Universal Journal of Accounting and Finance 9(6): 1510-1523, 2021 http://www.hrpub.org
DOI: 10.13189/ujaf.2021.090628

Fiscal Deficit, Economic Uncertainty and Macroeconomic Performance in Nigeria

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Received September 7, 2021; Revised October 20, 2021; Accepted November 11, 2021

Cite This Paper in the following Citation Styles

(a): *[1] Peter Ubi, Bassey Ebi, Enang Udah , "Fiscal Deficit, Economic Uncertainty and Macroeconomic Performance in Nigeria," Universal Journal of Accounting and Finance, Vol. 9, No. 6, pp. 1510-1523, 2021. DOI: 10.13189/ujaf.2021.090628.*

(b): *Peter Ubi, Bassey Ebi, Enang Udah (2021). Fiscal Deficit, Economic Uncertainty and Macroeconomic Performance in Nigeria. Universal Journal of Accounting and Finance, 9(6), 1510-1523. DOI: 10.13189/ujaf.2021.090628.*

Abstract Fiscal deficit, economic uncertainty and macroeconomic performance have gained currency in recent public discussion among policy analysts and economists. The scale of the debates raises a question of whether or not economic uncertainty dampens the ability of deficit financing to achieve its desired objectives. This paper investigated the impact of budget deficit in an uncertain economic environment on gross domestic product (GDP) and inflation. Measures of macroeconomic performance are real GDP and inflation. Other explanatory variables include credit to financial sector (proxy for financial sector development), fiscal deficit, capital and recurrent expenditure. The paper measures economic uncertainty using exchange rate volatility through GARCH model and adopted the Auto-Regressive Distributed Lag (ARDL) bounds methodology. This approach allows the splitting of the variables into expected and unexpected variations which could be estimated using VAR. The results showed that economic uncertainty has an adverse effect on economic performance by creating passive expectation about the future. Uncertainty erodes the confidence of both foreign and domestic investors about future cash-flows and the stability of the economic environment as well as the safety of investors' assets. This impact would be visible in the existence of substantial sunk cost. The results approximate the submission that conducive economic environment along with appropriate mix of fiscal policy promotes real economic activity and stabilizes the price level. Improved economic conditions builds confidence in economic agents to invest in real productive activity, enables fiscal deficit to achieve its desired objective of stimulating economic activity and signals great optimism in the financial transaction system leading to improved funding of the private sector.

Keywords Fiscal Deficit, Economic Uncertainty, ARDL and Macroeconomic Performance

JEL: E60

1. Introduction

An outstanding feature of Nigeria's fiscal operation in the previous periods had been the persistent and rising budget deficits. This development has gained currency in recent public discuss, opinion leaders, policy analysts, policy makers and economists. Disquiets about the sources, degree and administration of budget deficits may generate more inquiry if consideration is given to the argument presented in public debates that these fiscal imbalances may not achieve the desired objective of improved macroeconomic performance within the environment of economic uncertainty.

These budgetary concerns are largely due to the country's reliance on earnings from crude oil, restricted capacity for tax expansion due to dwindling per capita income, slow pace in the diversification of the economy due to deficit in the quality and quantity of

complementary and support infrastructure as well as low domestic savings. Earnings from crude oil exports, a major source of funding annual budget, depend largely on the vagaries of international price of crude oil and the manipulations of the cartel (OPEC), and the international price of crude oil is exogenous to the vagaries of domestic market. Yet internal demand for new developmental expenditure as well as government desire to close the infrastructure deficit gap keeps expanding and government requires more resources to satisfy these demands.

Available data showed that government expenditure in the past decade has consistently exceeded government revenue. Government expenditure increased from ₦3,240.82 billion in 2008 to ₦7,813.80 billion in 2018, while revenue increased marginally from ₦3,193.44 billion in 2008 to ₦4,185.64 billion in 2018 but could not keep pace with required expenditure resulting in deficit financing. For instance, the ratio of budget deficit to GDP grew from 0.12 per cent in 2008 to 2.84 per cent in 2018.CBN [10]

In addition, available data indicated that in 2015 as a result of decline in oil revenue the gross federally collected revenue fell by 31.3 per cent when compared to 2014 figure, and constituted 7.3 per cent of GDP. The overall deficit stood at ₦2,157.7 billion or 2.3 per cent of gross domestic product. In 2018 the overall deficit was ₦3,628.10 billion or 2.84 per cent of GDP. Evidence suggests that these fiscal imbalances, remarkably, in the last 10 years, had been funded largely from domestic financial market and foreign loans CBN [10]. Consequently, monetary and fiscal policies have been vastly expansionary with direct implications on macroeconomic variables.

There are various sources of financing government deficit with its attendant consequences. Budget deficits could be financed from domestic financial markets or foreign borrowing. Fiscal expansion financed from domestic financial markets may increase domestic interest rate and crowd in or crowd out domestic investment and may be inflationary [12,6,]. Fiscal imbalances financed from external borrowing may adversely affect the current account. Foreign borrowing may lead to appreciation or depreciation of the domestic currency as a result of inflow of foreign exchange, which may affect the functioning of exports leading to the worsening of the current account and could lead to debt crisis [12].

The impact of fiscal deficit also depends on the absorptive capacity of the economy. For example if the deficit is absorbed in public investment or capital project, it may, in the long run increase the country's stock of net assets and complement private capital investments and hence long run economic growth and prosperity. Increased investment on education and health may promote long term productivity of labour and employment.

Economic uncertainty is closely linked to issues of volatility and stability of macroeconomic and monetary variables and performs important function in the achievement of the objectives of deficit financing. The objective of fiscal authorities is usually to work in tandem with the monetary authorities to maintain the growth rate of GDP, generate employment, ensure price stability, exchange rate management and reduce adverse changes in the external account etc. Fiscal authorities attempt to achieve these objectives by allocating capital and recurrent expenditure in the annual budget to various sectors. Economic uncertainty may distort the achievement of these objectives. Understanding the implication of budget deficit in an uncertain economic environment and incorporating it into the model of budget deficit, in the opinion of the paper, would enhance the effectiveness or appropriateness of budget deficit. The question of whether or not economic uncertainty dampens the ability of deficit financing to achieve its desired objectives is worthy of investigation. This paper is structured into four subdivisions. Subdivision two presents the objective of study. Therefore, this study examines the impact of budget deficit in an uncertain economic environment on gross domestic product (GDP) in Nigeria. The literature and theoretical issues are discussed in subdivision three while subdivision four articulates the model, data sources and discussion of findings. The paper concludes in section five with the concluding remarks.

2. Literature Review

2.1. Empirical Literature

Excess literature exists on the link between fiscal deficits and macroeconomic variables. We shall highlight a few of them here that are closely related to the objective of this paper. Barro, [6] among others focus on relationship between public expenditure and private investment in order to provide an empirical inquiry into the crowding-out and crowding-in phenomenon. Aschauer, [4] argued that higher public investment complement private investment by raising the yield of private capital and eventually leads to crowding-in of private investment.

