Journal of Economics, Technology and Business (JETBIS)
Volume 4, Number 1 January 2025
p-ISSN 2964-903X ; e-ISSN 2962-9330

Financing Economic Development in the Face of Fiscal Constraints: Fiscal Sustainability Measures and Inflation Dynamics in Nigeria

Aliyu Muhammad
State College of Basic and Remedial Studies Sokoto, Nigeria
*e-mail: aliyumuhd73@gmail.com
*Correspondence: aliyumuhd73@gmail.com

KEYWORDS:
inflation; debt to GDP; debt service to revenue; debt to exports; exchange rate.

ABSTRACT

This study explores the effect of fiscal sustainability measures on inflation in Nigeria, given the fiscal challenges facing the country. The objective of the study is to analyze how fiscal sustainability measures, such as debt-to-GDP ratio and debt service-to-income ratio, affect inflation. The methodology used includes analysis of annual data from 1980 to 2020 using Autoregressive Distributed Lag (ARDL) approach and impulse response function. The results show that debt-to-GDP ratio and debt service-to-export ratio have a significant negative effect on inflation, while debt service-to-income ratio, debt-to-export ratio, and exchange rate have a significant positive effect. This study also finds that inflation responds negatively to shocks from the debt-to-GDP ratio, debt service to exports, and exchange rate, while responding positively to shocks from the debt service to income ratio and debt service to exports ratio. In conclusion, it is important for the debt management office and the ministry of finance to reduce the debt service-to-income ratio and improve fiscal sustainability policies to stabilize inflation in Nigeria.

INTRODUCTION

Fiscal sustainability is the affordability and capacity of the government to maintain its current policies without major adjustments in the future. It also represents the government's capability to withstand its current expenses, taxes, policies and programmers over a long time without threatening government resources or defaulting on its liabilities (Saibu, 2018). Fiscal sustainability has currently captured the attention of policymakers and academics in developing countries due to its impact on macroeconomic stability, growth projection and debt profiles. The focus is also connected to the fact that most developing countries like Nigeria recorded significant increases and decreases in their revenue generation in addition to other macroeconomic challenges that lead to fiscal imbalances in the economy (Adeosun & Adedokun, 2019; Saibu, 2018).

Indicators such as debt-to-GDP ratio, debt service-to-revenue, debt-to-exports, debt service-to-exports, deficit-to-GDP, and deficit-to-revenue among others measure fiscal sustainability. However, the rise in these indicators suggests that the economy is fiscally unsustainable and vice versa. Over the years, Nigeria has experienced a sequence of macroeconomic and fiscal imbalances like excessive debt, worsening debt-to-GDP ratio and deficit-to-GDP ratio, double-digit inflation, a decrease in both domestic and foreign investment, a decline in economic growth and persistent volatility in the exchange rate among others. To correct the fiscal imbalances and ensure macroeconomic stability, the government has introduced numerous fiscal stabilization and management policies such as the Structural Adjustment Programmer (SAP), the Fiscal Responsibility Act, the Medium-Term Expenditure Framework, the Public Procurement Act and the Petroleum Information Bill among others (Adeosun & Adedokun, 2019).

However, despite the introduction of these policies, the fiscal imbalances and macroeconomic instability have continued to worsen. For instance, Nigeria's total Public Debt-to-GDP ratio rose to 21.61% in 2020 from 19.00% in 2019, indicating a reduction in output with a real GDP growth rate of negative 1.9% and a larger fiscal deficit due to a decrease in revenue due to covid-19 pandemic. The ratio also increases to 23.3% in the first quarter of 2022 (DMO, 2022). The foregoing is associated with instability in macroeconomic variables such as inflation. Long overdue in

Nigeria, inflation recorded persistent increases. For example, statistical records have shown that the annual inflation rose from 11.40% in 2019 to 13.25% in 2020. It is also accelerated in 2021 and 2022 from 16.95% to 18.60% respectively (CBN, 2022). Thus, the continuing deterioration in fiscal sustainability measures and persistent degree of volatility in inflation begs the concern as to whether fiscal sustainability measures influence inflation in Nigeria over the sampled period.

