Fiscal Imbalances, Economic Growth and Macroeconomic Stability in Nigeria.

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ABSTRACT

The study was undertaken to assess the interaction between fiscal imbalances, economic growth and macroeconomic stability in Nigeria, with emphasis on its impact on output growth, economic stability as well as its joint effect on the two frontline dependent variables – economic growth and macroeconomic stability. Amongst other techniques of analysis, the Dynamic Ordinary Least Squares (DOLS) was deployed for its features as one of the very unique cointegration techniques with special properties to take care of data-related issues, outliers and other encumbrances in the course of analysis. Employing data from secondary sources [CBN – Statistical Bulletin and World Bank's World Development Indicators, all various years] to proximate and test fiscal imbalance, economic growth, macroeconomic stability and other controls, analyses were carried out, results obtained and findings, amongst others, was that fiscal imbalances in the Nigerian economy would stifle economic growth and deter macroeconomic stability. Factors like increasing debt volume, current account imbalances, high consumption expenditures, low total revenue, jumping inflation rate and exchange rate and very low productivity were seen as fuelling the outcome. The study recommended that tackling adequate adjustments in those macroeconomic indicators, which will close fiscal imbalance gaps as much as possible, may reverse the outcome, ceteris paribus.

Keywords: Fiscal Imbalances, Economic Growth, Macroeconomic Stability, Nigeria.

INTRODUCTION

The primary focus of macroeconomics is to align an effective fiscal policy aimed at achieving macroeconomic targets and ensuring stability in the economy (Karagoz and Keskin, 2016). The implementation of this policy is towards achieving desired and targeted levels of stability in macroeconomic variables like inflation, employment rate, GDP, interest rate, stock market prices, exchange rate and external debt. In achieving these targets, government applies different fiscal policy tools in terms of revenue (tax and non-tax) and expenditures, which have over the years created fiscal imbalance as expenditures overshoot revenue in several economies. The problem of fiscal imbalance was specifically exacerbated after the oil crises in 1970s and it affected both the developed and developing economies of the world (Karagoz and Keskin, 2016; Samotu, 2020).

Following this turn of event, the increase in fiscal imbalance became a global phenomenon in the last few decades. In line with the difficult economic situation in petroleum production in 1970 that put the global economies in confusion, the world economy was plunged into the problem of fiscal imbalance. Those economies that opted for borrowing to finance budget deficits increased their debt to gross domestic product ratio above one hundred per cent (Karagoz and Keskin 2016). In recent times, some developed countries displayed high level of fiscal deficit. For example, Lopez-Claros (2014) observed that out of one hundred and thirty countries with ninety-seven per cent of the global GDP, a total of one hundred and twenty countries including United Kingdom and United States of America experienced high budget deficit in 2009. Most of these countries still maintained the deficit till 2016. The case of Nigeria was not exceptional.

Nigeria has experienced series of fiscal imbalances due to debt overhang, fiscal mismanagement, and specifically the vulnerability of her economy to exogenous shocks such as fluctuations in the global oil price. Aside these, the consistent fiscal imbalance is traceable to increase in recurrent expenditures of the government, for example, that of the national assembly spending from 1999 when the civilian regime began. Meanwhile, it has been established in the macroeconomic literature that an economy on persistent fiscal deficit is prone to economic challenges like inflation (Awe and Olalere 2012 and Okpara and Odionye 2013). This is very plausible, particularly when such an economy finances deficit with seigniorage, that is, money creation. This assertion is very relevant and true in Nigeria resulting from political instability, limited access to external borrowing and less efficient tax collection (Catao and Terrones, 2005).

Maintaining a sound fiscal policy action is required for maintaining economic growth and upholding macroeconomic stability that will foster sustainable national development (Effiong and Okijie, 2021). Fiscal imbalance (which is often seen from the perspective of a negative difference between total government revenue and government expenditure in a year) can pose serious issues to the management of the overall economy at any point in time. In augmenting these fiscal imbalances, the government applies several policies towards financing them. Such financing can be done through domestic and foreign borrowing, and the banking system (including the central bank, deposit money banks, nonbank public, and privatization proceeds). It is expected that if these policy tools are properly deployed, there will be infrastructural and human capital development, reduction in unemployment and recovery from depression/recession which in turn improves average standard of living of the populace and consequently promotes economic growth. However, when this improvement is not more than 3 percent of the GDP which is the international bench mark, then it can adversely affect interest rate, inflation rate, create deficit balance of payment, and deter economic growth (Anyanwu, 1997).

Furthermore, other problems may arise in the economy while trying to finance fiscal imbalances. These problems may include, but not limited to reduction in national savings which would have been used for private investment, that is, it crowds out private domestic investment. This will lead to reduction in capital stock and national output. This speaks to the fact that government should only borrow when there is recession or high unemployment, or when there is a rise in private sector savings. It can also be detrimental to development when a larger percentage of deficit budget is used to finance current Consumption.