Kearney and Monadjemi, [19] and Smyth and Hsing [30] submitted that budget deficit may trigger adverse changes in the external account. In the Mundell-Fleming framework, a rise in fiscal deficit put pressure on interest rate, resulting in inflow of foreign capital, appreciation of the local currency (this cause exports to be expensive) and deficit in current account. Bransen [8], Hakkio [18], Stoke [31] and others focused their efforts on the link between fiscal deficit and exchange rate and resolved that fiscal deficits may appreciate or depreciate the exchange depending on the comparative significance of wealth effect and assets substitution.

The proposition that fiscal deficit gives rise to growth in trade deficit is a product of Mundell-Fleming model, which is an augmentation of the IS-LM model [16, 23]. According to the Mundell-Fleming framework, increased government deficit results in concomitant increased in trade deficit via increased end user spending. Budget deficit enhances after-tax income and financial wealth of consumers, which in turn promotes imports. This enhanced demand for imported goods leads to depreciation in exchange rate and the outcome on net import is moderate. Continued budget deficits increase domestic interest rate; this appreciates the exchange rate and leads to increased capital inflow and a higher decrease in net exports.

Mansur [21] demonstrated the link between budgetary development and selected macroeconomic variables using analytical framework. The results from the twelve oil exporting countries showed a strong relationship among fiscal policy variables of interest and credit creation, inflation and the balance of payments. Specifically, the simulation experiment revealed interesting results. Expansion in government fiscal operations funded from both domestic financial credit and foreign borrowing adversely affect the current account in the Philippines. In a related paper, Olopoenia [24] investigated the impact of government spending on balance of payments in Nigeria. The study showed that financing of government fiscal operation from foreign budget balance and monetization of foreign exchange earnings would increase inflation. The paper advocated the need for fiscal authorities in Nigeria to finance expenditure through credit creation in order to stabilize inflation and external balance. Ubi and Inyang [27] carried out an appraisal of fiscal deficit relative to some identified macroeconomic performance pointers in Nigeria such as unemployment, inflation, per capita income, economic growth (GDP) and Balance of payments (BOP). It was ascertained that Nigeria's fiscal deficit has aided positively to the increase of per capita income, economic growth and stabilization of Balance of payments. Fiscal deficit did not ease unemployment and inflation rates for the period under study. Hence, the study encouraged massive investment as well as expenditure on capital plans as this may probably have the usefulness of improving output, easing inflation and stabilizing the balance of payments.

In a similar study, Bartoli [7] investigated the effect of rapid expansion in government expenditure on current account in ten Latin American countries. The results of the structural equations model showed that budget deficits financed from inflation tax and other sources worsen current account balance via it adverse impact on local savings. The paper advocated the need to control fiscal deficit.

Hakkio [18] paper provided interesting and revealing direct and indirect effect of fiscal deficit on exchange rates. Hakkio [18] probed the direct impact within the framework of crowding-out effect. The major channel as argued by him is the loanable funds market. Lower budget deficit financing reduces the demand for financial assets in the domestic market, which drops interest rates and makes foreign portfolio desirable and as a result leads to depreciation of exchange rate. The indirect impacts are transmitted via three channels: lower anticipated inflation, lesser foreign exchange risk and the expectation that domestic assets will yield higher returns because of low inflation.

The link between budget deficit and inflation has been explored by various authors in the literature. Miller [22] had opined that budget deficit is inflationary irrespective of the sources of financing the deficit. Miller [22] argued that the Central Bank might be constraint into monetary accommodation of the deficit as put forward by Sargent and Wallace [28] or may adopt non-monetary accommodation, whatever the approach; expansionary fiscal operation is inflationary via crowding out. Abizadeh et al. [1] provided further insight on the nexus between budget deficit and inflation. Their paper brought to the fore the subject of causality in the budget deficit-inflation argument.

Egwaikhide [13] investigated the effect of fiscal deficit on the Nigeria's current account balance utilizing time series data, 1973 to 1993. The paper constructed a macroeconomic model that captures the variables of interest. The result strongly showed evidence of the impact of fiscal deficit on current account performance in Nigeria within the interval of study. The simulation experiment showed that budget deficit finance through bank credit or external borrowing lead to adverse effect on the current account. The concluded by recommending fiscal discipline to mitigate adverse changes in the external balance.

In our modest opinion, no study has attempted to probe into the budget deficit, economic uncertainty and macroeconomic performance nexus for Nigeria. The only exception is the Central Bank of Nigeria (CBN), [10] where a model of macroeconomic uncertainty was developed to explore the impact of uncertainty on monetary policy. The findings of the study revealed that macroeconomic uncertainty had no significant impact on inflation. Whereas inflation uncertainty does not adversely affect output, exchange rate and oil price uncertainty had a short run impact on output and this impact flattens out in the long run. This paper is attempting to bridge this research gap.

2.2. Theoretical Literature

The theoretical nexus between budget deficit, economic uncertainty and macroeconomic variables can be situated within the theoretical arguments of the Neoclassical, Keynesian and Ricardian equivalence schools of thoughts. In the framework of the neoclassical school, which

assumes full employment of resources, individuals usually plan their consumption horizon over their life cycle and in doing this; they shift their tax obligation to future generations. In this case, budget deficit increases current consumption and deplete savings. The depletion of current savings cause interest rate to rise and this may result in equilibrium in the capital markets, with the concomitant decline in private investment.

The Keynesians School departs from this full equilibrium assumption of the Neoclassical school to argue that given certain rigidities inherent in any economy, economic resources are not always fully employed, they noted the existence of cash-constrained individuals and that total spending is very responsive to variations in after-tax income. Armed with these assumptions, the Keynesians argue that large budget deficits stimulate domestic production of goods and services via increase in aggregate demand. The increase in domestic demand makes private entrepreneurs place confidence in the future viability of the economy, which energises more investment (the crowding-in consequence of budget deficit).

Eisner [14] argued that expanded aggregate demand boosts the profit earnings of private investments at the prevailing market interest rate and that budget deficits rather than crowd-out private investments crowd-in private investment. This is because deficit may stimulate aggregate saving and investment irrespective of the high interest rate it might also create. Aschauer [4, 5] lend credence to this argument of large budget deficits leading to crowd-in of private investment. Government expenditure on infrastructure capital such as highways, airport, seaport, water schemes/ways etc are complementary to private capital and therefore, may upgrade the marginal efficiency of private capital.

The Keynesian absorption theory submits that a rise in budget deficit would stimulate aggregate demand and thus import expansion, resulting in current account deficit. Feldstein and Ecstein [15] paper submitted that the high correlation of saving and investment causes fiscal deficit and current account to exhibit constant trend. A contrary view of the Ricardian equivalence hypothesis holds that swings between taxes and fiscal deficits do not matter for the real interest rate, the magnitude of investment, or the current account.