However, the empirical studies in Nigeria related to fiscal sustainability focus on areas such as public debt and economic growth (Joseph & Godoo, 2016; Udeh, Ugwu & Onwuka, 2016; Didia & Ayokunle, 2020; Yusuf & Mohd, 2021), fiscal deficit and economic growth (Umaru & Gatawa, 2014; Edame & Okoi, 2015; Aero & Ogundipe, 2016) fiscal deficit and inflation and public debt and inflation (Ezeanyeji, Priscilla & Ugochukwu, 2019; Aimola & Odhiambo, 2021). Though, to the best knowledge of this study, no study examines the effect of fiscal sustainability measures (debt-to-GDP ratio, debt service-to-revenue, debt-to-exports, debt service-to-exports, deficit-to-GDP and deficit-to-revenue) on inflation in Nigeria. Therefore, this study fills in the research gap by estimating the link between fiscal sustainability measures and inflation in Nigeria. The study also sought to estimate how inflation will respond to the shocks in fiscal sustainability measures. Furthermore, understanding the relationship and shocks between fiscal sustainability measures and inflation will help the government develop appropriate policies to stabilize inflation and improve fiscal sustainability. This study is divided into five sections to realize the objectives, including this introduction. Section two consists of a review of theories and related empirical studies, sections three and four comprise data and methodology, and the results, while section five is the conclusions and recommendations.

Literature Review

Many strands of theories postulate the drivers of inflation and one of these theories is the quantity theory of money. The theory view that the growth in the quantity of money is the main cause of inflation. However, a rise in the quantity of money issued by the Central Banks will lead to rises in aggregate demand and push up the price level in the goods market. Thus, this monetarist view of inflation opposes that Central Bank rules out the link between deficit budget and inflation by its inability to buy government bonds thereby monetizing the budget deficit.

On the contrary, Mortaza, (2006) theorizes that in developing countries like Nigeria, inflation is not driven by monetary factors alone rather it is more connected to fiscal imbalances, macroeconomic instability and deficiencies in the effective implementation of economic policies. Furthermore, macroeconomic theory submits that inflation occurs in developing countries due to persistent deficit financing. In addition, there is a direct link between deficit financing and inflation because an upsurge in government fiscal spending and an increase in the real value of outstanding bonds raise aggregate demand and the aggregate price in the economy. Thus, this study is built on the macroeconomic theory of deficit financing because sustainable deficit financing can help to sustain stable prices, while in an economy where deficit financing is not sustainable, the general price level of that economy is subject to change.

Empirical studies related to fiscal sustainability were conducted by many researchers and revealed mixed results. For instance, on the link between deficit financing and inflation, Anayochukwu, (2012) used the granger causality test in examining the causal link between fiscal deficit and inflation in Nigeria from 1970 to 2009. The result suggests that fiscal deficit causes inflation over the sampled period. In addition, Awe and Olalere (2012) estimated the link between budget deficit and inflation in Nigeria using an annual dataset from 1980 to 2009. Their result indicated evidence of unidirectional causality from budget deficit to inflation. Furthermore, Ezeabasili, Mojekwu and Herbert (2012) analyzed the nexus between fiscal deficit and inflation in Nigeria by employing an annual time series dataset from 1970 to 2006. By applying Johansen cointegration, Vector Error Correction Model (VECM), impulse response function and variance decomposition approach, the result displays that fiscal deficit has no significant influence on inflation, while the result from the variance decomposition approach revealed that about 0.72% of the future changes in inflation are attributable to fiscal deficit changes.

Sequentially, the studies on the link between debt and inflation were carried out by different authors and come up with divergent results. For example, Van Bon (2015) applied the Generalized Method of Moment (GMM) in estimating the connection between public debt and inflation using a panel dataset from 1990 to 2014 for a sample of sixty (60) developing countries. The results indicated that public debt has a significant positive influence on inflation.

They applied Ordinary Least Square (OLS) regression and found that the volume of domestic debt and debt services significantly and positively influences inflation. Similarly, Okech, Mweni and Njuguna (2016) assessed the link between external debt and the inflation rate in Kenya using an annual dataset from 1972 to 2012. They employed

Ordinary Least Squares (OLS) regression and revealed that external debt has a significant positive impact on inflation. However, similar studies were conducted in Nigeria on the link between public debt and inflation. For instance, Ezeanyeji, Priscilla and Ugochukwu (2019) examined the relationship between public debt and inflation in Nigeria using annual data from 1981 to 2017. They applied the Johansen cointegration test and Vector Error Correction Model (VECM) and found that there is a significant positive relationship between public debt and inflation. Moreover, Aimola and Odhiambo (2021) used the Autoregressive Distributed Lag (ARDL) model to model the relationship between public debt and inflation in Nigeria from 1983 to 2018. Their result revealed that public debt has no significant influence on inflation.