Moreover, empirical findings have been conducted to ascertain the influence of deficit financing on inflationary pressures in the economy (example; Taghavi, 2000; Onwioduokit, 2005; Kwon, McFarlane & Robinson, 2006; Bildirici & Ersin, 2007; Oladipo and Akinbobola, 2011; Ogunmuyiwa, 2011; Ahmed, Sheikh & Tariq, 2012; Hamrmon, 2012; Ezeabasili, Mojekwu, and Herbert, 2012; Anayochukwu, 2012; Awe and Shina, 2012; Folorunso and Falade, 2013; Akitoby, Komatsuzaki & Binder, 2014; Bilan & Roman, 2014; Aimola & Odhiambo, 2021). Relevant literature has also recognized the fact that inflation is a means of public debt amortization (Caron, 2007). The findings from the referenced studies have been quite diverse depending on the time frame of the study, the country/region involved, as well as the technique of analysis employed. Given this divergence, this paper also aims at ascertaining the influence of fiscal imbalance on economic growth and macroeconomic stability in Nigeria between 1981 to 2020. Specifically, the study will examine the effect of fiscal imbalances on economic growth as well as macroeconomic stability separately, investigate its joint impact on the economic growth and macroeconomic stability and also attempt to examine if there is a reverse effect of economic growth and macroeconomic stability on fiscal imbalances, as well as its interaction with public debt stock, *ceteris paribus*.

LITERATURE REVIEW

Theoretical Literature

The theoretical literature centres on the rationale for public borrowing to finance budget deficit and the theoretical linkages between fiscal and monetary policy on inflation. The rationale for public borrowing will

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be examined based on the fiscal-constraint perspective; while for the fiscal policy and monetary policy perspectives on inflation, the Monetarist and the Keynesian views will be painstakingly examined. We would also take a cursory look at the import of Ricardian equivalence hypothesis and its Neo-classical counterpart on budget deficit-inflationary pressure analysis.

The Fiscal-Constraint Gap (Budget Constraint) Perspective

As jagged out in the neoclassical growth theory that the marginal product of capital is bound to be higher in developing countries where the ratio of capital to labour is lower but lower in developed countries where there is high capital to labour ratio, it is more profitable for the surplus funds of the developed countries to be invested in the developing countries where they will yield higher returns. This points to the fact that such flows of resources form the developed to developing countries exhibits some form of symbiotic association – the poor developing countries will "utilize such funds to finance their investment" while the rich developed countries will "generate high rates of returns by investing in poor countries as opposed to investing in their own countries" (Tiruneh, 2004).

It follows that for economic efficiency in resource management to ensue, "capital should flow from the relatively less-profitable *First World* to the relatively more-profitable *Third World*" (Nigel, 1995). The fundamental idea here is that "since poor countries are suffering from financial deficiency and in contrast, there is a surplus in developed countries, capital should move from the latter to the former" (Tiruneh, 2004).

$$R_t + (D_t - D_{t-1}) = G_t + rD_{t-1} - - - - - - - - - - - - - - - - - (2.1)$$

Where R_t is the government revenue, D_t and D_{t-1} is respectively, the current and past debt, and r is the interest paid on accumulated debt. Simplifying further, and making D_t the subject,

$$D_t = G_t - R_t + D_{t-1} + rD_{t-1} - - - - - - - - - - - - - - - - - (2.2)$$

The fiscal-constraint debt accumulation is given as:

$$D_t = G_t - R_t + (1+r)D_{t-1} - - - - - - - - - - - - - - - - - (2.33)$$

Where (G_t -R_t) captures the budget deficit (the difference between government planned expenditure and planned revenue), and (1+r)D_{t-1} captures the present value of the debt.

It follows from Equation (2.3) that if government expenditure or interest on debt increases, there will be a concomitant increase in debt. Meanwhile, an increase in government revenue will possibly reduce the need for borrowing and eventually the debt (Waheed, 2007).

The Monetarist View of Inflation

The popular accession that "inflation is a monetary phenomenon and its control lies within the confines of monetary authorities" (Aimola and Odhiambo, 2021) relate to the monetarist view of inflation. As pointed out by Friedman (1968), the short run effect of an expansionary monetary policy revolves around increasing both the real output and the economy's general price level. However, the long run effect is experienced in terms of only a rise in the general price level in the economy.

However, studies including Maku and Adelowokan (2013), have refuted such a monetarist's postulation and

assert that fiscal policy variables also influence price stability. It follows here that inflation is not only a monetary phenomenon, but also a fiscal issue. Other studies also advocate for a coordination between monetary and fiscal policy for achieving price stability (see Tolulope and Ajilore, 2013). Regarding debt financing, studies have established that monetary and fiscal policy interactions are of immense importance in establishing the nexus between public debt and inflation (see Sargent and Wallace, 1981; Leeper, 1991; and Woodford, 1994; 1996; and 2001). It can therefore be postulated that controlling inflation in an economy does not only entails controlling the supply of money (Aimola and Odhiambo, 2021).

The Keynesian View of Inflation (The Fiscal Policy Perspective)

In the Keynesian view, "an expansionary fiscal policy which entails increasing debt or reduction of taxes, would affect aggregate demand in the short run by increasing disposable income and generating positive wealth effects that may put pressures on the price level" (Elmendorf and Mankiw, 1999; Wickens, 2008). Studies including (Sargent and Wallace, 1981; Woodford, 2001) have indicated that "fiscal and monetary policy coordination is of great importance in establishing linkages between public debt and inflation". It follows from here that the control of inflationary pressures in the economy is not strictly dependent on the control of money supply. As pointed out by Woodford (1998), "the source of change in price level can be explained by the Fiscal Theory of Inflation through the direct wealth effect of public debt policy on private consumption expenditures or increased private spending.

