Original Research Article

BUDGET DEFICIT, BUDGET REFORM INDEX AND MACROECONOMIC PERFORMANCE INDICATORS IN NIGERIA

ABSTRACT

This study examines the relationship between budget deficit, budget reform index and macroeconomic performance in Nigeria between 1981 and 2020. The study employed the Auto regressive distributed lag model (ARDL) method to analyze the time series data. Findings from the ARDL analysis showed that the impacts of budget deficit on output and employment are positive and significant as previously established but the greater magnitude is still on output than employment and higher magnitude in the long run than the short run. Further findings indicated positive impacts of budget deficit on current account balance (balance of payments) in both short run and long run. The short run and long run effects of budget reform index is also consistently positive and statistically significant. While budget deficit raises the balance of payment position by about 0.62% in the short run, it increases it by about 1.1% in the long run. On the other hand, the fiscal reform index raises the balance of payment position by about 3.55% in the short run and increases it by about 6.19% in the long run. The study recommends that budget reform policies should contain quantifiable expectations/benchmarks to facilitate proper monitoring and evaluation of budget performance. Furthermore, the study calls for fiscal policy and budget administration that encourages increased funding to critical sectors like education, health and similar sectors.

Keywords: Budget deficit, Budget reform index; Macroeconomic performance; ARDL; Nigeria.

1. INTRODUCTION

Both advanced and emerging economies rely on fiscal policy for economic growth. By lowering consumption and raising the marginal propensity to save, fiscal policy in developed economies aims to accelerate the rate of capital formation. According to Popa and Codreanu

(2010), the primary objective of fiscal policy in developing countries is to create an equitable distribution of income and redirect resources from unproductive to productive uses.

Macroeconomic stability is achieved through fiscal policy by maintaining aggregate demand during recessions and limiting economic activity during booms. Additionally, more and more economies are using fiscal policy as their primary tool for stability when monetary policy proves ineffective due to deteriorating financial conditions and changes in monetary administration (Spilimbergo, 2008).

The Nigerian government adopted a decentralized and regional budgeting system in 1955, with distinct budgets for the Federal Capital Territory of Lagos as well as the North, West, and East regions. The First National Development Plan of 1962 included more extensions to this budgeting approach. Given the subsequent economic reforms, there seems to be a shift away from the predominantly socialist approach to a mixed system during the era of national plans and the 1986 adoption of the Structural Adjustment Programme (SAP).

The relationship between budget deficit, budget reform, and economic performance, particularly economic growth has been the subject of an ongoing debate with varying findings. Reports for the countries of interest, and Nigeria specifically, include Egwaikhide (1999), Onafowokan and Omoye (2006), Sawyer (2010), Rehinan (2012), Odhiambo, Momanyi, Othuon, and Aila (2013), Akosah (2013), Hassan, Nassar, and Liu, and others. Nkrumah, Orkoh, and Owusu, 2016; Okoye, Evbuomwan, and Modebe, 2016; Kurantin, 2017; Tung, 2018; Sheikh, Saeed, and Qammer, 2015; Sudhipongpracha, 2015).

This study aims to determine whether Nigeria's macroeconomic performance metrics are significantly impacted by the budget deficit and budget reform index in light of the aforementioned discussions.

Evaluating the relationship between budget deficit, budget reform index and macroeconomic performance indicators is the primary goal of this research. The paper is divided into five parts. The second section examines related literatures after this introduction. The third part talks about the methodology. The results and discussion of the findings are presented in Section 4, and the conclusions and recommendations for the future are made in Section 5.

2.   REVIEW OF LITERATURE

Empirical literature

Budget deficit, budget reform and economic growth

. In order to ascertain the impact of government deficit spending on GDP, Hassan, Nassar, and Liu (2014) used a time series model with data from 1930 to 2010 on the United States, controlling for inflation, unemployment, and interest rates. The results of the transfer function approach to multivariate time series modeling showed that the US budget deficit and GDP had a negative and significant relationship during the study period, while the control variables had no significant relationship with GDP. Based on these findings, the authors concluded that budget deficits have a major impact on the US economy's performance.