RESEARCH METHOD

The analysis was conducted using the annual data from 1980 to 2020 and the data was sourced from the website of the Debt Management Office (DMO), Central Bank Statistical Bulletin and World Development Indicators a publication of the World Bank. However, during the study period Nigeria recorded episodes of fiscal and macroeconomic instability. The variables included in the model are inflation rate proxy by consumer price index (CPI), debt-to-GDP ratio (measured as government debt by gross domestic product (GDP)), debt service-to-revenue ratio (measured by government debt service by government revenue), debt-to-exports ratio (measured by government debt by exports of goods and services), debt service-to-exports ratio (measured by government debt service by exports of goods and services) and exchange rate. However, the variables were transformed into logs form so as to smoothen the time trend and provide a better fit in the dataset (Khan & Senhadji, 2001; Omotosho, Bawa & Doguwa, 2016). Hence, the model is specified as:

$$\pi_t = \lambda_0 + \lambda_1 dg_t + \lambda_2 dsr_t + \lambda_3 de_t + \lambda_4 dse_t + \lambda_5 ex_t + \mu_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

From equation 1, π represents inflation, *dg* donates the debt-to-GDP ratio, *dsr* is the debt service-to-revenue ratio, *de* is the debt-to-exports ratio, *dse* represents the debt service-to-exports ratio and *ex* is the exchange rate. λ_0 to λ_5 are the coefficients of the dependent variables while μ is the error term in the equation. To analyze both short-run and long-run effects, equation 2 is estimated by applying the Autoregressive Distributed lag (ARDL) approach developed by Pesaran, Shin and Smith (2001). Thus, the equation becomes:

$$\Delta\pi_t = \lambda_o + \sum_{i=1}^{m} \beta_1 \Delta\pi_{t-i} + \sum_{i=1}^{m} \lambda_2 \Delta dg_{t-i} + \sum_{i=1}^{m} \lambda_3 \Delta dsr_{t-i} + \sum_{i=1}^{m} \lambda_4 \Delta de_{t-i} + \sum_{i=1}^{m} \lambda_5 \Delta dse_{t-i} + \sum_{i=1}^{m} \lambda_6 \Delta ex_{t-i}$$
$$+\alpha_1 \pi_{t-1} + \alpha_2 dg_{t-1} + \alpha_3 dsr_{t-1} + \alpha_4 de_{t-1} + \alpha_5 dse_{t-1} + \alpha_6 ex_{t-1} + \mu_t \quad \ldots\ldots\ldots 2$$

Where Δ is the first difference operator, L represents natural logarithm; m stands for optimal lag, λ_1 to λ_6 are the coefficients of the short-run parameters, while α_1 to α_6 are the long-run coefficients of the variables in the equations. λ_0 is the constant and μ is the error term. All other variables are as defined in equation 1. However, the error correction term of equation 2 is specified as:

$$\Delta\pi_t = \lambda_o + \sum_{i=1}^{m} \lambda_1 \Delta\pi_{t-i} + \sum_{i=1}^{m} \lambda_2 \Delta dg_{t-i} + \sum_{i=1}^{m} \lambda_3 \Delta dsr_{t-i} + \sum_{i=1}^{m} \lambda_4 \Delta de_{t-i} + \sum_{i=1}^{m} \lambda_5 \Delta dse_{t-i}$$
$$+\sum_{i=1}^{m} \lambda_6 \Delta ex_{t-i} + \Omega ECM_{t-1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

Where ECM is the error correction term generated from the ARDL models and Ω is the coefficient of the ECM which express the speed of adjustment back to equilibrium in case of any deviation in the economy. To avoid the problem of spurious regression and ensure that no I(2) series in the analysis, this study applied Augmented Dickey-Fuller (ADF) and Philips-Perron unit root approaches. To identify how inflation reacted to fiscal sustainability measures, this study applied the impulse response function. The purposes of applying impulse responses are: first, impulse responses trace the effects of structural shocks on the endogenous variables. Second, each response includes the consequence of a specific shock on one of the variables of the system at impact t, then on t+1, and so on (IMF, 2020). The impulse response model is specified in form of the first-order autoregressive model as:

$$Y_t = \upsilon + \sum_{i=1}^{2} A_i Y_{t-1} + \mu_t \quad \text{..... 4}$$

Where $\mu_t \sim N(0, \varepsilon)$.