As identified in the Fiscal Theory of Price Level (FTPL), irrespective of monetary policy, fiscal policy can influence inflation in a dominant way (Aimola and Odhiambo, 2021). As attempts by the governments to redeem their debt without increasing tax and printing money, "they pay off the outstanding debt by issuing fresh debt. The resulting effect of rolling over debt is not default, but inflation" (Sims, 2016). Therefore, persistent and growing borrowing by government would eventually lead to inflation regardless of policies pursued by the monetary authority. The Fiscal Theory of Price Level takes the wealth effect of public debt into consideration as an additional channel in which fiscal policy can influence inflation (Kwon, McFarlane and Robinson, 2006). Based on the theory, increase in public debt adds to household wealth and as a result lead to pressure on the price level. Therefore, the non-Ricardians recently argued that under an active fiscal era, changes in government debt will necessitate changes or fluctuations in inflation even if monetary policy is exogenous (Aimola and Odhiambo, 2021).

Ricardian Equivalence Hypothesis

The theory propounded by David Ricardo and expounded by Barro (1989), argued that budget deficit had no effect on private consumption, interest rate and as a result has no effect on economic growth, that is, fiscal deficit neither stimulate nor hinders economic growth. The theory stressed that fiscal deficit often leads to reduction in government saving, which will prompt an increase in desired private savings, hence, leaving desired national saving and investment unchanged. The reason is because the deficit finance would be addressed by borrowing and the borrowed fund be repaid by a future rise in tax burden. Barro (1989) opined that budget deficits and taxation have equivalent effects on the economy. The theory argued that individuals maintain permanent consumption pattern over their life span and since the fund borrowed would be paid by future tax rise, the expansionary fiscal policy would not affect individual's present consumptions as they would be saving ahead of the unavoidable future tax rise. This theory presupposes that deficit financing may not necessarily change the status quo. Thus, borrowing to finance gaps may leave the economy in a worse condition, especially when the borrowed funds are not channelled appropriately.

Neo-classical

The Neoclassical argument opined that fiscal deficit is dampens economic growth. The model stressed the argument on the grounds that since fiscal deficit would be financed by increased government borrowings, it

will trigger a rise in interest rate and that will crowd out private investment and overall deter economic growth and macroeconomic stability. According to the theory, fiscal deficit implies that governments is spending more than what it is receiving and this will lead to reduction in government saving or increase in dissaving. The result of this would be an adverse effect on the economic growth, especially if the reduction in government saving is not fully offset by an increase in private saving, thereby leading to a fall in the overall saving rate (Ravinthirakumaran and Kasavarajah, 2016). The theory presupposes that every individual is focused and plans their lifecycle consumption and that in full employment. Three features are outstanding in the theory. First, the consumption of any individual is determined as an explanation to an inter-temporal optimization problem, where borrowing and lending both are permitted at market rate of interest. Second, every individual has finite lifespan. Third, clearing market at all time. Moreover, fiscal deficit stimulates aggregate demand thereby creating a high level of competition in demand for loan between private investors and government which will result in high interest rate thereby discouraging private investments, private savings, and current account deficits, increase inflation rate and lastly slows the performance rate of the economy through resources crowding out investment (Momodu and Monogbe, 2017).

Empirical Literature

Empiricism on the inflation-deficit relationship has been examined by different scholars on country and regional bases. The hypothesis that "public borrowing has prospective adverse effects on investment, inflation and growth in large European economies" has been examined by Taghavi (2000). In his study, data for the period 1970 – 1997 were analysed using hybrid cointegration and vector autoregressive models. From the result, it was observed that public debt has negative effects on investments but exerts an unclear-cut effect on economic growth. Also, a long run inflationary effect of debt was also recorded while its short-run impact was unclear.

Going by the idea of Sargent and Wallace (1981), that "an increase in public borrowing typically metamorphose into high prices in highly indebted countries", Kwon, McFarlane and Robinson (2006) conducted a panel data analysis to empirically examine the nexus between public debt and inflation in 71 countries for the period 1963 to 2004. The study utilized the *ordinary least squares regression* and VAR model. From the result, it was reported that "inflation-debt nexus holds strongly in indebted developing countries, weakly in other developing countries, but generally not in developed countries" (Kwon, *et al.*, 2006). Meanwhile, under flexible exchange rate regimes, such relationship tends to be weak. In addition, the study recognized the potency of institutional and structural factors in the inflation-debt nexus.

The economic linkages between inflation and domestic debt were examined by Bildirici and Ersin (2007), using panel data from 9 countries for the period 1980 to 2004. The study employed the *Fully Modified Ordinary Least Squares* (FMOLS) estimation and the *Vector Error Correction* (VEC) model. The findings indicate that in countries with high inflation, the inflationary process was fuelled by rising domestic debt costs. As a result of the rising debt-to-GDP ratios, "these countries were forced to borrow at higher interest rates and with shorter maturities". Momodu and Monogbe (2017); Goitsemodimo, Yohane and Priviledge (2018) and Adegboyo, Efuntade and Efuntade (2020) corroborated Bildirici and Ersin (2007).

