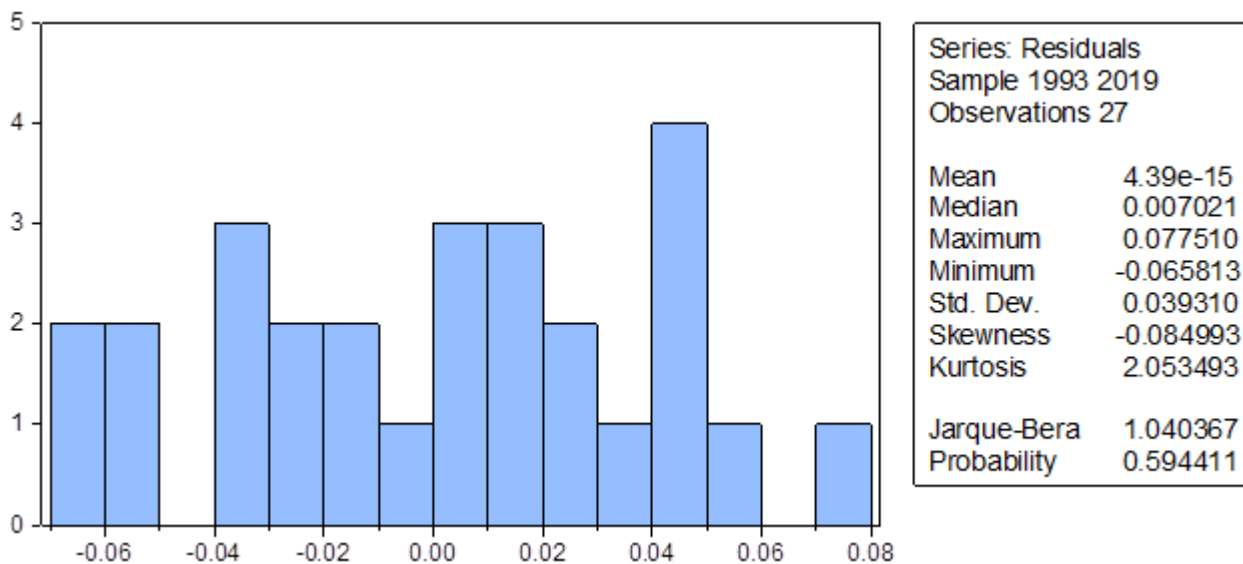
Dependent variable		LGDP		
Model selected		ARDL (2, 3, 1, 1)		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGDP(-1))	-0.334572	0.197219	-1.696443	0.1092
D(LDMS)	0.005467	0.117929	0.046362	0.9636
D(LDMS(-1))	-0.015060	0.168474	-0.089392	0.9299
D(LDMS(-2))	0.317537	0.113501	2.797658	0.0129
D(LINFR)	0.042538	0.034640	1.228005	0.2372
D(LGFD)	-0.021385	0.016777	-1.274663	0.2206
CointEq(-1)	0.258709	0.154372	1.675876	0.1132
Long Run Coefficients				
LDMS	0.993997	0.091598	10.851753	0.0000
LINFR	-0.455939	0.197615	-2.307204	0.0347
LGFD	-0.152565	0.073474	-2.076450	0.0543
C	4.529043	0.906282	4.997389	0.0001

It so happens that the aforementioned estimated model is the optimal ARDL model chosen from the set of models in terms of lag selection. Additionally, the short run estimate shows that only the second lag of LDMS, which is proxied by the variables chosen, has a positive and significant influence on the macroeconomic performance of the Nigerian economy as it stands right now. This suggests that the national budget's deficit financing has no real, immediate, or short-term impact on the macroeconomy. The model estimated further fails the second condition of stability with the coefficient of adjustment having the wrong sign (explosive divergence) and also insignificant at the 5% level. More so, the model demonstrates that the current level of the economy has a positive relationship with domestic money supply and inflation, but a negative relationship with government fiscal deficit. This was further confirmed by the fact that none of the explanatory variables is statistically significant.

The long-term estimates show a positive intercept of 4.53, indicating that the economy will continue to grow even in the absence of deficit financing. As the short run estimates correctly point out, one will then wonder about the idea of ongoing seasonal deficit financing of fiscal abuse in politics at the expense of the economy. This refutes even more the Keynesian hypotheses regarding the effects of deficit financing brought on by improper use of public funds. The outcome also shows that, with the exception of the government fiscal deficit, which is significant at the 10% level, all of the chosen variables are stationary over the long term at the 5% level of significance. The domestic money supply has a positive and significant impact on the economy, while the inflation rate and the government fiscal deficit have negative and significant effects. These results support the bound test result that there is a long-term relationship between the variables. A unit change in these variables will result in a 0.9940 increase in the domestic money supply, a -0.4559 decrease in inflation, and a -0.1526 decrease in the government fiscal deficit.

Diagnostics Checks

The results of the normality test indicate that the error is asymmetrically distributed, disperses against the mean, and is normally distributed over the period under review. The null hypothesis, which states that the residuals are normally distributed, is validated by the Jarque-Bera normality test, which has a value of 1.0404 and a probability value of 0.5944 (see figure 4.1).



Conclusion and Recommendation

With three main goals in mind, the study looked at how deficit financing affected the macroeconomic performance of the economy by analysing the effects of the government's fiscal deficit, inflation rate, and domestic money supply on Nigeria's economic growth. Because of the mixed order of integration, the study uses the bound test model. As a result, we find that deficit financing has no short-term economic impact, which runs counter to the theoretical premise. Nonetheless, as the estimated long run equation and bound test result accurately demonstrate, it has long-term effects on the economy. The study's results support those of Aero and Ogundipe (2018) and Musa (2021) regarding the detrimental effects of deficit financing on the economy. When it comes to the execution of capital projects, macroeconomic administrators must be proactive, succinct, and decisive in applying the midterm expenditure framework (MTEF). Additionally, even though macroeconomic administrators are required to follow budgetary allocation guidelines and prevent the misappropriation of public funds, they should also determine the best fiscal intervention strategies to promote macroeconomic productivity. Lastly, as in other African countries, the fiscal deficit to GDP ratio needs to be lowered to 15%.

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