THE INFLATIONARY EFFECTS OF BUDGET DEFICIT IN NIGERIA

Oludayo Elijah Adekunle

(1) Department of Banking and Finance,
Adekunle Ajasin University Akungba-Akoko, Ondo State, Nigeria

Oludayo Elijah Adekunle,
Adekunle Ajasin University Akungba-Akoko, Ondo State, Nigeria,
adekunleoludayo864@yahoo.com

ABSTRACT

Purpose. *Chronic budget deficit and rising inflation have been the major problems of government in Nigeria with their implication for significant macroeconomic variables. The government's efforts in curbing these problems have not yielded the expected result. Thus, this study investigated the inflationary effects of the budget deficit in Nigeria.*

Methodology. *Augmented-Dickey Fuller test, Bound Test and Autoregressive Distributed Lag test (ARDL) were used for analysis. Data were sourced from Central Bank of Nigerian Statistical Bulletin from 1986 to 2019.*

Finding and Implication. *A long-run dynamic relationship was established between the budget deficit and the inflation rate in Nigeria, Based on findings, long run movement was discovered between budget deficit and inflation in Nigeria. It was established that rising budget deficit lead to inflationary pressure in Nigeria. Thus, there is need for government to work assiduously and diligently in ensuring balance in national budget.*

Originality and Limitation. *This study contributed to existing study by investigating the dynamic inflationary effects of budget deficit in Nigeria and the adoption of important deficit financing variables. This study mainly focused on inflation rate without looking at the effect of budget deficit on other macroeconomic variables. Thus, future studies should focus on other macroeconomic variables like unemployment rate and balance of payments.*

1. INTRODUCTION

Both developed and developing countries have the core objective of maintaining single-digit inflation. A spiraling and uncontrolled inflation is detrimental to the growth and economic performance of any nation. Despite the fact that most countries seek to achieve other macroeconomic objectives of improved economic growth, unemployment reduction, and a healthy balance of payments position, a single-digit and stable inflation rate remains the leading objective and is linked to other objectives. According to Nguyen (2015), Ogunsakin and Olalere (2017), achieving a stable growth rate and excellent economic performance alongside a low inflation rate remains the monetary authority's focus. Thus, inflation targeting policy has been the major policy thrust of the monetary authority in most nations to achieve desired internal and external macroeconomic objectives.

However, all nations desire high economic growth, which results in the formulation of expansionary fiscal policy by the government. Nevertheless, the adoption of an expansionary fiscal policy that would increase government spending must be accompanied by high government revenue, which may lead to a budget deficit. Samirkaş (2014); Khumalo (2018) viewed budget deficit as the difference between governmental inflows and outflows during a particular period, usually a fiscal year. It is the annual gap between government spending and revenue. According to Sen, Sagbas and Keskin (2007) rising deficit in developing nations can be linked to unbalanced economic structures such as a high gap in the balance of payments, rising national expenditure, falling revenue, and expanding military expenditure. The budget deficit as a tool of development and growth is traced to the Keynesian expenditure-led growth theory of the 1970s, which stressed the role of government intervention in the economy through the provision of basic amenities and infrastructure to stimulate investment and growth (Oladipupo & Akinbobola, 2011). Nonetheless, Eminer (2015); Aslam (2016) stated that a growing budget deficit might influence the economy positively if fiscal policy instruments are directed towards growth-inducing activities. However, Temple (2000), Tekin-Koru and Ozmen (2003), Samirkas (2014) asserted that a persistent deficit in the budget could produce undesirable effects on the price level, investment, employment, and standard of living, economic performance, and balance of payments position.

However, the implication of budget deficit and inflation in the economy is a subject of discourse among scholars (Nguyen, 2015). Bulawayo, Chibwe and Seshamani (2018); Sargent and Wallace (1981) asserted that the financing of budget deficit through the printing of money (seigniorage) might lead to inflationary pressure in the economy. Furthermore, financing budget deficit through borrowing by issuing government debt instruments may result in inflation and discourage investment through the crowding-out effect (Leeper, 1991; Nwakoby, Okaro & Nwude 2016). Though Sharp and Flenniken (1978) are of the opinion that budget deficit is too weak

to cause movement in inflation, Fischer, Sahay and Végh (2002); Sill (2005); Ishaq and Moshin (2015) averred that budget deficit might lead to the inflationary pressure in the economy.