A study conducted by Ahmed, Sheikh and Tariq (2012) supported the view that inflation is a major issue in many countries, especially in the developing world. Using data for the period 1972 to 2009, the study analysed the effect of internal borrowing on Pakistan's inflation using the *ordinary least squares* (OLS) technique. The observed findings suggest that the amount of domestic debt and the financing of domestic debt have a substantial positive impact on the rate of inflation. The authors contended that the floating debt, i.e., treasury bills, account for a substantial proportion of overall domestic debt, and the interest rate, i.e., debt servicing, are the primary factors for raising the level of inflation.

In a similar way, the impact of public debt on inflation, economic growth and interest rate of Kenya was examined by Hamrmon (2012) using time series data for the period 1996 to 2011. The study adopted the *descriptive research design and simple linear regression models*. Findings of the study revealed that a weak positive relationship exists between public debt and inflation. Meanwhile, the nexus between public debt and economic growth along with that of debt and interest rate were negative.

In a study by Akitoby, Komatsuzaki and Binder (2014), the influence of mild or high inflation on the public debt of G-7 countries was being investigated. Given the result from simulations, it was discovered that if the price level declines to zero for a period of five years, the average net debt would increase by about five percentage points over the next five years. However, "raising inflation to 6% for the next five years would cause the average net debt to decline by approximately eleven percent under the 'Full Fisher Effect' and approximately 14% under the 'Partial Fisher Effect'" (Bon, 2015). The implication of their findings is that in advanced countries, "inflation could in a way help reduce the public debt" (Akitoby *et al*., 2014).

Also, Bilan and Roman (2014) analysed the precise nexus between public debt and inflation for twenty-two developed and developing countries. The study revealed that in some countries, increase in public debt is followed by a corresponding increase in the price level, and a decline in the growth of public debt is associated with declining price level. The study concluded that although stimulating unfounded public borrowing may perhaps precipitate inflation, such a link proved to be relatively problematic to recognize in the practice, especially for presently developed markets.

Bon (2015) examined the public debt-inflation nexus for sixty developing countries of Asia, Latin America, and Africa. The study was conducted using data that spans through 1990 to 2014, and the data were analysed using difference panel GGM Arellano-Bond approach. Based on the findings, a significant positive effect of public debt on inflation was realized while on the contrary, a significant negative effect of inflation on public debt was also observed.

Other empirical works to be reviewed include Hilscher *et al*. (2014) in the United States; Lopes *et al*. (2014) in 52 African economies; Nastansky *et al*. (2014) in Germany; and Nguyen (2015) for Asian economies. Recently, Aimola and Odhiambo (2021) examined "the impact of public debt on Ghana's inflation rate of inflation". The study covered the period 1983 – 2018. The technique of analysis follows the autoregressive distributed lag (ARDL) bounds test approach to cointegration and the error correction. The study revealed a positive and significant effect of public debt on inflation along with a stable long-run relationship.

In Nigeria, a study on the effect of fiscal deficit on inflation was being carried out by Ezeabasili, Mojekwu, and Herbert (2012). The study was conducted using time series data for the period 1970-2006. The technique of analysis was the cointegration approach. From the result, it was discovered that fiscal deficit exerted a positive, but insignificant, effect on the rate of inflation in Nigeria. Similar evidence was reported by Anayochukwu (2012), while attempting to examine if fiscal deficit triggers inflation in Nigeria. Also, Awe and Shina (2012) conducted a study to investigate the linkages between fiscal deficit and inflation in Nigeria. The study covered the period of 1980 to 2009. With the Vector Error Correction Mechanism in use, it was reported that a significant unidirectional causation flows from budget deficit to inflationary pressures in the Nigerian economy. Still on the direction of causality between budget deficit and inflation in Nigeria.

Onwioduokit (2005) similarly employed the use of VECM in his empirical enquiry. Results from the study showed that fiscal deficits cause inflation while inflation does not necessarily lead to fiscal deficits in Nigeria. His study concluded that finding appropriate ways in financing budget deficits is what should be of utmost concern to policy makers. Oladipo and Akinbobola (2011) also reported that causality flows from budget deficit to inflation in Nigeria; however, Ogunmuyiwa (2011) reported that causality flows from inflation to budget deficit in Nigeria. A study from Folorunso and Falade (2013) reported a two-way

causality flowing between budget deficit and inflation. That is, budget deficit causes inflation and inflation, in turn, causes budget deficit.

SUMMARY OF LITERATURE REVIEWED

A close perusal of the literature has revealed that previous studies concentrated on ascertaining the effect of public debt (domestic and foreign) as a deficit financing option on inflation rate in Nigeria. In this study, we shall go beyond this by also ascertaining the effect of other debt financing options on inflationary pressure in the Nigerian economy. Such other options will include adjustments in taxes (government revenue), borrowing from the central bank (Ways and Means Advances), deposit money banks, and the non-bank public as well as foreign borrowing.