Since all the variables in the VAR model depend on one another, the estimated coefficient gives restricted evidence of the response of the system to a shock. To analyze a robust and reliable estimate of the model's dynamic elasticity, the impulse response function was used. The deviation point of every impulse response function for a linear VAR model is its moving average (MA) and represents the forecast error impulse response (FEIR) function (Franz, 2021). Thus, the FEIR χ_i for the ith period after the shock is obtained by:

$$\chi_i = \sum_{j=i}^{i} \chi_{i-j} A_j \qquad i = 1, 2, \ldots\ldots \quad \text{..... 5}$$

Where and for $j > p$, where is the number of endogenous variables and p is the lag order of the VAR.

RESULTS AND DISCUSSION

This study employed both the Augmented Dickey-Fuller (ADF) and Phillips Perron tests with a view to finding out the time series properties of the variables. Thus, the results are presented in Table 1.

Table 1. Unit Root Test

Variables	Augmented Dickey-Fuller		Phillips-Perron	
	Level	First Diff.	Level	First Diff.
Π	-4.090560***	-6.569925	-3.442108*	-13.86362
Dg	-1.541174	-4.983500***	-1.721566	-4.983500***
Dsr	-2.678044	-8.492899***	-2.678044	-8.915622***
De	-0.844579	-5.592868***	-1.054681	-5.592868***
Dse	-2.794410	-6.088268***	-2.818833	-6.088268***
Ex	-1.213162	-5.672682***	-1.273349	-5.699131***

*Note: ***, ** and * indicate significant at 1%, 5% and 10% respectively.*

Source: *Authors computation from Eviews output.*

From the results in Table 1, it is reported that the debt-to-GDP ratio, debt service-to-revenue ratio, debt-to-exports ratio, debt service-to-exports ratio and exchange rate are all stationary after the first difference in both ADF and P-P test while inflation is stationary at level value. This suggests that the null hypothesis of a unit root was not accepted. The unit root tests show that variables are stationary at different levels of integration and thus the best technique to handle the results is ARDL. Therefore, this study goes further to estimate the bound (cointegration) test and long-run and short-run coefficients of the ARDL model.

Table 2: Bound test and long-run coefficients of the ARDL

F-Statistics			**5.62**	
Critical Value Bounds				
Significance levels	**I(0) Bounds**		**I(1) Bounds**	
10%	2.08		3.00	
5%	2.39		3.38	
1%	3.06		4.15	
Dependent Variable: Inflation rate				
Variables	Coefficients	std. Error	t-Statistics	Prob.
Debt-to-GDP	-1.286307	0.460727	-2.791909	0.0099
Debt service-to-Rev.	0.138797	0.073595	1.885942	0.0710
Debt-to-exports	0.983598	0.340336	2.890079	0.0079
Debt service-to-export	-0.299447	0.107759	-2.778850	0.0102
Exchange rate	0.973321	0.355003	2.741726	0.0111
Constant	8.061835	2.991214	2.695171	0.0124
R^2 = 0.68, Adj. R^2 =0.51, AIC = 1.6172, SIC =2.2144, HQC= 1.8315, DW = 1.85, F-Stat. = 4.06 (0.0012)				

Source: *Authors' calculation Using Eviews Version 10.*

From Table 2, the bound test results attest that there is evidence of cointegration among the variables because the value of the F-statistics (5.62) is greater than the critical value bounds at all levels of significance. The presence of co-integration allowed this study to generate both the long-run and short-run coefficients of the ARDL model. However, from Table 2, the results attested that there is a significant negative relationship between the debt-to-GDP ratio and inflation in Nigeria at a 1% level. An increase in the debt-to-GDP ratio by 1% will lead to a decrease in the rate of inflation by about 1.29%. Furthermore, the results explain that debt is an inflow of funds into the economy and if invested in the productive sectors it will increase output and reduce inflation in the long run.