The relationship between budget size, budget deficit, and macroeconomic indicators was established by Osuka and Chioma (2014) utilizing time series data from 1981 to 2012 in addition to other variables like inflation, interest rates, and nominal exchange rates. Granger causality analysis of the data showed that there is a unidirectional granger-causality between GDP and budget deficits and budget size, with GDP granger affecting both budget deficit and budget size.

Sheikh, Saeed, and Qammer (2015) used the Autoregressive Distributed Lag Modeling Framework (ARDL) and annual time series data from 1971 to 2010 to investigate whether an authorized budget framework for Pakistan slows down economic growth. According to the study's findings, budget deficits have a detrimental impact on economic growth, whereas years with budget surpluses have a favorable impact.

Using series datasets for GDP and budget deficit in billion takas adjusted for inflation from 1993–1994 to 2015–2016, Hussain and Haque (2017) investigated the long-term relationship between Bangladesh's budget deficit and economic growth. Two sources of data were tested in the study: the World Bank and the Bangladesh Bureau of Statistics (BBS). There is a positive and significant relationship between the budget deficit and GDP growth rate, according to the BBS's VEC analysis results, which supports the Keynesian theory. In contrast, the World Bank's VEC analysis results showed a mildly negative relationship, which supports the neo-classical theory.

Kurantin (2017) examined the impact of budget deficits on Ghana's economic growth using data from 1994 to 2014. Inflation, gross domestic product, real interest rate, gross investment, and real exchange rate were among the variables that were incorporated into the time

series model. The findings demonstrated that the ongoing budget deficit has a negative effect on the processes of economic development and growth.

Budget deficit, budget reform and balance of payment

One particular empirical test for Nigeria is the work of Olanipekun (2012), who used ARDL to analyze the relationship between the country's budget deficit and current account balance from 1960 to 2008. The findings of the long-term relationship indicated that there was a relationship between the budget deficit and current account balance, investment, and private savings.

From 1960 to 2001, Catao and Terrones (2013) studied the connection between balance of payments, budget deficits, and budget structure in 107 nations. Budget structure and balance of payments were found to be strongly positively correlated across emerging country groups, but not in advanced countries.

Elhendawy (2014) assessed how the budget deficit, current account deficit, and budget policy interacted between 1980 and 2011. According to the results of the error correction estimation, a 10 percent increase in the government budget deficit will lead the current account deficit to increase by 8.7 percent one year later, while also emphasizing itself with a further 7 percent increase in the first lag. strongly in favor of the twin deficit theory.

Emmanuel (2015), using time series observations from secondary data, invalidated the twin deficit hypothesis for Nigeria and found significant relationships between the current account balance and budget deficits for the study period. This was done in light of the effects of budget deficits and budget size on Nigeria's current account balance using time series data from 1970 to 2013. Additionally, the current account balance and budget size revealed a strong positive correlation.

Using regression analysis and data from 1996 to 2012, Saidam (2015) discovered evidence in favor of the Keynesian analysis in the Palestinian territories. According to the analysis, current account deficits rise by US$3.08 million for every US$1 million increase in budget deficits overall.

In order to confirm or refute the Keynesian or Ricardian arguments, Abbassi, Baseri, and Alavi (2015) made an effort to determine how Iran's budget strategy affected the country's budget deficit and current account deficit. Utilizing the Generalized Method of Movement (GMM) technique, the study examined annual time series data from 1981 to 2012. According to the analysis, a unit increase in the budget deficit results in a 0.09 increase in the current account balance, confirming the Keynesian theory that a rise in the budget deficit causes a rise in the current account deficit.