Nigeria has been experiencing a budget deficit since 1981, as revealed in the Central Bank of Nigeria Statistical Bulletin 2018. Though the nation experienced a surplus in 2011 and 2014, the deficit in the government budget has been widening concurrently. The deficit in the budget rose from ₦0.43 in 2015 to ₦0.96 billion and ₦1.70 billion in 2016 and 2017, respectively, before falling to ₦1.17 billion in 2018 (CBN, 2018). The increase in fiscal deficit was followed by the need to finance the deficit, leading to an increase in borrowing and depletion of assets and reserves. This mounting deficit has posed greater challenges to the government and policymakers in Nigeria. While it is believed that a budget deficit may serve as an instrument of growth and development, a rising deficit may cause macroeconomic instability (Samirkaş, 2014). For example, inflation rate rose from 7.96% in 2013 to 7.98% in 2014, 9.55% in 2015, 18.55% in 2016 and 15.37% in 2017 before falling to 11.4% in 2018. Despite this fall, the inflation rate has never reached a single-digit regardless of policies formulated to arrest the situation.

Olasunkanmi (2013) opined that, regardless of the increase in the budget deficit, Nigeria has been experiencing underperformance and falling below expectation in terms of economic performance. Ogunsakin and Olalere (2017) stressed that the budget deficit contributed more to price volatility and economic instability in Nigeria rather than contributing significantly to the economy. Anayochukwu (2012) stated that the widening gap between government expenditure and revenue contributed to Nigeria's economic instability, low investment, and poor macroeconomic performance. However, the investigation into previous studies indicates that findings have been inclusive and inconsistent, especially in Nigeria and other developing countries. In the studies of Oladipo and Akinbobola (2011), Anayochukwu (2012), Orji, Onyeze and Edeh (2014) negative relationship was established between budget deficit and inflation, while Olasunkanmi and Yetunde (2016), Nwakoby *et al.,* (2016); Ogunsakin and Olalere (2017) found a positive effect of budget deficit on inflation. However, the sources of inconsistency largely result from a difference in the study period, method of data analysis, and the underlying economic conditions with significant macroeconomic instability. This paper is a major innovation and contribution to previous studies by adopting more recent data and dynamic techniques. Thus, this study aimed to investigate the inflationary effect of the budget deficit in Nigeria using up-to-date data from 1986 to 2019. Following the current chapter that introduces the study, the remaining part of the paper was arranged chronologically into the literature review, methodology, empirical findings, and conclusion.

2. LITERATURE REVIEW

Inflation is the increase in the price of goods and services in the economy. Nwakoby *et al.* (2016) viewed inflation as the persistent rise in the general price level resulting from an increase in demand for goods and services without a proportionate supply of goods and services. According to Khumalo (2013), inflation arises when money grows faster than the economy's growth, which is caused by a high supply of money by the Central Bank than the demand for money in the economy. The management of inflation is vested in the hand of the Central Bank through their ability to formulate policies that will regulate the financial markets and control the quantity of money in the economy (Khumalo, 2013).

Budget deficit results from an increase in government spending or the government's inability to increase the country's revenue base. According to Ayogueze and Anidiobu (2017), a budget deficit is when tax incomes are not enough to finance rising government expenditure. Maji and Achegbulu (2010) opined that a budget deficit is a gap between budget receipts and budget expenditures financed by cash balance and debt. The budget deficit is caused by economic factors such as rising unemployment, poor economic performance, fall in tax revenue, rising foreign debt, declining external reserves, and rising infrastructural expenditure (Jadhav & Neelankavil, 2011; Murwirapachenam, Maredza & Choga, 2013; Ogunsakin & Olalere, 2017).

Saeidi and Valizadeh (2012) asserted that an increased budget deficit would lead to high inflation through more borrowing and a rise in the money supply. According to Khumalo (2013), Leeper (1991), the dominance of fiscal policy will result in deficit financing leading to inflationary pressure in the economy through high borrowing. Also, a tight monetary policy will initially produce low inflation but will later lead to the issue of debt instruments due to a fall in revenue, thereby leading increase in inflation level (Nwakoby, *et al.*, 2016; Ogunsakin & Olalere, 2017). Akcay, Alper and Ozmucur (1996); Kaur (2018) stated that an increase in deficit could lead to inflationary pressure either through an increase in a net credit which drives up borrowing rate and crowding out private investment, or the development of new assets by the financial sector.