METHODOLOGY

The Model

In financing fiscal imbalances, additional glitches are engendered within the economy. The Traditionalists opined that an amplified budget deficit poses grave damage to the economy while the Ricardians are of the opinion that "public debt does not exert any harm on the economy". Such problems include amplified level of inflation, augmented public debts in the economy, deficit of current account, and reduced economic growth (Nayab, 2015). For Boariu and Bilan (2007), inflation can also be seen as the outcome of debt bankrolling of the fiscal imbalance, when it by the way entraps the explosion in the quantity of money obtainable in the economy past what is necessary". Based on these arguments, the macroeconomic stability to be modelled include inflation, debt burden, and economic growth. The models are specified as follows:

INFR = f(BUDT, MOSS, ECGT, HHCE, DEBB, EXCT) *Equation* 3.1

DEBB = f(BUDT, GREV, CUAB, ECGT, EXCT, INFR) *Equation* 3.2

ECGT = f(GFCF, LBRF, BUDT, MOSS, EXCT, INFR) *Equation* 3.3

INFR = inflation rate

HHCE = household consumption expenditure

DEBB = total public debt

GREV = total government revenue

CUAB = current account balance (% of GDP)

ECGT = economic growth (measured as the growth rate of real gross domestic product)

GFCF = gross fixed capital formation (measuring capital input)

LBRF = labour force (measuring labour input)

BUDT = budget deficit (measuring fiscal imbalance)

MOSS = broad money supply

EXCT = exchange rate

Equation 3.1 measures the effect of fiscal imbalance on macroeconomic stability (inflation); Equation 3.2 captures the effect of fiscal imbalance on debt accumulation; while Equation 3.3 captures the growth effectof fiscal imbalance. Following the models, inflation, total public debt, economic growth and budget deficit form the frontline variables in this study. The rest of the variables serve as controls depending on their roles in the models. It is important to mention also that the frontline variables may also be regarded as controls based on their roles in each of the models, *ceteris paribus*.

Data

Data for this study covers the period of 1981 to 2020. The data were obtained from Central Bank of Nigeria statistical bulletin and the World Development Indicators of the World Bank Group. In particular, data on gross fixed capital formation, labour force, growth rate of real GDP, were obtained from the World Development Indicators (2020); while data on all other variables were obtained from the CBN (2020) statistical bulletin.

Econometric Specification

Given the models specified in Equation 3.1 to Equation 3.3, their econometric forms are specified as follows:

$$INFR_t = \varphi_0 + \varphi_1 BUDT_t + \varphi_2 MOSS_t + \varphi_3 ECGT_t + \varphi_4 HHCE_t + \varphi_5 DEBB_t + \varphi_6 EXCT_t + \mu_{1t} \quad Equation\ 3.1'$$

$$DEBB_t = \omega_0 + \omega_1 BUDT_t + \omega_2 GREV_t + \omega_3 CUAB_t + \omega_4 ECGT_t + \omega_5 INFR_t + \omega_6 EXCT_t + \mu_{2t} \quad Equation\ 3.2'$$

$$ECGT_t = \vartheta_0 + \vartheta_1 GFCF_t + \vartheta_2 LBRF_t + \vartheta_3 BUDT_t + \vartheta_4 MOSS_t + \vartheta_5 EXCT_t + \vartheta_6 INFR_t + \mu_{3t} \quad Equation\ 3.3'$$

Where φ_0 to φ_5; ω_0 to ω_4; and ϑ_0 to ϑ_5 are the parameters to be estimated for Equation 3.1′, 3.2′, and 3.3′ respectively; μ_{it} are the respective error terms for each of the three models; and t is time.

It is expected that φ_0, ω_0 and $\vartheta_0 \neq 0$; $\varphi_3 < 0$; $\varphi_1, \varphi_2, \varphi_4, and\ \varphi_5 > 0$; ω_1 and $\omega_3 > 0$; ω_2 and $\omega_4 < 0$; ϑ_1, ϑ_2, and $\vartheta_4 > 0$; $\vartheta_3 <$ or > 0; and $\vartheta_5 <$ or > 0.

Analytical Technique

There are a few methods of extracting purely the long-run coefficients from given parameters of variables, and of the outstanding ones is the Johansen and Juselius (JJ) procedure, which is specifically based on a Maximum Likelihood Estimation (MLE) approach. However, a more recent and more robust method, especially when it has to do with small sample, is the Stock and Watson (1993)'s Dynamic Ordinary Least Squares (DOLS).

DOLS which also corrects for possible simultaneity bias amongst the regressors, involves estimation of long-run equilibria. It was suggested by Stock and Watson (1993) as a parametric approach for estimating long-run equilibria in systems which may involve variables integrated of different orders but still cointegrated. The technique is embedded with the capacity to forestall potential for simultaneity bias,endogeneity bias and small-sample bias among the regressors by the inclusion of lagged and led values of the change in the regressors. Though the procedure is similar to the estimators proposed by Phillips and Loretan (1991), it is more practical and convenient to apply and estimate. Thus, getting DOLS estimates involves estimating the following equation:

$$W_t = B'X_t + \sum_{j=-J}^{j=J} \partial_j \Delta P_{t-j} + \sum_{j=-K}^{j=K} \mu_j \Delta Y_{t-j} + \alpha_t \qquad \textit{Equation 3.4}$$

where denotes the vector dependent variables X, is the vector of explanatory variables B', is the cointegrating vector, representing the long-run cumulative multipliers, or put simple, the long-run effect of a change in X on W (note that for Stock and Watson, (1993), DOLS: B=[c,α,β],X=[1,P_t,Y_t]); J and K are the lags and leads incorporated into the model. In estimating the long-run parameters of the variables in the models, we adopt the DOLS procedure which basically involves regressing any I(1) variables on other I(1) variables, any I(0) variables and leads and lags of the first differences of any I(1) variables. Inferring from equation (3.1', 3.2' and 3.3'), we will estimate the following equation to obtain the long-run dynamic effects of fiscal imbalance on macroeconomic stability, economic growth and the growth in public debt in the Nigeria:

$$\Delta d_t = \delta_0 + \delta_1 \gamma_t + \delta_2 v_t + \sum_{i=-J}^{i=J} \beta_I \Delta \gamma_{t-J} + \sum_{i=-K}^{i=K} \psi_I \Delta v_{t-K} + \eta_t \qquad \textit{Equation 3.5}$$

where Δd_t is the change in the vector of dependent variables in Equations 3.1', 3.2', and 3.3', γ_t is a vector of all the regressors in Equations 3.1', 3.2', and 3.3' all in time t, and are as earlier described. v_t is a vectorof control variables, and are as were earlier described. J and K denote the lead and lag values respectively. Equation (3.5) is our DOLS model. In practical analysis, the determination of optimal lag structure can be achieved by using information criteria such as Akaike and Schwarz or by using t $T^{\frac{1}{3}}$ value of recommended by Stock-Watson (1993) exclusively for DOLS approach. Accordingly, in the estimation of the model, the lag values were determined using the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criteria (SBC).

PRESENTATION OF RESULTS AND ANALYSIS OF FINDINGS

The interactions between fiscal imbalance in Nigeria and other strategic variables in this study has been seen to be very pronounced, considering the outcomes of the estimates. This may count for the viability of the chosen technique, especially for its role in cubing the radicality associated with data in the developing economies of sub-Saharan Africa like Nigeria. The estimates are presented in Table 4.1.

Table 4.1 Dynamic Ordinary Least Squares (DOLS) Results for all Models

Variable	(1)	(2)	(3)
	Dependent Variable:	Dependent Variable:	Dependent Variable:
Economic Growth (ECGT)	-0.0068 [0.0037]**	0.0007 [0.0002]*	

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Macroeconomic Stability (INFR)		0.0019 [0.0015]**	-0.0017 [0.0021]**
Total Public Debt (DEBB)	0.0018 [0.0032]**		
Total Government Revenue (GREV)		0.0025 [0.0000]*	
Household Consumption Expenditure (HHCE)	-0.0097 [0.001]*		
Current Account Balance (CUAB)		-0.0033 [0.0353]***	
Capital Input (GFCF)			-0.0012 [0.0276]***
Labour Input (LBRF)			-0.0013 [0.0091]**
Fiscal Imbalance (Budget Deficit – BUDT)	0.0067 [0.0001]*	0.0015 [0.0001]*	-0.0017 [0.0188]***
Broad Money Supply (MOSS)	0.0023 [0.0093]**		-0.0028 [0.0040]**
Exchange Rate (EXCT)	0.0021 [0.4954]	0.0063 [0.0208]***	0.0056 [0.2055]
R – Squared	0.8860	0.9991	0.8937
Lead	1	1	1
Lag	2	2	2

Source: Estimated by the author using data from secondary sources

Note: *, ** and *** represent significance at 1%, 5% and 10% levels and the values in parenthesis are P-values. Lags and Leads are chosen using AIC.

Three sets of estimates are presented in Table 4.1. The first is in column two marked (1). That column carries the estimates from the fiscal imbalance-macroeconomic stability model. The estimates reported showed that a negative interaction occurred between economic growth and macroeconomic stability. It shows that a percentage improvement in output growth will destabilise the economy to the tune of about 0.68 percent. This negates the a priori expectation. Ordinarily, improvement in output growth should bring a reasonable stability to the macroeconomy. However, this stability should be driven by a number of factors such as industrialisation, improved infrastructures, growth in technology, drastic reduction in factor unemployment, improved services, expansion in productive economic activities by economic agents over and above consumption trajectories, positive balance of trade and balance of payments outcomes, growth in the provision of social services, amongst other things. Shortages and ineffectiveness of these transmitters make whatever growth recorded within the economy have little or no effects on its stability, hence the outcome of this study. For example, recent reports from the National Bureau of Statistics (NBS) and International Monetary Fund (IMF) show that Nigeria's economy will grow by about 3.4 percent in the fourth quarter amidst the growth in unemployment to the tune of 37 percent and inflation to the tune of 15.92 percent. This scenario would make stability difficult despite growth in the economy.

Total public debt-macroeconomic stability interaction, on the other hand, was positive. The result showed that a percentage rise in the total public debt stock would improve macroeconomic stability by about 0.018 percent. This outcome does not negate theory expectation, since the impact of debt growth on the economy may swing in any direction, depending on the level of prudence and propriety of the resource managers. The outcome, despite Nigeria's increasing debt profile, may not be unconnected with some level of improvement in infrastructure provision recorded by the present administration of President Muhammadu Buhari, such as roads and rails, amongst others. The impact of these minute changes in infrastructures on businesses and the entire economy may be responsible for the level of macroeconomic stability reflected in the results. The implication of this outcome is that, *ceteris paribus*, debt will impact on the economy positively if the funds are channelled to funding priority projects that will stimulate and improve economic activities, thereby instigating a multiplier effect across sectors, resulting in macroeconomic stability.