The traditional view of government liability argues that when government cuts taxes and administers a deficit, consumers become sensitive to the higher after-tax income by increased expenditure. The alternate view, that is, the Ricardian equivalence, queries this argument. According to the Ricardian equivalence argument, consumers are open-minded and, therefore, based their expenditure not only on their current income but also on their anticipated future income. The forward-thinking consumer knows that public borrowing today means higher tariffs in the future. A tax reduction financed by public debt does not reduce the tax liability; it merely reschedules it. It therefore should not embolden the consumer to spend more.

The wide-ranging principle is that public debt is equivalent to future taxes, and if consumers are sufficiently forward-thinking, future taxes are equivalent to current taxes. Thus, funding the government by public debt is equivalent to funding it by taxes. The implication of the Ricardian equivalence is that debt-funded tax cut leaves consumption unaltered. Households save the extra after-tax income to pay the future tax burden that the tax cut implies. This increase in private saving exactly offsets the decline in public saving. National savings (the sum of private and public saving), remain the constant.

The reasoning of Ricardian equivalence does not imply that all variations in fiscal policy are immaterial. Variations in fiscal policy do not affect consumer spending if they affect present or future government procurements. For instance, consider that government cut taxes today because it strategizes to decrease government purchases in the future. If consumers understand that this tax slash does not need an increase in future taxes, he feels wealthier and increases his spending. Note that it is the decrease in government acquisitions, rather than the cutback in taxes, that fuels consumption: the declaration of a future decrease in government purchases would increase consumption today even if current taxes were unaltered, as it would suggest lesser taxes at some point in time in the future.

3. Methodology

3.1. The Model

To comprehend the effect of budget deficit on the economy within the Keynesian framework, it is essential to relate to the national accounting identities and then to the government budget constraints. National income, (Y_t) can be divided into four components of spending: consumption (C_t), domestic investment (I_t), government purchase of goods and services (G_t), and net exports of goods and services (NX_t) at period t. Algebraically presented as follows:

$$Y_t = C_t + I_t + G_t + NX_t \quad 1.1$$

Private sector budget constraint indicates that income is spent on private consumption (Cp), private savings (Sp) and on taxes (Tx). Thus, private budget constraint can be written as

$$Y_t = Cp + Sp + Tx. \quad 1.2$$

Combining these two identities yields:

$$Sp + (Tx - G_t) = I_t + NX_t \quad 1.3$$

The argument of this identity is that the sum of private and public saving must be identical to the sum of

investment and net exports. The next significant identity is that the net exports must be equal to net foreign investment (NFI_t).

$$NX_t = NFI_t \quad 1.4$$

This identity argues that the international flow of goods and services must equilibrate the international flow of funds. Swapping this identity into other identity produces:

$$Sp + (Tx - G_t) = I_t + NFI_t \quad 1.5$$

The argument of 1.5 is that national saving is the sum of both private and public saving and this is equated to the utilization of these funds: either for domestic investment or foreign investment. If fiscal authorities decide to embark on expansionary fiscal policy but revenue inflow from statutory sources is less than anticipated public expenditure, this creates budget deficit and decreases public saving. That is if G $<$ Tx, surplus budget, if G = Tx, balance budget and if G $>$ Tx, then deficit financing emerges. Government can finance the fiscal deficit from foreign reserve, seignorage, foreign borrowing or domestic financial markets. The government budget constraint following the works of Luis and Marco [20] is presented as follows:

$$\frac{X_{t+1}^g}{R_t^*} = t_t + X_t^g - g_t + \frac{M_{t+1} - M_t}{Pt} \quad 1.6$$

Where X_t^g is the sum of government income from various sources of financing the deficit, g_t is government expenditure, M_t is currency issued by government at the beginning of the period t. At a given fiscal year that $X_t^g < 0$, then the government is a net borrower.

Taking into consideration the economy-wide budget constraint, stationary equilibrium and assuming that money supply is equal to money demand ($M^s = M^d$) and $X_{t+1} = X_{t+1}^p + X_{t+1}^g$ for all t, the general budget constraint becomes:

$$\frac{X_{1+1}}{R_t^*} = y_t - c_t - g_t + X_t \quad 1.7$$

Assuming that the conditions for purchasing power parity and uncovered interest rate parity holds, it means foreign and domestic rate of interest are equal, and allowing room for the influence of macroeconomic variables. This allows us to write that:

$$\frac{M^s}{P} = M^d \left(c \frac{1}{R(1+Yx)}\right) = \beta (Y_x) \quad 1.8$$

Swapping equation 1.7 into equation 1.8 with some modifications, generalization and approximation yields:

$$Y_x = \frac{p[\, g - t + X^g \frac{(R-1)}{R}]}{M} \quad 1.9$$

Where $p[\, g - t + X^g \frac{(R-1)}{R}] \approx G_t - T$, this allows us to present equation 1.10 as follows:

$$Y_x = \alpha \frac{(Gt - T)}{M} \quad 1.10$$

Where Y_x is the vector of macroeconomic variables of interest (real GDP and inflation), α is the semi-elasticity co-efficient to be estimated.

This deficit financing has various short run and long run consequences on the economy that requires empirical inquiry to provide the magnitude and direction of causality. For instance, theoretically, deficit financing may cause national savings to decline, which results in a fall in both domestic and foreign investment. Reduced local investment over a considerable period of time would result in smaller domestic capital stock. The implication is a lower productivity and income in the short run. With less capital, the marginal product of capital increases the interest rate and the return on each capital. The short run reduction in net foreign investment reduces domestic residents holding of foreign assets. This cause's trade deficit in goods and services as the decline in net foreign investment is matched by concomitant decrease in net exports.

Although, increased domestic aggregate demand and declining capital stock in the long run may arguably be among the effect of budget deficit, which also affect the economy in other various ways. A country with huge debt is susceptible to high interest rate. In this regard, fiscal authority may decide to adopt expansionary fiscal policy and the Central Bank may decide to mop up excess liquidity or change the monetary policy rate. Either way, these policies may reduce or increase inflation in the short run. In the long run, real interest rate may remain unaltered and inflation and nominal interest rates could be high. In extreme cases, large deficit may constrain access to additional borrowed funds from creditors, and the country may be tempted to finance additional deficit via seignorage. This monetization of debt is a recipe for hyperinflation.

Friedman [17] argued that deficit can lead to inflation if the debt is monetized. Sargent and Wallace [28] collaborated this by arguing that in the long run, monetization of debt result in increased money supply and inflation. Miller [22] provided an alternative view. According to Miller [22], irrespective of sources of financing the deficit, it would be inflationary through various channels. If Central Bank does not monetize the deficit, it would nevertheless be inflationary through crowding out. Non-monetized deficits lead to prohibitive interest rates, which crowd out private investments and result in the reduction of growth rate of actual output.