Empirically, many studies have been conducted in both developed and developing countries. Focusing on Finland, Sweden, and Japan, Bassetto and Butters (2010) found that fiscal deficit did not induce inflation. In Zimbabwe, Makochekanwa (2011) adopted the Johansen Co-integration technique and established that monetization of the budget deficit is inflation stimulating. Also, the granger causality result of Oladipo and Akinbobola (2011) indicated a causality between budget deficit and inflation. Awe and Olalere (2012) discovered that budget deficit influenced inflation by adopting a vector error correction mechanism.

Anayochukwu (2012), investigating the causal relationship between inflation and fiscal deficits in Nigeria, found that fiscal deficit/GDP caused inflation. Jayara-

man and Chen (2013) focused on four Pacific Island countries using panel econometrics and found a positive effect of budget deficits on inflation. Lin and Chu (2013) found a strong effect of budget deficit on inflation in high inflation countries. Alfrin (2013) suggested that fiscal deficit positively affected inflation using the ordinary least square technique. In South Africa, Khumalo (2013) adopted the Vector Auto-regression technique and revealed that budget deficits positively contributed to the inflation rate. Orji *et al.* (2014) indicated fiscal deficit caused inflation in Nigeria based on data from 1970 to 2010. The empirical study of Inam (2014) revealed the long-run relationship between budget deficit and inflation in Nigeria. Based on data from 1975 to 2012, Bakare, Adesanya and Bolarinwa (2014) found that budget deficit and money supply had a significant effect on inflation in Nigeria. The work of Samirkaş (2014), through the adoption of the Johansen co-integration test, showed that budget deficits had no long-run relationship with inflation in Turkey.

Fakher (2016) also found that the budget deficit significantly affected inflation in China, Japan, Korea, India, Taiwan, and Singapore from 1993 to 2013. Olasunkanmi and Yetunde (2016) established bi-directional causality between fiscal deficit and inflation from 1981 to 2014 in Nigeria. Aslam and Lebbe (2016) regression results indicated that fiscal deficit positively influenced inflation in Sri Lanka. Nwakoby *et al.* (2016) investigated the long-run relationship between fiscal deficit and inflation and found a long-run relationship between fiscal deficit and inflation in Nigeria. Ogunsakin and Olalere (2017) looked into the relationship between budget deficit and inflation in South Africa and Nigeria and it was revealed that budget deficit had unidirectional causality with inflation in South Africa during bi-directional causality between budget deficit and inflation in Nigeria. Bulawayo *et al.* (2018) showed through Auto-Regressive Distributed Lag technique in Zambia that budget deficit significant effect inflation only in the short run. By focusing on India's economy, Kaur (2018) revealed a long-run relationship and causal relationship between fiscal deficit and inflation between 1970 and 2015.

3. METHODOLOGY

3.1. Research Design

This study was based on a quantitative research design to investigate the inflationary effect of the budget deficit in Nigeria. The data are time series in nature from 1986 to 2019. Data were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (2019). In this study, the budget deficit is represented as budget deficit as a percentage of gross domestic. Inflationary pressure is captured with the annual inflation rate. Government total debt represents the means of financing the budget deficit. Gross domestic product captured the economic size, while the exchange rate measured the value of the naira concerning the dollar.

3.2. Model Specification

This work was pinned on the Fiscal Theory of the Price Level (FTPL), which emphasizes the role of fiscal and monetary policy in determining inflation. The theory asserts that inflation is determined by only government debt and fiscal policy alone, while monetary policy plays an indirect role. The theory highlights the role of employing borrowing in funding budget deficits on inflation. Sargent and Wallace (1981) argued that the inflation rate relies on monetary and fiscal policy stance management. Under the monetarist stance, the budget gap will cause inflation because seigniorage revenues are essential in ensuring that government does not default. However, Leeper (1991), Sims (1994), and Woodford (1994, 1995) stated that the inflation level is determined by fiscal variables such as government debt and present and future revenue.