A study was carried out in Pakistan by Wajid et al. (2017) to confirm the connection between the budget, budget deficit, and balance of payments. According to the results of the VECM for Pakistan, the Keynesian thesis is supported because a budget deficit considerably accelerates a trade deficit over the long and short terms.

Budget deficit, budget reform and employment

. Using time series annual data from 1981 to 2014, Okoye, Evbuomwan, and Modebe (2016) aimed to ascertain the connections between Nigeria's fiscal deficits and macroeconomic performance. The results of the vector error correction technique (VECM) demonstrated a substantial negative link between unemployment and the budget deficit, while the results of the causality test specifically indicated a one-way causation running from unemployment to the budget deficit.

From 1986 to 2015, Ayogueze and Anidiobu (2017) evaluated the effect of government budget deficits on Nigeria's unemployment rate. According to the Ordinary Least Square (OLS) econometric approach, Nigeria's unemployment rate was positively but marginally impacted by the budget deficit.

The question of whether Nigeria's fiscal deficit boosts employment was examined by Chinwenduu, Eme, and Otonye (2017). In order to inculcate data, the study employed a vector autoregressive model (VAR). Nigeria's unemployment rate and budget deficits were positively and significantly correlated, according to the econometric data. In particular, the report claimed that the growing public debt burden makes it difficult to start important new economic initiatives that may create jobs.

Ene (2018) used Vector Error Correction Mechanisms (VECM) to study the employment-budget deficit relationship for Nigeria from 1997 to 2017. The findings showed that Nigeria's unemployment rate was significantly positively impacted by the government's annual deficit. The authors deduced from the data that a higher budget deficit lowers Nigeria's unemployment rate.

Theoretical framework

Lerner's Theory

The Lerner's theory clearly anticipates how a budget deficit will affect any number of economic performance metrics over the long term. It suggests that the impact of deficit budgeting and budget reforms on economic results is shifting throughout generations. Nonetheless, the axioms assert that while external debt prevents future generations from growing more quickly, internal debt does not burden them. According to Wawire (2016), it sees domestic budget deficit financing as a system of funding in which future generations only owe each other this kind of debt.

According to Lerner's theory, a budget deficit or reform is the intentional alteration of budget expenditure levels in order to achieve national economic objectives like full employment, economic growth, and balance of payments equilibrium, but in a way that can be domestically right. Public debt, often known as government borrowing, is an additional tool for the budget and should only be used when spending actions in the pursuit of these goals create a deficit. Furthermore, it states that the financing deficit's origin, not its magnitude, should be the primary focus of budget reform (Okunrounmu, 2008). Therefore, Lerner's theory concludes that, rather than focusing on the amount of debt, any country should be more aware of the potential influence that any chosen method of financing the budget deficit may have on achieving the country's economic performance goals (Lerner, 2008).

3. METHODOLOGY

Model Specification

In line with Pesaran et al. (2001), we present the Autoregressive Distributed Lag (ARDL) model as follows:

$$\Delta y_t = \alpha + \rho y_{t-1} + \beta_1 deficit_{t-1} + \beta_2 bri_{t-1} + \beta_3 x_{t-1} + \sum_{j=1}^{p} \vartheta_j \Delta y_{t-j} + \sum_{j=0}^{q} \lambda_{1j} \Delta deficit_{t-j} +$$

$$\sum_{j=0}^{q} \lambda_{2j} \Delta bri_{t-j} + \sum_{j=0}^{q} \varphi_j \Delta x_{t-j} + \varepsilon_t \qquad (3.1)$$

$$\Delta gdp_t = \alpha + \rho gdp_{t-1} + \beta_1 deficit_{t-1} + \beta_2 bri_{t-1} + \beta_3 x_{t-1} + \sum_{j=1}^{p} \vartheta_j \Delta gdp_{t-j} +$$