On the other hand, the negative and statistically significant impact of household consumption expenditure on macroeconomic stability speaks to the fact that if an economy is more of a consumer than a producer, the drop in productivity (supply side) vis-à-vis a steady rise in consumption (demand side), will fuel macroeconomic instability due to the gap created by excess demand, which of course may be closed through imports – a drop in foreign reserves due to eminent trade imbalances. The implication of this outcome is that macroeconomic stability may not be an easy trail if there is no improvement in output or productivity over and above consumption (demand), both in the household and other critical sectors of the economy, hence the negative outcome that this study has thrown up.

In the same vein, fiscal imbalance – macroeconomic stability (the main interaction of interest in model 1) indicated a positive and statistically significant relation. The estimate showed that a percentage imbalance in the country's fiscal structure may improve the stability of its macro economy by about 0.67 percent. This outcome is often the case when the imbalance financed through (basically) loans or transactions with financial instruments, are channelled towards providing basic economic services that will stimulate productive economic activities and enhance revenue mobilization/generation for prompt servicing/clearing of those instruments. This outcome corroborated the direction of impact exerted by total public debt stock on macroeconomic stability. The implication is that neither debt issuance nor budget deficit is a bane of macroeconomic stability. This embedded anomalies in any economy notwithstanding, stability can conveniently be achieved in the economy if those anomalies are managed appropriately, *ceteris paribus*.

Money supply also interacted positively with macroeconomic stability at 5 percent level of significance. It showed that a percent increase in money supply will stabilise the macro economy to the tune of about 0.023 percent. This met the a priori expectation, indicating that improvement in money supply will stimulate consumption in all sectors and that will foster productivity, which will naturally improve factor employment, leading to macroeconomic stability, both in the medium and long term, *ceteris paribus*. However, exchange rate, though reflecting positive relation, was statistically insignificant, indicating that, irrespective of its insignificant impact in this analysis as shown by the result, its role in stability equations at different levels of considerations, cannot be abased. The insignificance of the outcome may not be unconnected with issues of data quality in developing countries (Nigeria inclusive). Moreover, the positivity of the coefficient implies that a percentage stability in exchange rate, will lead to the stability of the Nigeria's macroeconomy by about 0.023 percent, other things being equal.

Furthermore, the estimates of the total public debt-fiscal imbalance model are presented in column 3 marked (2) of Table 4.1. The aim of the analysis was to capture the effect of fiscal imbalance on debt accumulation, but most of the estimates seem to negate the theoretical stance, though budget deficit (fiscal imbalance) reflects a priori sign. It showed a positive and statistically significant relation between budget deficit and total public debt accumulation, indicating that a percentage expansion in budget deficit would instigate more debt accumulation to the tune of 0.015 percent. The implication of this is that continuous expansion in fiscal deficit without a corresponding expansion in total revenue, will result in increased debt accumulation and debt stock, resulting in retarded economic growth and truncates macroeconomic stability.

Except for interest rate and inflation, other variables negated theoretical expectations. Output growth and total revenue interacted positively and statistically significantly with debt accumulation in the economy. Theoretically, improvement in output is supposed to have an adverse effect on the country's total debt stock, but the outcome of this study could not align with that a priori position.

The result showed that a percentage growth in the country's output would lead to growth in total debt accumulation to the tune of about 0.007 percent. This outcome may not be unconnected to the fact that growth in the economy is eroded by different factors, such as corruption, deteriorating infrastructure,amongst others, which may hamper the possibility of growth effect trickling down sufficiently to induce positive adjustments in the economy. Another case is total revenue which was supposed to negate growth in debt stock. The outcome of this study showed otherwise. It showed that improvement in total revenue

fuelled debt accumulation by about 0.025 percent – a situation capable of negating macroeconomic stability in the economy. This outcome may be related to the dwindling revenue flows and mobilisation efforts that the nation is grabbling with in recent times.

On the other hand, inflation, current account balance, and exchange rate, followed a priori expectations. The results showed that a percentage rise in inflation resulted in an upward trend in debt accumulation to the tune of about 0.019 percent, while an improvement in the country's current account balances reduces debt accumulation by about 0.033 percent. However, the case of exchange rate expressed a positive interaction between it and possibility for debt accumulation. The result showed that a percentage rise in exchange rate enhanced the accumulation of public debt in the country by about 0.063 percent, *ceteris paribus*. These results reflect the true nature of things in the Nigerian economy – a case of persistent rise in exchange rate, public debt, inflation rate, unemployment as well as persistent drop in total revenue amidst rising recurrent and capital expenditures. The implication is that the economy under such siege cannot grow and stabilise until deliberate adjustments are made to these critical variables.

Finally, the study also evaluated the economic growth-fiscal imbalance relations and the result is presented in column four marked (3) of Table 4.1. The signs from the estimates were mixed. Except for inflation rate and budget deficit, all other variables negated a priori expectations. For instance, capital input a priori is supposed to boost growth in the economy, since the availability of capital for production would be expected to lead to expansion in output. However, this study revealed a rather astoundingly negating result. It showed that a percent improvement in capital input available may lead to a distortion in economic growth by about 0.012 percent. This situation may not be unlinked to the problem of capital diversion in form of capital flight and all facets of corruption. The result may also be attributed to shortages in critical capital inputs like power supply or the exorbitant cost of providing same for its indispensable role in the production line. Another inconsistent outcome is that of money supply. Its negative sign can be understood gleaning from the result from capital input, since money supply can form part of capital as its effect is far-reaching, such as fuelling inflation amongst other things. Thus, its negative impact on output growth in Nigeria is explainable given the level of withdrawal from the system – despite the systematic injection – due to corruption and other related endemic vices.