However, the estimation of the effect of budget deficit on inflation rate is modeled in line with Nwakoby, *et al.*, (2016), wherein inflation was modeled as a function of fiscal deficit, money supply, gross domestic product, and exchange rate depreciation with minor modification. Thus, the model for this study is given as follows:

$$INF = f(BDGDP, GTD, RGDP, EXCH) \tag{1}$$

The linear function of the above model is given as

$$LINF = \beta_0 + \beta_1 BDGDP + \beta_3 LGTD + \beta_3 LRGDP + \beta_4 LEXCH + \mu \tag{2}$$

where:

LINF = Log of Inflation Rate

BDGDP = Budget Deficit as a percentage of gross domestic product

LGTD = Lo of Government Total Debt

LRGDP = Log of Real Gross Domestic Product

LEXCH = Log of Exchange Rate

β_0 = Constant Term

$\beta_1 - \beta_4$ = Parameters of the estimated variables

μ = Error Tem

3.3. Data Estimation Techniques

Estimating the relationship between inflation and budget deficit requires testing the stationarity of the time-series data. This is because macroeconomic data may contain unit roots, mainly stochastic trends. The stationarity of data is significant in establishing a relationship among time series data because using non-stationary data may invalidate economic results. For this purpose, Augmented Dickey-Fuller and Phillips-Peron Unit Root Tests were conducted to determine the stationarity and order of integration of the data series.

The outcome of the stationarity test revealed that the data series are integration of level (budget deficit as a percentage of gross domestic product) and first difference (log of inflation, log of government total debt, log of real gross domestic product and

log of exchange rate) which prompted the estimation of both short and long run relationship using Autoregressive Distributed Lag-Bound Testing Approach. Pesaran and Shin (1999); Pesaran, Shin and Smith (2001) developed the ARDL technique to investigate the relationship between data series with a combination of level and first difference or purely first difference. This technique, according to Narayan (2005), Jalil and Ma (2008) Gujarati (1995), Pesaran and Shin (1999), is suitable for estimating data with a small sample size, correcting for the problem of serial correlation and endogeneity among data series. Since the data series are a combination of level and first difference order of integration, thus estimation of the long-run relationship among the variables is necessary as thereby may be long term movement among the time series data. For this purpose, the Bound Co-integration technique was employed to ascertain the long-run relationship between budget deficit and inflation which takes the form of

$$\Delta LINF_t = \alpha_{01} + \beta_1 LINF_{t-1} + \beta_2 BDGDP_{t-1} + \beta_3 LGTD_{t-1} + \beta_4 LRGDP_{t-1} + \beta_5 LEXCH_{t-1} + \sum_{i=1}^{q} \alpha 1 LINF_{t-1} + \sum_{i=1}^{q} \alpha 2 BDGDP_{t-1} + \sum_{i=1}^{q} \alpha 3 LGTD_{t-1} + \sum_{i=1}^{q} \alpha LRGDP_{t-1} + \sum_{i=1}^{q} \alpha 5 LEXCH_{t-1} + \varepsilon_1 \quad (3)$$

Where LINF, BDGD, LGTD, LRGDP, and LEXCH are the study variables, are the first difference, and ε is the error term. Under the above equation, the null hypothesis is that no co-integration or long-run relationship exists among the variables, while the alternative hypothesis is that a co-integration or long-run relationship exists among the variables.

After discovering the long-run relationship among the variables, the short-run, and long-run relationship was estimated wherein the dependent variable converged at equilibrium and corrected against disequilibrium. This requires the estimation of the short and long-run coefficients of the independent variables, namely budget deficit, total government debt, real gross domestic product, and exchange rate on the inflation rate, using an error correction model base on the Autoregressive Distributed Lag estimation procedure. The short-run (Error Correction Model) and long-run coefficients take the following form, respectively:

The short run coefficient adopting the ECM-ARDL short run approach is given as:

$$\Delta LINF_t = \alpha_0 + \sum_{i=I}^{p} \lambda_1 \Delta LINF_{t-1} + \sum_{i=I}^{p} \lambda_2 \Delta BDGDP_{t-1} + \sum_{i=I}^{p} \lambda_3 \Delta LGTD_{t-1} + \sum_{i=I}^{p} \lambda_4 \Delta LRGDP_{t-1} + \sum_{i=I}^{p} \lambda_5 \Delta LEXCH_{t-1} + \phi ECT_{t-1} + \mu_t \quad (4)$$

From equation 4, λ the coefficients relating to the short-run dynamics of the convergence to equilibrium, D represents the differencing of the variables, *ECT*t-1 is the error correction term resulting from the estimated long-run equilibrium relationship, and f is the coefficient 1denoting the speed of adjustment to long-run equilibrium when there is a shock in the system.

$$\Delta LINF_t = \alpha_{01} + \sum_{i=I}^{p} \Theta_1 LINF_{t-1} + \sum_{i=I}^{p} \Theta_2 LBDGDP_{t-1} + \sum_{i=I}^{p} \Theta_3 LGDP_{t-1} + \sum_{i=I}^{p} \Theta_4 LRGDP_{t-1} + \sum_{i=I}^{p} \Theta_5 LEXCH_{t-1} + e_t \quad (5)$$

Where $\Theta_1 - \Theta_5$ represents the parameters of the variables. e = Error Term.