Theoretical link between fiscal deficits and exchange rate (economic uncertainty variable) can be explained through the 'portfolio Crowding-Out' hypothesis. The argument of this hypothesis is that instabilities linked with budget deficit will undesirably affect important asset prices, which will energize reduction in total demand. In an open economy, this hypothesis will occur via exchange rate influencing the current account. As observed by Bundt and Solocha, [9] this emphasizes the significance of global capital movement in reaction to debt disturbances

and the linkage between fiscal deficits and exchange rate.

An extension of the monetary approach to exchange rate determination is currency substitution hypothesis. This hypothesis maintains that the global portfolio demand for currencies of developed countries is responsive to exchange rate expectations. This indicates that currency substitution open up countries to the rubrics of global financial instabilities that resonate through global money markets.

3.2. Data and Estimation Technique

The scope of this paper covers the period 1980 to 2018. All variables for analysis are extracted from Central Bank of Nigeria Statistical Bulletin 2019. Measures of macroeconomic performance are real GDP and inflation; other explanatory variables include credit to financial sector (proxy for financial development), fiscal deficit, capital and recurrent expenditure. GARCH standard deviation of real exchange rate represents economic uncertainty. The received literature has highlighted various measures of uncertainty and irreversibility depending on the nature of the data, the direction of analysis (such as aggregated or disaggregated and macro versus micro analysis) as well as the size of the economy. Aryeetey, [3], Pattillo, [25] have used various measures to quantify macroeconomic uncertainty. These include unconditional variance, standard deviation, standard deviation of residuals of Autoregressive (AR) process, conditional volatility derived from an estimated GARCH model. In all, the GARCH process as argued by Darrat and Hakim, [11]; Arize, et al. [2] appears to be a more reliable and relevant proxy for economic uncertainty. This paper therefore adopts the GARCH process as proxy for economic uncertainty.

Real exchange in most cases is a proxy to measure competitiveness of domestic economic activity. In an import dependent economy with deep infrastructure deficit couple with dependence on revenue from crude oil sales, exchange rate would not be a good approximation of a nation's competitiveness. The scenario in Nigeria indicates that movement in exchange rate are usually caused by government policy, the country's competitiveness, and real variables in the economy. Therefore, exchange rate appropriately captures economic uncertainty originating from inflation uncertainty, oscillation in the business cycle, external account and other forms of uncertainty in the economy [12].

Majority of macroeconomic time series exhibit varied characteristics and behaviour and require smoothening of the variables to avoid spurious regression. The paper adopted Augmented Dickey-Fuller and Philip Peron methods to test for unit root. The variables were integrated of different order. Real GDP (gdptr), credit to the private sector (csptr), government recurrent expenditure (gcurentr) are I(0) while fiscal deficit (defitr), economic uncertainty (econuntr) and inflation followed I(1) are stationary at first difference. Under this scenario, the standard estimation technique like the OLS loses it BLUE (Best Linear Unbiased Estimator) property, resulting in spurious regression. In addition, endogeneity is another significant concern in numerous macroeconomic relationships, such as real GDP/inflation and fiscal deficit, financial development and exchange rate because of interdependence and inertia factor. To address these concerns this paper adopted the Auto-Regressive Distributed Lag (ARDL) bounds method put forward by Pesaran et al [26]. Two important advantages of this method can be highlighted. First, it takes into account the issue of endogeneity [26]. Second, it does not need variables to be integrated of the same order and therefore estimates both the long run and short run responses of the variables included in the regression. This addresses concerns related with excluded variables and autocorrelation and ensures that estimates associated with ARDL are unbiased and efficient.

4. Results and Discussion

This paper measured economic uncertainty using exchange rate volatility through GARCH model. This approach allows the splitting of the variables into anticipated and unanticipated variations which could be appraised using VAR. This approach also enables the paper to ascertain the short run and long run impact multipliers and equally conduct historical decomposition with a view to assessing the time-varying dimensions of the major source of impact. The exchange rate variable enters the GARCH model with first difference and before fitting it into the GARCH process the paper investigated the presence of volatility clusters utilizing the Lagrange Multiplier (LM) ARCH test and serial correlation [26]. Further testing of the GARCH process showed that the residual term exhibited a white noise process. This strongly indicated that the selected model is appropriate. Applying the LM ARCH test and Ljung-Box Q-Stat on the residual, the outcome revealed that there isn't ARCH and serial correlation in the residual and the residuals are therefore white noise. These diagnostic test results provided the background to proceed to estimate the conditional variance of exchange rate using annual time series and include it in the model as a measure of economic uncertainty.

The paper adopted the Augmented Dickey Fuller and Philip Peron tests to check stationarity of the variables that enters the ARDL model. The results presented in table 1(see appendix 1) show that real GDP (gdptr), credit to the private sector (csptr), government recurrent expenditure (gcurentr) are I(0) while fiscal deficit (defitr), economic uncertainty (econuntr) and inflation followed I(1) are stationary at first difference. Based on Schwartz

Bayesian Criterion (SBC) lag lengths of 2 is selected for all the variables that entered the model. The reliability of the estimates were done using serial correlation LM test, ARCH LM test for conditional heteroscedasticity, Jarque-Bera (JB) test for normality and Ramsey Reset test for model specification were applied. The test results presented indicate that the regression residuals are well specified and model specification is appropriate. The results of the CUSUMSQ in figure 1 and CUSUMSQ in figure 2 (in appendix1) which indicate the stability of parameters confirmed that the parameters are indeed stable. The adjusted R^2 for GDP equation and inflation equation are 99 and 70 per cent respectively. The model explains 99 per cent of variations of aggregate GDP and 70 per cent of inflation around their mean. The paper also used Bounds Test and F-stat to confirm the presence of long run relationship in the fitted ARDL model. The result indicated a long run relationship at 5 per cent level of significance.

The ARDL results are interesting and revealing and are presented in tables 2 and 3. The results showed that variables of interest are significant mostly in the short run dynamic specification. In the long run, a few variables are significant with the correct *a priori* sign. The long run real GDP equation, credit to the private sector (csptr) and government capital expenditure (gcaptr) are the significant variables indicating that csptr and gcaptr have long run impact on GDP. In the short run dynamic estimation, economic uncertainty variable (ecountr), csptr, gcaptr were significant. In the inflation equation, ecountr, defitr, gcaptr and gcurentr were all statistically significant in the short run while only gcaptr was significant in the long run. Both in the GDP equation and inflation equation, the coefficients of economic uncertainty, fiscal deficit, credit to the private sector, government capital and recurrent expenditures were significant in the short run, indicating that these variables are important in explaining the behaviour of economic activity and price stability in Nigeria.

The results approximate the submission that conducive economic environment along with appropriate mix of fiscal policy promotes real economic activity and stabilizes the price level. Improved economic conditions build confidence in economic agents to invest in real productive activity, fiscal deficit achieved it desired objective of stimulating economic activity, which signals great optimism in the banking system leading to improved funding of the private sector.