However, budget deficit, inflation and labour input were not theoretically deviant. The results showed an inverse relation between inflation and economic growth. It showed that a percentage rise in the rate of inflation led to a 0.017 percent distortion in economic growth within the economy and this was significant at 5 percent level, implying that after a certain threshold (between 3 and 5 percent by theory), rise in inflation rate would be inimical to growth, and inflation rate in Nigeria today stands at 15.92 percent year-on-year (NBS, 2022). Also, labour input interacted negatively with output growth, showing that a percentage rise in labour input deployed led to a 0.013 percent drop in economic growth. However, improvement in labour employment, at least to the extent required for productivity at optimal level, is supposed to boost output growth, *ceteris paribus*, but the outcome in this study can be attributed to a number of factors such as labour quality, labour underemployment, category and alignment with area of need. These dimensions are of course expected to have been addressed through labour training and retraining, but have been eroded by the crisis of human capital development that confronts Nigeria as a nation. A good example of these truncations is the incessant face-off between academic staff unions of higher institutions of learning and the Federal Government of Nigeria, that has continued to destabilise the learning process for all category of learners within that system in Nigeria. The main interaction in focus was budget deficit-economic growth relation. The result showed an inverse relationship between the duo, indicating that a percentage rise in budget deficit would lead to about 0.017 percent distortion in output growth in the Nigeria's economy; the estimate was significant at 10 percent level. The implication of these outcomes is that, as budget deficit expands in the face of continuous drop in total revenue and growth in public debt volume, coupled with deteriorating infrastructures, depleting capital and labour quality, output growth would be deterred and macroeconomic instability would be inevitable, *ceteris paribus*.

CONCLUSION AND RECOMMENDATIONS

The study was undertaken to assess the interaction between fiscal imbalances, economic growth and macroeconomic stability in Nigeria, with emphasis on its impact on output growth, economic stability as well as its joint effect on the two frontline dependent variables – economic growth and macroeconomic stability. Amongst other techniques of analysis, the Dynamic Ordinary Least Squares (DOLS) was deployed for its features as one of the very unique cointegration techniques with special properties to take care of data-related issues, outliers and other encumbrances in the course of analysis. Employing data from secondary sources to proximate and test fiscal imbalance, economic growth, macroeconomic stability and other controls, analyses were carried out, results obtained and findings drawn. Based on those outcomes, the following recommendations were made:

1. As against theory, the study showed a negative interaction between output growth and macroeconomic stability. This unconventional outcome could be linked to inadequacy of the drivers like deteriorating infrastructure, low industrialisation, low technological growth, unemployment, amongst other things. The study recommended that for the trend to be reversed, the improvement of those drivers must be top priority.
2. The study also showed that an inverse relationship occurred between household consumption expenditure and macroeconomic stability, implying that a solely consumption economy without adequate production will keep macroeconomic stability far from reach. The study therefore recommended that for there to be macroeconomic stability, there should be a considerable effort at improving the nation's productivity over and above the level of consumption in the economy to stabilise the demand and supply sides of the economy.
3. The positive relation between public debt, fiscal imbalance and macroeconomic stability implies that, despite the anomalies associated with debt, when properly channelled in financing deficits, it can bring about a stable macroeconomy. The study recommended that more efforts should be made by the agencies of government to ensure proper channelling of the resources that flows from debt issuance so as to improve the economy by boosting economic activities and enhance the business environment, *ceteris paribus.*
4. Also, money supply interacting positively with macroeconomic stability shows that impact of money in the economy can be positive, especially if it is channelled deliberately to stimulate consumption that would stimulate productivity and so on. This would be considered good economics. The study therefore recommended that government institutions involved with the creation and supply of money like the CBN, commercial banks and non-bank financial institutions, to guide but ensure money supply in the economy.
5. The outcome of the estimates has shown that expansion in budget deficit (fiscal imbalance) would instigate more debt accumulation and that would, in turn, continue the cycle of expansion of fiscal imbalances. The study therefore recommended that, for economic growth, stable macroeconomy and fiscal balance to be attained, the relevant authorities and institutions of government must make efforts at drastic reduction of the country's debt volume as well as close its budget deficit gaps as much as possible. This can be done by boosting her revenue sources, identify new sources of revenue as wellas rejig her revenue collection and recovery processes, while taking the issues of corruption and accountability seriously at all levels.
6. As the results of the study showed, stabilisation of inflation, improvement in current account balances and stabilisation of exchange rate would play a significant role in reducing public debt stock and enhancing macroeconomic stability. The study recommended that critical attention should be paid to the control of these macroeconomic indicators in order to access the targeted economic growth and macroeconomic stability.
7. The study also revealed that most variables that should boost output growth – example: increased capital input, money supply – looked downwards, maybe as a result of capital diversion, amongst other anomalies. The study therefore recommended that, for growth in the economy to happen smoothly, there must be some deliberate efforts at address those anomalies, *ceteris paribus*.
8. Finally, the study showed that economic growth, inflation and budget deficit were inverse related,

implying that a rise in inflation and expansion in budget deficit would stifle economic growth and macroeconomic stability. The study recommended that concerted efforts at reducing/ stabilising inflation as well as reduce budget deficit to the barest minimum, if there must be economic growth and macroeconomic stability.

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