4. EMPIRICAL FINDINGS

This section performed the Augmented Dickey-Fuller Unit root test and lag selection criteria on the data series. The bound co-integration technique was adopted for long-run relationship estimation. At the same time, the Autoregressive Distributed Lag technique was used to estimate the model's short and long-run coefficients. Finally, the diagnostic and stability test concludes the section.

4.1. Unit Root Test

Analyzing a robust result using time series data requires that the data are stationarity. However, macroeconomic data may contain a unit root, mainly involving a stochastic trend. The stationary of data is of significance in establishing relationships among time series data because the use of non-stationary data may invalidate the result. For this purpose, Augmented Dickey-Fuller Unit and Phillips-Peron unit root tests are conducted to determine the stationarity and order of integration of the data sires and presented in Table 1.

Table 1: Summary of Augmented Dickey-Fuller and Phillips-Peron Unit Root Tests

Augmented Dickey-Fuller			Phillips-Peron		
Series	**t-Statistic**	**Prob.**	**t-Statistic**	**Prob.**	**Level of Integration**
LINF	-4.368149	0.0016	-4.367087	0.0016**	I(0)
BDGDP	-4.290109	0.0020	-3.282804	0.0242**	I(0)
LGTD	-4.266306	0.0022	-4.266306	0.0022**	I(1)
LRGDP	-3.114411	0.0358	-3.114411	0.0358**	I(1)
LEXCH	-5.655159	0.0001	-5.662130	0.0001**	I(1)

notes: I(0) = Stationary at Level; I(1) = Stationary at First Difference, ** significance at 5%
Source: Researcher's Computation, 2021

The result reported in Table 1 shows that budget deficit as a percentage of gross domestic product is stationary at the level while the log of inflation, log of total government debt, log of real gross domestic product, and log of exchange rate are not stationary at level. However, the log of inflation, log of total government debt, log of real gross domestic product and log of exchange rate become stationary when tested at the first difference, which implies that the variables are integrated at order one. Since the variables are integrated at the level and first difference, the Autoregressive Distributed Lag technique was preferable and employed (Pesaran & Shin, 1991; Pesaran *et al.*, 2001).

4.2. Lag Selection Criteria

However, before estimating the long-run relationship of the model, it is essential to determine the optimum with which the model will be estimated to ensure that appropriate lags are selected to avoid the problem of degree of freedom (Wooldridge, 2013; 1995; Gujarati, 1995). For this purpose, the study uses the Akaike information criterion represented in Table 2.

Table 2: Lag Selection Criteria

Lag	LogL	AIC	SC	HQ
0	-199.3549	13.69033	13.97057	13.77998
1	1.789744	2.680684	4.642360	3.308241
2	65.17835	0.854777	4.497890*	2.020240
3	123.9651	-0.664338*	4.660213	1.039032*

Source: Researcher's Computation, 2020 (Note: * indicates lag order selected by the criterion. AIC: Akaike information criterion. SC: Schwarz information criterion. HQ: Hannan-Quinn information criterion)

The result of the selected lag for the study is parented in Table 2. The result indicates that the optimal lag for the study according to Akaike Information Criterion is lag 3 which is used to estimate the ARDL model.

4.3. Co-integration Test Result

Estimating the long-run relationship among the variables is necessary when data are stationary, thereby maybe long-term movement among the time series data. Thus, the study employed the Bound Co-integration technique to ascertain the long run relationship among the focus variables and presented in Table 3.

Table 3: Bound Co-integration Test

Test Statistic	Value	K
F-statistic	17.95222**	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
5%	2.62	3.79

notes: ** significance at 5%
Source: Researcher's Computation, 2021

The result presented in Table 3 shows that the estimated F-statistic value of 17.95222 is greater than the lower bound critical value of 2.62 at 5%. Thus, it is concluded that there is a long-run equilibrium relationship between the log of the inflation rate, budget deficit as a percentage of gross domestic product, log of total government debt, log of real gross domestic product, and log of the exchange rate. This

result conformed to the findings of Nwakoby *et al.* (2016), Ogunsakin and Olalere (2017), and Kaur (2018) but is not in line with the result of Samirkas (2014), Bulawayo *et al.* (2018).