Table 2. Long run and short run parameter estimates using ARDL

Dependent Variable: Gross Domestic Product (gdptr)

Long run estimates **Short run dynamic estimates**

Independent variables	Coefficient	t-statistics	Independent variables	Coefficient	t-statistics
Ecountr	-7.863	-0.698	$\Delta ecountr$	-29.755	-2.197*
Defitr	0.507	0.491	$\Delta defitr$	1.566	1.454
Gcaptr	2.960	2.094*	$\Delta gcaptr$	4.922	3.388*
Gcurentr	1.065	1.106	$\Delta gcurentr$	0.1425	1.735*
Csptr	0.039	2.375*	$\Delta csptr$	0.0565	2.209*

Note: * denotes coefficients that are statistically significant.

Table 3. Long run and short run parameter estimates using ARDL

Dependent Variable: Inflation (inflatr)

Long run estimates **Short run dynamic estimates**

Independent variable	Coefficient	t-statistics	Independent variable	Coefficient	t-statistics
Ecountr	-0.791	-0.152	$\Delta ecountr$	-17.413	-1.798*
Csptr	0.005	0.392	$\Delta csptr$	0.055	2.561*
Defitr	0.253	1.065	$\Delta defitr$	5.317	1.809*
Gcaptr	1.976	1.574*	$\Delta gcaptr$	4.929	1.928*
Gcurentr	0.639	1.120	$\Delta gcurentr$	1.153	1.970*

Note: * denotes coefficients that are statistically significant.

Economic uncertainty renders adverse effect on economic performance by creating inactive expectation about the future. The economic uncertainty variable had a negative effect both in the short run and long run. Uncertainty erodes the confidence of both foreign and domestic investors about future cash-flows and the stability of the economic environment as well as the safety of investors' assets. This impact would be more visible in the presence of large sunk cost. This constrains the objectives of fiscal expansion. To determine whether or not the impacts of uncertainty on economic performance are transient or permanent, impulse-response function was performed to identify their long run trajectory. The use of VAR becomes necessary in this regard. Thus, using VAR in variables having different orders of integration is one of the advantages of VAR as it is applicable to variables having different orders of integration within 1(0) and 1(1) as the case in this paper [29]. Given the nature of the data, it is difficult to use quarterly data which would have provided a larger time series data. The impulse response function following Cholesky Ordering presented in appendix II, which shows the response of the variables of the model to one standard deviation shock in real gross domestic product and inflation. Economic uncertainty variable gives negative response to gdptr in the short run and smoothen out from the fourth quarter to be positive. It response to inflation remained negative throughout the fifth quarters. This indicates that economic uncertainty erodes the confidence of entrepreneurs to sustain the flow of productive activities in the real sector in the short run and this confidence builds up again in the long run as government fiscal activities are expanded. Economic uncertainty, however, keeps the price level high throughout the five year time horizon.

The response of the economic uncertainty indicator to fiscal deficit is positive throughout the fifth quarters and negative to csptr and gcurentr. The results further revealed that defitr response to gdptr is negative in the first three quarters and becomes positive from the fourth quarter, while it response to inflatr is negative throughout the time horizon. The response of gcaptr to gdptr and inflatr is negative in the short run and positive in the long run. These results are revealing, it shows that expansionary fiscal policy yields the desired outcome in the long term and that capital expenditure and recurrent expenditure deepen these outcomes.

5. Conclusions

This research assessed the impact of budget deficit and economic uncertainty on macroeconomic performance in Nigeria using time series data from 1980 to 2018. Economic uncertainty was calculated via GARCH standard deviation of real exchange rate. The model developed in the light of theoretical and empirical literature was estimated using the ARDL method. The paper adopted real GDP and inflation as measures of economic performance. The results showed that deepening the financial system, reducing economic uncertainty, capital and recurrent expenditure are important factors in improving macroeconomic performance. The impulse response function shows that expansionary fiscal policy yields the desired outcome in the long term and that capital expenditure and recurrent expenditure deepen these outcomes.

A number of policy lessons can be drawn from this paper. First, to improve macroeconomic performance in the short and long term, consistent efforts are required to reduce economic uncertainty. A stable macroeconomic environment not only ensures regularity in policies in the long term, and it also offers the ambiance in which economic policies, especially fiscal or even monetary are guided by economic thoughts, instead of political coercions. Second, although the financial sector in Nigeria has undergone major reforms in recent years, credit availability is still a major constraint occasioned by distortions created partly by actions of the fiscal authorities and loan defaults partly as a result of unfriendly economic environment. In this regard, a policy mix is required apart from a strict monetary policy. This requires that the government should through fiscal policy give tax incentives to banks that advance credit facilities to small and medium scale entrepreneurs at a relatively lower interest rate. This is capable of cushioning the negative effect of the harsh operational economic environment on Nigeria and by extension, further deepens the financial sector. This may be achieved through savings mobilization and reduction of interest rate spread.

Acknowledgments

We wish to sincerely thank all the authors and acknowledge all the books that we have used to carry out this research article.

Appendix I.

Table 1. Unit Root Tests

Augmented Dickey Fuller (ADF) Phillips Peron (PP)

Variables	Intercept	Intercept & Trend	Intercept	Intercept & Trend
Csptr	-3.633*** (0.000)	-3.200** (0.002)	-2.610* (0.089)	-3.200* (0.088)
Δdeficit	-4.257*** (0.002)	-3.769** (0.007)	-3.580** (0.011)	-3.943** (0.021)
$\Delta ecountr$	-4.216*** (0.002)	-4.548*** (0.004)	-4.174*** (0.002)	-4.380*** (0.007)
$\Delta GDPtr$	-6.460*** (0.000)	-5.649*** (0.000)	-8.945*** (0.000)	-12.031*** (0.000)
$\Delta inflatr$	-5.702*** (0.000)	-5.698*** (0.000)	-7.780*** (0.000)	-8.067*** (0.000)
$\Delta gcaptr$	-5.702*** (0.000)	-5.942*** (0.000)	-5.669*** (0.000)	-6.324*** (0.000)

Note: the coefficients are significant at 1, 5 and 10 per cent level as indicated by * ** *** respectively. Numbers in brackets are the P values.