$$\sum_{j=0}^{q} \lambda_{1j} \Delta deficit_{t-j} + \sum_{j=0}^{q} \lambda_{2j} \Delta bri_{t-j} + \sum_{j=0}^{q} \varphi_j \Delta x_{t-j} + \varepsilon_t \qquad (3.2)$$

$$\Delta emp_t = \alpha + \rho emp_{t-1} + \beta_1 deficit_{t-1} + \beta_2 bri_{t-1} + \beta_3 x_{t-1} + \sum_{j=1}^{p} \vartheta_j \Delta emp_{t-j} +$$

$$\sum_{j=0}^{q} \lambda_{1j} \Delta deficit_{t-j} + \sum_{j=0}^{q} \lambda_{2j} \Delta bri_{t-j} + \sum_{j=0}^{q} \varphi_j \Delta x_{t-j} + \varepsilon_t \qquad (3.3)$$

$$\Delta bop_t = \alpha + \rho bop_{t-1} + \beta_1 deficit_{t-1} + \beta_2 bri_{t-1} + \beta_3 x_{t-1} + \sum_{j=1}^{p} \vartheta_j \Delta bop_{t-j} +$$

$$\sum_{j=0}^{q} \lambda_{1j} \Delta deficit_{t-j} + \sum_{j=0}^{q} \lambda_{2j} \Delta bri_{t-j} + \sum_{j=0}^{q} \varphi_j \Delta x_{t-j} + \varepsilon_t \qquad (3.4)$$

The models estimated in Equations 3.1 to 3.4 identify the variables as a combination of stationary and nonstationary series, which are better confronted with the ARDL method. The explanatory variables are the logged series of GDP, employment and BOP ($log(GDP_t)$, $log(emp_t)$ and bop_t in Equations 3.2, 3.3 and 3.4 respectively. $deficit_t$ is the budget deficit variable measured as $deficit_t = 100 * log(rev_t - exp_t)/gdp_t$ such that rev_t is federal government revenue, exp_t is the federal government expenditure, gdp_t is the gross domestic product. bop_t is the balance of payments (BOP) measured as current account balance BRI is the budget reform index and x_t is the vector of control variables.

4. ANALYSIS AND DISCUSSIONS OF RESULTS

4.1   The Role of Budget Reform Index in the nexus between Budget Deficit and Economic Performance Indicators of Output, Employment and Balance of Payment in Nigeria

In Table 1, two components point towards the evidence of Cointegration (i.e. long run relationship) among the variables. The formal Bounds test and the coefficient of error correction (ECT) are two examples. The error correction terms (ρ-1) behave as they should, meaning they are statistically significant, negative, and have absolute values less than 1. Formally, cointegration is always preferred above the null hypothesis of no cointegration in the Bounds tests.

This validates the long-term link, allowing for the estimation and interpretation of both the short- and long-term. Both output and employment are positively and significantly impacted by the budget deficit, as was previously established; however, output is still more affected than employment, and the long-term effects are stronger than the short-term ones. This supports the earlier claim that output is initially impacted by fiscal deficits, which then have an effect on employment. Additionally, the budget reform index has a favorable and significant effect on the two macroeconomic performance indicators throughout the long and short terms.

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The findings demonstrate the short- and long-term impacts of a budget deficit on the current account balance, or balance of payments. Additionally, the impacts of the budget reform index are continuously positive and statistically significant in both the short and long term. It's interesting to see that the long-term impact on the budget deficit and the budget reform index nearly doubles the short-term impact. A budget deficit raises the balance of payments position by roughly 1.1% over the long term, but only by about 0.62% in the short term. On the other hand, the fiscal reform index improves the balance of payments situation over the long term by roughly 6.19% and in the short term by roughly 3.55%. The twin deficit theory for Nigeria is therefore

thoroughly established, according to which a larger budget deficit may result in higher current account balances and, hence, a better balance of payments situation for the nation. Korsu (2009), Javid et al. (2010), Olanipekun (2012), Bukarr (2016), Elhendawu (2014), Saidam (2015), Wajid et al. (2017), and Abbassi, Baseri, and Alavi (2015) are among the earlier studies that established the same for the budget deficit-budget reforms and balance of payments nexus. They also found support for the twin-deficit hypothesis. Our results contrast with those of Aloryto (2016) and Emmanuel (2015), who were unable to demonstrate a significant relationship between Nigeria's current account balance and budget deficit.