4.4. Autoregressive Distributed Lag Model Result

Table 4: Short Run Error Correction Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BDGDP)	0.057408	0.007501	7.653800	0.0000**
D(BDGDP(-1))	-0.039886	0.012772	-3.123020	0.0070**
D(LGTD)	0.797576	0.355538	2.243297	0.0404**
D(LRGDP)	-7.805844	2.351579	-3.319406	0.0047**
D(LRGDP(-1))	12.855429	6.307919	2.037983	0.0596
D(LRGDP(-2))	-3.660180	2.498035	-1.465223	0.1635
D(LEXCH)	-2.830820	0.189195	-14.962475	0.0000**
ECT(-1)	-0.950131	0.075236	-12.628658	0.0000**

notes: ** significance at 5%
Source: Researcher's Computation, 2021

Table 4 presents the short-run result of the ARDL model. The Error Correction Term (ECT(-1)), which measures the model's speed of adjustment, shows a coefficient value of -0.950131 which is significant at a 5% conforming shot run relationship among the variables. This implies that the model converges from disequilibrium to equilibrium state at a speed of 95% annually. Furthermore, the result shows that budget deficit as a percentage of gross domestic product has a positive effect on the current inflation rate but a negative and significant effect at lag one. Similarly, the log of total government debt positively affects the inflation rate in the short run. Furthermore, it is found that the real gross domestic product log has a mixed effect on the log inflation rate in the short run, as reported in Table 4. Finally, the log of the exchange rate is found to exert a negative effect on the log of the inflation rate in the short run.

Table 5: Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BDGDP	0.130517	0.029331	4.449795	0.0005**
LGTD	0.839439	0.391551	2.143883	0.0488**
LRGDP	5.026444	0.681845	7.371830	0.0000**
LEXCH	-0.090050	0.406524	-0.221513	0.8277
C	-44.038211	6.752443	-6.521819	0.0000**

** *significance at 5%*
Source: Researcher's Computation, 2021

The result of the log run coefficients is presented in Table 5. It is found that budget deficit as a percentage of gross domestic product has a positive effect on the inflation rate in Nigeria, which implies that a 1% increase in the budget deficit will lead to a 13% increase in the inflation rate in Nigeria. This implies that widening the budget deficit through an increase in government borrowing will increase the inflation rate in Nigeria.

Similarly, the log of total government debt affects the log of inflation rate with a coefficient of 0.839439, which indicates that a 1% increase in government total debt will lead to an 83% increase in the inflation rate in Nigeria. The implication is that the issue of government debt instruments in funding a large deficit in the national budget will lead to an increase in the economy's inflation rate. Finally, the real gross domestic product log has a positive effect on the inflation rate, which implies that an increase in the real gross domestic product will lead to an increase in the inflation rate in Nigeria.

Table 6: Diagnostics Results

Diagnostics test	Observed value	P-value (Chi-square)
Normality Test (Jarque-Bera)	0.489624	0.7829
Breusch-Godfrey LM test for serial correlation	2.828692	0.0926
Heteroskedasticity Test: Breusch-Pagan-Godfrey	13.41216	0.4944
Ramsey RESET Test	3.045710	0.0702

Source: Researcher's Computation, 2020

Diagnostics and residual stability are tested using Jarque-Bera Normality Test, the Breusch-Godfrey LM test for serial correlation, Breusch-Pagan-Godfrey for Heteroskedasticity, and Ramsey Reset Test for stability. The individual result report in Table 6 indicates that the residual is normally distributed, has no serial correlation, free from Heteroskedasticity, and the model is rightly specified.

5. CONCLUSION

The need to cater to increasing government responsibilities in the modern day has increased expenditure and spending without a proportionate increase in government revenue, mostly in developing countries. This results in a budget deficit which must be financed through different means. However, while budget deficit mainly occurred due to the need to promote economic growth, financing may affect a country's price stability objective. By estimating dynamic long and short-run coefficients, this study investigated the inflationary effects of budget deficits in Nigeria.