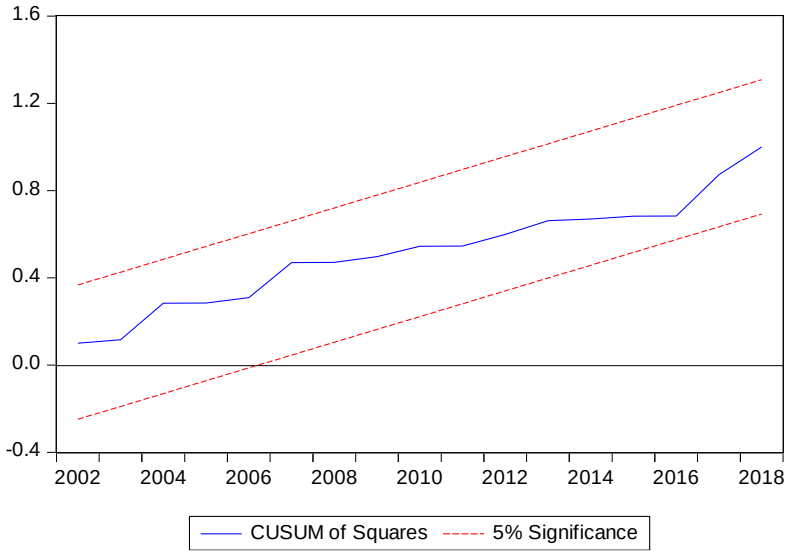


Figure 1. Stability test GDP

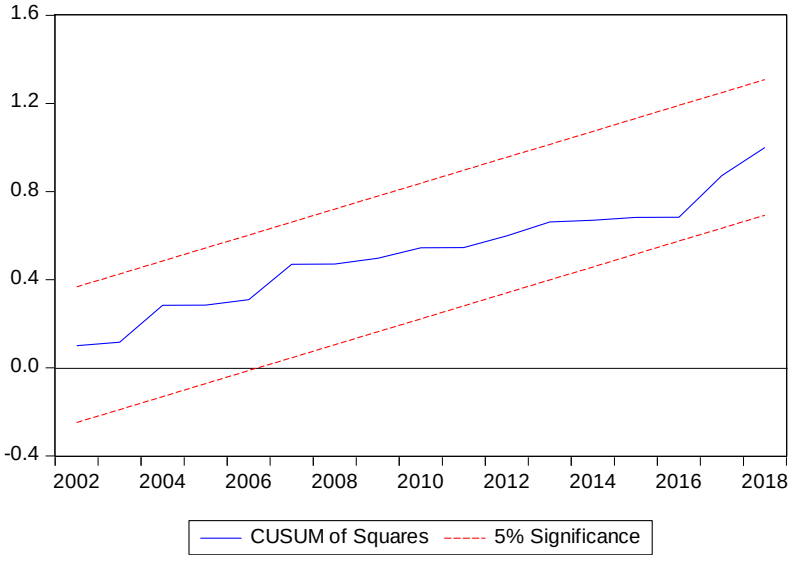


Figure 2. Stability test for Inflation

Appendix II

Response of GDPTR: Period	GDPTR	INFLATR	DEFITR	GCAPTR	EXCHTR	GCURENTR	CSPTR
1	638.9925	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	(81.1521)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
2	767.0047	351.4819	-122.0028	376.9129	-50.27549	116.9036	59.75312
	(187.002)	(173.637)	(140.424)	(122.159)	(102.965)	(116.149)	(38.1226)
3	606.5922	492.0556	-97.09070	545.0694	-8.230444	322.0356	114.3569
	(286.414)	(309.434)	(231.179)	(175.116)	(169.744)	(214.885)	(94.8318)
4	474.2105	242.0279	-12.22442	714.1306	87.97581	295.8325	248.4617
	(344.135)	(437.534)	(328.083)	(209.834)	(218.759)	(339.168)	(164.551)
5	364.3579	-54.23332	18.68435	880.0383	232.5987	314.1099	317.2205
	(391.889)	(672.764)	(730.096)	(303.566)	(239.144)	(525.778)	(230.763)

Response of INFLATR: Period	GDPTR	INFLATR	DEFITR	GCAPTR	EXCHTR	GCURENTR	CSPTR
1	-1.022400	16.49116	0.000000	0.000000	0.000000	0.000000	0.000000
	(2.96474)	(2.09438)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
2	-1.711554	8.940038	-2.518781	-3.653473	-0.880907	-1.683477	-1.266462
	(3.74033)	(4.13613)	(3.19916)	(2.89877)	(2.61632)	(2.98213)	(0.97933)
3	2.893725	-4.441528	-1.798950	-4.011283	0.175407	-3.540359	-2.479889
	(3.96335)	(4.85569)	(3.34282)	(2.43200)	(2.57420)	(3.42732)	(1.80860)
4	5.412253	-7.726932	5.859353	-2.681587	-0.963285	-4.916920	-2.450413
	(3.90472)	(6.07968)	(5.78713)	(2.66630)	(3.30776)	(4.22957)	(2.33540)
5	1.434427	-10.00671	19.61028	-6.130237	-0.224852	-6.773853	-3.019125
	(5.94490)	(10.3976)	(14.9025)	(5.06222)	(3.57658)	(5.40230)	(2.19418)

Response of DEFITR: Period	GDPTR	INFLATR	DEFITR	GCAPTR	EXCHTR	GCURENTR	CSPTR
1	-7.487595	-60.01659	116.1520	0.000000	0.000000	0.000000	0.000000
	(23.5011)	(22.2103)	(14.7513)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
2	-14.07338	-102.9677	174.9381	-84.48872	20.23915	-50.40386	-6.586001
	(48.1941)	(49.2773)	(37.6737)	(26.7480)	(22.5870)	(24.3905)	(7.70206)
3	-1.747289	-134.8389	137.4910	-91.34921	69.45562	-80.62634	-43.26924
	(69.7904)	(76.0369)	(56.2517)	(41.8638)	(41.3261)	(50.5726)	(21.9690)
4	60.07347	-104.1231	47.01863	-96.24102	68.52151	-106.8150	-92.99868
	(81.7667)	(102.758)	(73.9444)	(51.7193)	(55.0644)	(81.4127)	(39.4552)
5	87.81540	-96.86273	41.38114	-13.21162	-30.93710	-126.5933	-83.66389
	(86.9832)	(152.116)	(161.176)	(64.9705)	(59.1797)	(120.803)	(53.7713)

Table continued

Response of GCAPTR: Period	GDPTR	INFLATR	DEFITR	GCAPTR	EXCHTR	GCURENTR	CSPTR
1	-13.07087	-15.60443	2.857249	63.36951	0.000000	0.000000	0.000000
	(11.8496)	(11.5641)	(11.3873)	(8.04794)	(0.00000)	(0.00000)	(0.00000)
2	-21.89812	4.254279	3.951123	22.11177	-46.49141	-5.247719	23.74843
	(16.8847)	(18.6942)	(16.1188)	(15.0686)	(12.7551)	(12.7133)	(4.92624)
3	-34.90513	-19.00291	27.68040	24.92881	-7.988393	24.98904	26.04958
	(20.0686)	(23.3989)	(17.6141)	(14.6740)	(13.9777)	(16.4328)	(8.04668)
4	3.694253	34.35703	-24.14784	-22.52388	36.62312	12.22079	7.247097
	(22.5948)	(30.2485)	(25.4185)	(15.9666)	(16.7217)	(23.7645)	(11.2488)
5	47.82587	125.3170	-221.3150	65.09694	26.14168	13.75077	-4.154266
	(51.4683)	(63.2869)	(66.5564)	(25.2241)	(18.9889)	(28.0368)	(12.6528)