Furthermore, because there doesn't seem to be any connection between the two, our findings don't support the triple deficit concept for Nigeria. Remember that the triple deficit hypothesis is a development of the twin deficit thesis, which explains the role of the saving-investment gap in the economy. In a developing nation like Nigeria, the triple deficit hypothesis will arise when the budget deficit and savings gap are contributing to the current account deficit. Since our findings indicate that the savings gap has a statistically insignificant impact both in the short and long term, we may conclude that our research does not support the triple deficit thesis for Nigeria. This finding is not in line with the findings of Rosensweig and Tallman, 2003; Catao and Terrones, 2003; Funke and Nickel, 2006; Zietz and Pemberton, 2011; Hassan, Nassar and Liu, 2014).

Table 1: Budget Deficit, Budget Reform Index and Economic Performance Indicators of Output, Employment and Balance of Payment

	Output model		Employment model		BOP model	
	Short run	Long run	Short run	Long run	Short run	Long run
Constant	0.1604***	5.5914***	0.0513***	3.5837***	-20.8402	-36.3221
	(0.0285)	(0.3694)	(0.0068)	(0.0571)	(17.1920)	(30.142)
Deficit	0.0027***	0.0958**	0.00011**	0.0076*	0.6174**	1.0761**
	(0.00079)	(0.0373)	(0.00005)	(0.0039)	(0.2837)	(0.4354)
BRI	0.0315***	1.0962***	0.0014***	0.0966**	3.5501*	6.1873*

	(0.0081)	(0.3547)	(0.00047)	(0.0370)	(1.9851)	(3.4352)
Savings	0.0201***	0.6993***	0.0011***	0.0768***	2.4264	4.2289
	(0.0040)	(0.0465)	(0.00022)	(0.0059)	(2.4507)	(4.2982)
ECT (-1)	-0.0287***		-0.0143***		-0.5737***	
	(0.0016)		(0.0004)		(0.1087)	
Bounds test	62.8545***		251.1037***		5.0955***	

5. CONCLUSIONS AND RECOMMENDATIONS

The relationship between budget deficit, budget reform index and Nigeria's macroeconomic performance from 1981 to 2020 was examined in this paper. The study came to the conclusion that while the effects of the budget deficit on employment and output are both positive and significant, as was previously established, the long-term effects are larger than the short-term ones, and output still has a stronger impact than employment. This supports the earlier claim that output is initially impacted by fiscal deficits, which then have an effect on employment. Additionally, the budget reform index has a positive and significant effect on the two macroeconomic performance indicators throughout the long and short terms. Additionally, output is higher than employment, and the magnitudes are larger over the long term than the short term. The findings demonstrate the short- and long-term impacts of a budget deficit on the current account balance, or balance of payments. Additionally, the benefits of the budget reform index are continuously positive and statistically significant in both the short and long term.

Based on the findings, the study recommended that budget reform plans ought to include measurable benchmarks and objectives in order to enable appropriate budget performance monitoring and assessment. In this regard, the share of capital expenditure to recurrent spending, which should be such that it meets the criteria for a rapid acid test ratio of at least moderate performance, should receive the appropriate attention based on the benchmark of the budget reform index. Effective budgeting should also make sure that there are connections between

public debt to budget balances, foreign debt to current account balances, government revenue, and expenditure ceilings. If this is carried out, we anticipate that Nigeria will probably meet the IMF standard criteria for liquidity, solvency, and stationarity. The report also urges budget administration and fiscal strategy that promotes more financing for key sectors like health and education.

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