The study revealed that the widening budget deficit in Nigeria produced an increase in inflation in the long run but a mixed effect in the short run. This implies that an increase in fiscal deficit financed through the issue of government debt

instruments will have an undesirable effect on the price stability objective. The results corroborate the empirical findings of Sargent and Wallace (1981), Fischer *et al.* (2002), Sill (2005), Nguyen (2015), Nwakoby *et al.* (2016), Ogunsakin and Olalere (2017), who establish a positive relationship between budget deficit and inflation. Thus, the government needs to work assiduously and diligently in ensuring balance in the national budget. This can be achieved by cutting frivolous spending, curbing the menace of corruption by strengthening government institutions and increasing the revenue base of the economy through diversification. Government anti-corruption war should be extended to every parastatals and state to ensure that finance obtained is used for growth-inducing purposes rather than for inflation-inducing personal gain. Finally, a large proportion of debt obtained should be directed towards financing capital expenditure that can support the economy's growth.

REFERENCES

Akcay, O.C., Alper, C.E. and Ozmucur, S. *"Budget deficit, money supply and inflation: Evidence from low and high frequency data for Turkey"*. Bogazici University, Department of Economic, (1996).

Alfrin, S. *"Fiscal deficits and inflation: the case of Bangladesh"*. Chief Economists Unit (CEU) Bangladesh, Working paper (WP). 1303, (2013): 1-31

Anayochukwu, O.B. *"Fiscal deficits and inflation in Nigeria: the causality approach"*. International Journal of Scientific & Technology Research, 1(8), (2012): 6 - 12

Aslam, A.L.M. and Lebbe, S.M.M. *"Impact of fiscal deficit on inflation in Sri Lanka: An econometric time series analysis"*. International Letters of Social and Humanistic Sciences, 70, (2016): 8-13

Aslam, A.L.M. *"Budget deficit and economic growth in Sri Lanka: An econometric dynamic analysis"*. World Scientific News, 46, (2016): 176 - 188

Awe, A.A. and Olalere, S.S. *"The nexus between budget deficit and inflation in the Nigerian economy (1980 - 2009)"*. Research Journal of Finance and Accounting, 3(10), (2012): 78-92

Ayogueze, N.F. and Anidiobu, G.A. Assessment of impact of government budget deficits on unemployment rate in Nigeria. Journal of Economics and Finance, 8(6), (2017): 18-26

Bakare, I.A.O. Adesanya, O.A. and Bolarinwa, S.A. *"Empirical investigation between budget deficit, inflation and money supply in Nigeria"*. European Journal of Business and Social Sciences, 2(12), (2014): 120-134.

Bassetto, M. and Butters. R.A. *"What is the relationship between large deficits and inflation in industrialized countries?"* Economic Perspectives, 3, (2010): 83-100

Bulawayo, M., Chibwe, F. and Seshamani, V. *"The impact of budget deficits on inflation in Zambia"*. Journal of Economics and Development Studies, 6(2), (2018): 13-23

Eminer, F. *"The impact of budget deficit on economic growth in North Cyprus"*. West East Institute International Academic Conference on Impact of Budget Deficit, North Nicosia, NC. (2015), 228 - 235

Fakher, H. *"The empirical relationship between fiscal deficits and inflation (Case study: Selected Asian Economies)"*. Iranian Economic Review, 20(4), (2016): 551-579

Fischer, S., Sahay, R. and Végh, C.A. *"Modern hyper and high inflations"*. Journal of Economic Literature, 40(3), (2002): 837-880

Gujarati, D. *Basic econometrics.* (3rd ed.). McGraw-Hill International Educational Editions, New York, (1995).

Inam, U. *"Budget deficit and inflation in Nigeria: An empirical analysis (1970-2010)"*. Journal of Economics and Sustainable Development, 5(2), (2014): 26-32

Ishaq, T. and Mohsin, H.M. *"Deficits and inflation: Are monetary and financial institutions worthy to consider or not?"* Borsa Istanbul Review, 15(3), (2015): 180-191

Jadhav, A. and Neelankavil, J. *"Deficit financing: Causes,* consequences and potential cures". Journal of Applied Business and Economics, 12(6), (2011): 83 - 99

Jalil, A. and Ma, Y. *"Financial development and economic growth: Time series evidence from Pakistan and China."* Journal of Economics Cooperation, 29(2), (2008): 29-68

Kaur, G. *"The relationship between fiscal deficit and inflation in INDIA: A co-integration analysis". Journal of Business Thought,* 8, (2018): 24 - 42

Khumalo, J. "Budget deficit-inflation nexus in South Africa: VAR Analysis". Mediterranean Journal of Social Sciences, 4(14), (2013): 725 - 734