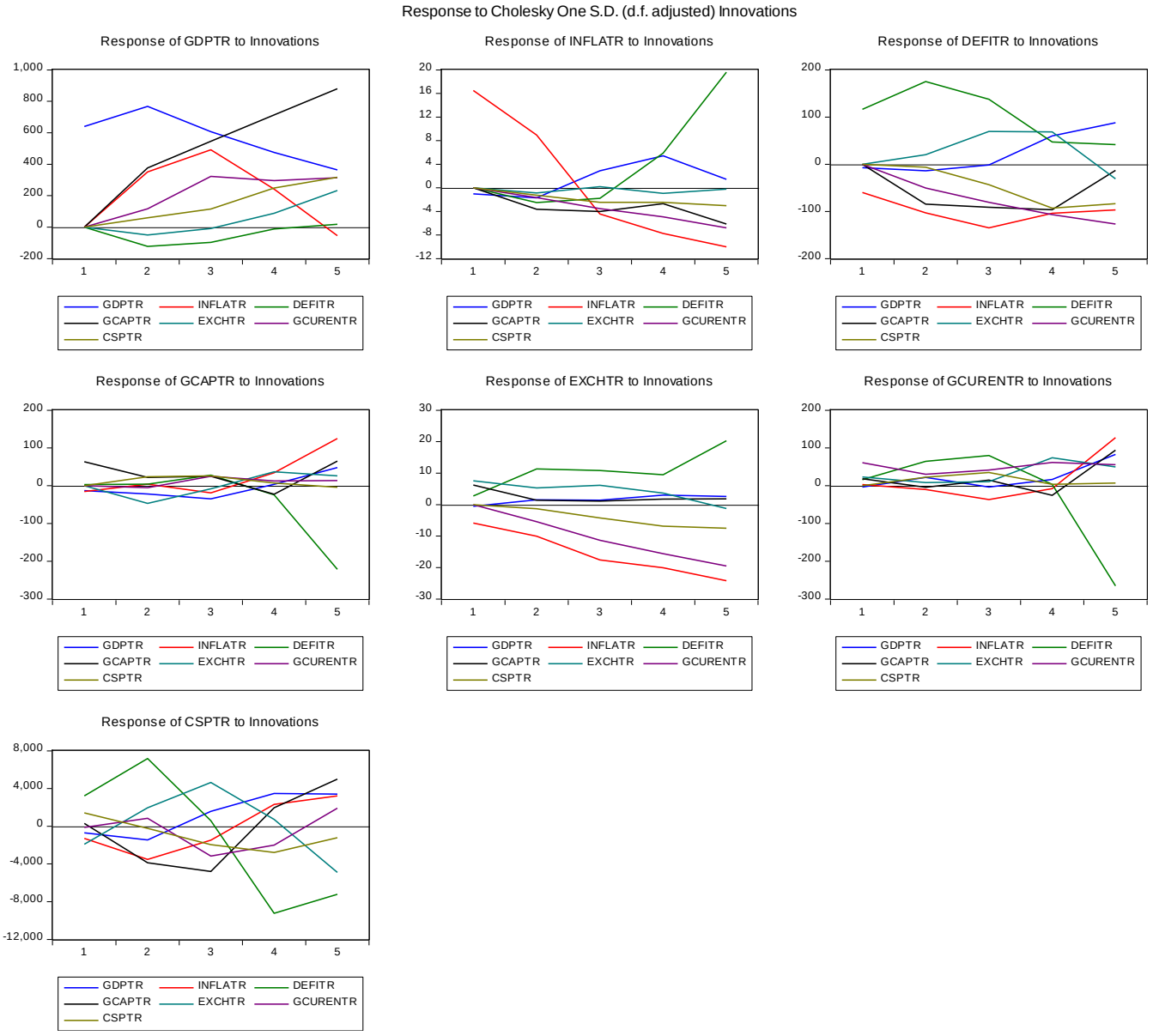
Response of EXCHTR: Period	GDPTR	INFLATR	DEFITR	GCAPTR	EXCHTR	GCURENTR	CSPTR
1	-0.534030	-5.844605	2.756877	6.222294	7.552990	0.000000	0.000000
	(2.10734)	(1.97112)	(1.79214)	(1.56994)	(0.95923)	(0.00000)	(0.00000)
2	1.536154	-10.06678	11.35548	1.356680	5.309006	-5.402864	-1.328633
	(3.84253)	(3.91672)	(2.97647)	(2.44655)	(2.19772)	(2.22884)	(0.70679)
3	1.382564	-17.61772	10.85273	1.070187	6.148253	-11.35817	-4.249177
	(6.11727)	(6.34906)	(4.60478)	(3.73655)	(3.71987)	(4.11821)	(1.75320)
4	3.052900	-20.07787	9.454999	1.744676	3.662792	-15.63070	-6.837782
	(8.30250)	(9.53175)	(6.91033)	(5.08134)	(5.45579)	(7.33820)	(3.28667)
5	2.619146	-24.21463	20.27527	1.785789	-1.234252	-19.51751	-7.479915
	(10.9926)	(15.2218)	(14.0349)	(7.12128)	(6.67079)	(11.8951)	(5.14463)

Response of GCURENTR: Period	GDPTR	INFLATR	DEFITR	GCAPTR	EXCHTR	GCURENTR	CSPTR
1	-3.280098	2.791956	15.88103	18.68397	23.25754	61.09919	0.000000
	(12.5576)	(12.5457)	(12.3774)	(11.9792)	(11.3643)	(7.75961)	(0.00000)
2	22.12190	-9.781938	64.53865	-4.159262	8.355083	30.14036	22.71756
	(19.5812)	(21.3032)	(16.9364)	(13.8650)	(12.9226)	(13.7467)	(5.00529)
3	-3.269125	-36.49394	80.17842	14.57744	10.55386	41.74042	35.25647
	(27.8427)	(31.1899)	(23.2502)	(17.7689)	(17.6288)	(20.3464)	(9.63973)
4	16.86461	-7.621366	3.511634	-25.26257	74.02720	61.39557	3.617885
	(34.1975)	(42.6917)	(34.3935)	(25.1667)	(25.3192)	(33.0729)	(14.8900)
5	82.82672	127.3750	-265.2616	94.04414	49.93808	55.69296	7.244561
	(66.5101)	(82.7611)	(78.5401)	(35.7155)	(26.5874)	(49.6202)	(21.1727)