Leeper, E.M. "Equilibria under 'active' and 'passive' monetary and fiscal policies". *Journal of Monetary Economics,* 27(1), (1991): 129-147

Makochekanwa, A. "Impact of budget deficit on inflation in Zimbabwe". *The Economic Research Guardian,* 1(2), (2011): 49-59

Murwirapachenam, C. Maredza, A. and Choga, I. "The economic determinants of budget deficits in South Africa". Mediterranean Journal of Social Sciences, 4(13), (2013): 561 - 569

Narayan, P.K. "The saving and investment nexus for China: Evidence from cointegration tests". Applied Economics, 37(17), (2005): 1979-1990

Nguyen, V.B. "Effects of fiscal deficit and money M2 supply on inflation: Evidence from selected economies of Asia". Journal of Economics, *Finance and Administrative Science,* 20, (2015): 49-53

Nwakoby, C.N.I. Okaro, C.S.O. and Nwude, A.C. "Fiscal deficit and inflation in an oil rich exporting country: evidence from Nigeria". Journal of Policy and Development Studies, 10(*3*), (2016): 140 - 155

Ogunsakin, S. and Olalere, S.S. "Nexus between inflation and budget deficit: A comparative study between Nigeria and South Africa". International Journal of Economics, *Commerce and Management,* 5(8), (2017): 98 - 112

Oladipo, S.O. and Akinbobola, T.O. Budget deficit and inflation in Nigeria: A causal relationship. *Journal of Emerging Trends in Economics and Management Sciences,* 2(1), (2011): 1-8

Olasunkanmi, I.S. *"Fiscal policy and sectoral output in Nigeria: A multivariate co integration approach". Journal of Economics and Development Studies,* 1(2), (2013): 26-34

Olasunkanmi, O.I. and Yetunde, S.H. *"Does fiscal deficit granger cause impulsiveness in inflation rate in Nigeria"?. Acta Universitatis Danubius,* 12(4), (2016): 208 - 216

Orji, U.O., Onyeze, C. N. & Edeh, L. *"Inflation dynamics and fiscal deficit in Nigeria: Examination of causal relationship". Journal of Economics and Finance,* 5(2), (2014): 79-86

Pesaran, M. and Shin, Y. *"An autoregressive distributed lag modelling approach to co-integration analysis". In Strom,* S. (Eds). Paper Presented at Econometrics and Economics Theory in the 20th Century: The Ragnar Frisch Centennial Symposium, Cambridge University Press, Cambridge (1999).

Pesaran, M., Shin, Y. and Smith, R. *"Bounds testing approaches to the analysis of level relationships". Journal of Applied Econometrics, 16*(3), (2001): 289-326

Samirka M. *"Effects of budget deficits on inflation,* economic growth and interest rates: Applications of Turkey in 1980-2013 period". *Journal of Economics and Development Studies,* 2(4), (2014): 203-210

Sargent, T. & Wallace, N. "Some unpleasant monetarist arithmetic". Quarterly Review, *Federal Reserve Bank of Minneapolis,* 5, (1981): 1-17

Şen, H., Sa ba , . And Keskin, A. *"Bütçe Açıkları ve Açık Finansman Politikası,* Teori ve Türkiye Uygulaması." Ankara: Orion Kitabevi, (2007).

Sharp, A.M. and Flenniken, P.S. "Budget deficits: A major cause of inflation?" Public Finance Review, 6(1), (1978): 115-127

Sill, K. "Do Budget deficits cause inflation?" Business Review, *Federal Reserve Bank of Philadelphia*, Issue Q3, (2005): 26-33

Sims, C.A. *"A simple model for study of the determination of the price level and the interaction of monetary and fiscal policy". Economic Theory*, 4(3), (1994): 381-399

Tekin-Koru, A. and Ozmen, E. "*Budget deficits,* money growth and inflation: The Turkish evidence". *Applied Economics*, 35, (2003): 591-596

Temple, J. *"Inflation and growth: Stories short and tall". Journal of Economic Surveys*, 14, (2000): 395-426

Woodford, M. *"Monetary policy and price level determinacy in a cash-in-advance economy". Economic Theory*, 4(3), (1994): 345-380

Woodford, M. *"Price-level determinacy without control of a monetary aggregate". Carnegie-Rochester Conference Series on Public Policy*, 43, (1995): 1-46

Wooldridge, J. *"Introductory econometrics: A modern approach with annual data". (5th ed.).* South-Western, (2013).