Table continued

Response of CSPTR: Period	GDPTR	INFLATR	DEFITR	GCAPTR	EXCHTR	GCURENTR	CSPTR
1	-686.7365	-1290.218	3214.691	299.8366	-1910.461	-121.7645	1412.769
	(761.688)	(738.723)	(593.449)	(429.011)	(351.755)	(254.212)	(179.422)
2	-1451.839	-3519.707	7189.838	-3867.882	1962.928	838.0548	-210.9160
	(1853.92)	(1870.96)	(1449.50)	(961.727)	(729.869)	(774.475)	(251.004)
3	1579.667	-1481.328	596.8795	-4789.422	4633.604	-3156.256	-1947.133
	(2500.59)	(2824.25)	(2296.02)	(1951.72)	(1739.91)	(1937.93)	(786.881)
4	3483.810	2319.549	-9234.968	1969.965	738.5074	-1989.457	-2786.267
	(3048.13)	(3755.61)	(2855.09)	(1818.71)	(1883.94)	(2415.03)	(1259.26)
5	3398.176	3224.364	-7220.943	5002.344	-4901.478	1904.462	-1226.749
	(3476.86)	(5132.66)	(6036.44)	(2599.82)	(2591.91)	(2615.92)	(1406.13)

Cholesky Ordering: GDPTR INFLATR DEFITR GCAPTR EXCHTR GCURENTR CSPTR
Standard Errors: Analytic


Response to Cholesky One S.D. (d.f. adjusted) Innovations
Response of GDPTR to Innovations
Response of INFLATR to Innovations
Response of DEFITR to Innovations
Response of GCAPTR to Innovations
Response of EXCHTR to Innovations
Response of GCURENTR to Innovations
Response of CSPTR to Innovations
GDPTR
INFLATR
DEFITR
GCAPTR
EXCHTR
GCURENTR
CSPTR

REFERENCES

[1] Abizadeh, S and Youseti, M., "Political parties, deficits and the rate of inflation: A comparative studies," *Journal of Social and Economic Studies*, vol. 11, pp. 393-411, 1986.

[2] Arize, A. C, Osang, T. and Slohje, D. J., "Exchange rate volatility and foreign trade: Evidence from thirteen LDC'S," Journal of Business and Economic Statistics, vol.18, pp. 10 – 17, 2000.

[3] Aryeetey, E, "Determinant of private investment under uncertainty in Ghana," World development, vol. 22, pp.1211 –m 1221, 1994

[4] Aschauer, D. A., "Is Public expenditure productive"? *Journal of Monetary Economics*, vol. 23, pp.177-200, 1989a.

[5] Aschaeur, D. A., "Does public expenditure crowd out private Capital"? *Journal of Monetary Economics*, vol. 24, pp. 174-188, 1989b.

[6] Barro, Robert J., "Government spending in a simple Model of Endogenous Growth," *Journal of Political Economy*, vol. 28, pp. 103-125, 1990.

[7] Bartoli, G, "Fiscal expansion and external account imbalances," in Fiscal policy stabilization and growth in Developing countries, 4th ed, IMF, 1989, pp. 58 – 90.

[8] Bransen, William H., "Causes of appreciation and volatility of Dollar in the U.S. Dollar," Recent Developments Outlook, Policy options, pp. 94 - 121, 1985.

[9] Bundt, T. and Solocha, A., "Debt, deficits and the Dollar" *Journal of Policy Modelling,* vol. 10, no. 4, pp. 581-600, 1988.

[10] CBN, "Annual Report of the Central Bank of Nigeria," 2018, www.cbn.org (accessed August 15, 2021)

[11] Darrat, A. F. and Hakim, S. R., "Exchange rate Volatility and Trade Flows in an emerging market: Some evidence from GARCH process," Savings and Development journal, vol. 5, pp. 287 – 302, 2000.

[12] Easterly, W. and Schmidt-Hebbel, "Fiscal Deficit and Macroeconomic Performance in Developing Countries," *World Bank Research Observer*, vol. 8, pp. 211-237, 1993.

[13] Egwaikhide, F. O., "Effect of budget deficit on trade balance in Nigeria: A simulation Exercise", *African Development Review*, vol. 11, pp. 265-89, 1999.

[14] Eisner, R., "Budget deficit: Rhetoric and Reality", *Journal of Economic Perspectives*, vol. 3, pp. 73-93, 1989.

[15] Feldstein, M. and Ecstein, O., "Domestic savings and international capital flows", *Economic Journal*, vol. 7, pp. 314 - 329, 1980.

[16] Fleming, J. M., "Domestic financial policies under fixed and under flexible exchange rates," *International Monetary Fund Staff Papers*, vol. 10, pp. 369-300, 1962.

[17] Friedman, M., "The role of monetary policy. American Economic Review, vol. 58, pp. 1-17, 1968.

[18] Hakkio, Craig S., "The effect of budget deficit reduction on exchange rate", Economic

[19] Review (Federal Reserve Bank of Kansas City), vol. 8, pp. 23-38, 1996.

[20] Kearney, C. and Monadjemi, M., "Fiscal policy and current account performance: International evidence on the Twin Deficits", *Journal of Macroeconomics*, vol. 12, pp. 197-220, 1990.

[21] Luis, C and Marco, E. T., "Fiscal deficit and inflation", *IMF Working Paper*, 2003.

[22] Mansur, Ahsan H., "Effect of budget deficit on current account balance: The case of the Philippines", in Fiscal Policy Stabilization and Growth in Developing Countries, 4th ed, IMF, 1989, pp. 309-345.

[23] Miller, S. M., "Dynamic monetary and fiscal policy and the government budget constraint: A Growth of Equilibrium", *Journal of Macroeconomics*, vol. 2, pp. 199-212, 1980.

[24] Mundell, R. A., "Capital mobility and stabilization policy under fixed and flexible exchange rates", *Canadian Journal of Economic Review*, vol. 29, pp. 475-485, 1963.

[25] Olopoenia, R. A., "Some observations on the macroeconomic implications of the budget in an oil exporting developing economy," *The Journal of Economic and Social Studies*, vol. 3, pp. 285-296, 1986.

[26] Patillo, C., "Investment, Uncertainty and Irreversibility in Ghana," staff papers – International Monetary Fund, pp. 522 – 553, 1998.

[27] Pesaran, M. H., Y. Shin and R. J. Smith, "Bounds Testing Approaches to the Analysis of long-run Relationships", *Journal of Applied Econometrics*, vol. 16, pp. 289-326, 2001.

[28] Ubi, P and Inyang John "Fiscal Deficit and Nigeria's Economic Development" International Journal of Economics, Commerce and Management, vol. 6, no. 5, pp. 137 – 150, 2018.

[29] Sargent T. and Wallace N., "Some unpleasant Monetary Arithmetic, *Quarterly Review, Federal Reserve Bank of Minneapolis*, vol. 5, pp. 1-18, 1981.

[30] Sim, C., "Macroeconomics and Reality," Econometria, vol. 48, pp. 1-49, 1980.

[31] Smyth, D. and Hsing, Y., "In Search of an Optimal Debt Ratio for Economic Growth" *International Economic Journal*, vol. 14, pp. 51-59, 1995.

[32] Stoke, J., "The Government deficit and exchange rate", *Review of International Economics*, vol. 7, no. 4, pp. 753-63, 1990.