On contrarily, the results show that debt service-to-revenue and debt-to-exports ratios have a significant positive influence on inflation at 10% and 1% levels respectively. This implies that a 1% increase in both debt service-to-revenue and debt-to-exports ratios will lead to an increase in the inflation rate by 0.14% and 0.98% respectively. The results imply that debt service adversely affects government revenue and its capacity to invest in the productive economic sectors. Thus, in the long run, it affects the growth of output, exports of goods and services and impulse inflation in the economy. It also creates a fiscal imbalance, instability in macroeconomic variables and deteriorating fiscal sustainability.

Furthermore, the study revealed that there is a negative and statistically significant relationship between debt service-to-exports and inflation at a 5% level. when debt service-to-exports rise by 1%, inflation will decrease by 0.29% over the study period. This means that an exports-oriented economy will not bear many debt burdens, experienced fiscal sustainability and stability in macroeconomic indicators such as inflation among others. Finally, the results show that the exchange rate has a significant positive effect on inflation at a 5% level. According to the results, when the exchange rate increase by 1%, inflation will surge by about 0.97%. The results present a clear situation for Nigeria's economy. This is reflected in the fact that recently, the value of our currency and the general price level in the economy are positively correlated.

Table 3: Short-Run Coefficients of the ARDL Model

Dependent Variable: ΔInflation rate				
Variables	Coefficients	std. Error	t-Statistics	P-value
Δ (Debt/GDP)	0.563578	0.246354	2.287677	0.0309
Δ (Debt service/Revenue)	0.107591	0.049536	2.171980	0.0395
Δ (Debt/Exports)	-0.249046	0.188394	-1.321941	0.1982
Δ (Debt service/Exports)	0.034140	0.105617	0.323247	0.7492
Δ (Exchange rate)	-1.269928	0.481723	-2.636217	0.0142
Error Correction Model (-1)	-0.942898	0.127983	-7.367391	0.0000
Corr. = 0.037 (0.8496), Het. = 2.97 (0.3593), N = 1.73 (0.4207) Res. = 0.14 (0.7149)				

Source: Authors' computation Using EViews Version 10.

From Table 3, the short-run results indicated that debt-to-GDP and debt service-to-revenue have significant positive effects on inflation at a 5% level. In the short-run increase in government spending from debt will lead to rising aggregate demand, output and inflation. However, the results show that debt-to-exports and debt service-to-exports have no significant influence on inflation in the short run while the exchange rate has a significant negative consequence on inflation in the short run. The result also, reported that the error correction term has the correct sign, it is negative, less than one (-0.94) and statistically significant at 1%. This is explaining the evidence of a long-run relationship among the variables. In addition, the foregoing implies that in the case of any instability in the economy especially from the inflation side, the error correction term will correct itself to the equilibrium level at the speed of 94%. It means 94% of the inflationary problems will be corrected annually when policymakers focus on improving fiscal sustainability measures. However, to ensure the consistency and robustness of the results, post-estimation tests were tested using autocorrelation, heteroskedasticity, normality and Ramsey RESET and the results are summarized in the button part of Table 3. The results suggest that the model is free from serial correlation, and heteroskedasticity and data are normally distributed because the probability values of the tests are not significant at the 10% level.

The Ramsey RESET test suggests that the model is well specified and there is no evidence of misspecifications as indicated by the insignificant probability of the test. The study however carried out stability and the results are presented in Figure 1 and Figure 2.

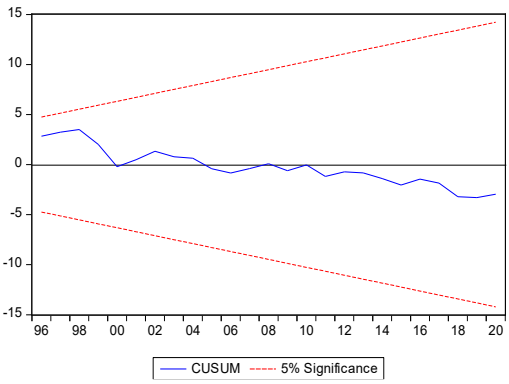

Figure 1. Cumulative Sum of Square

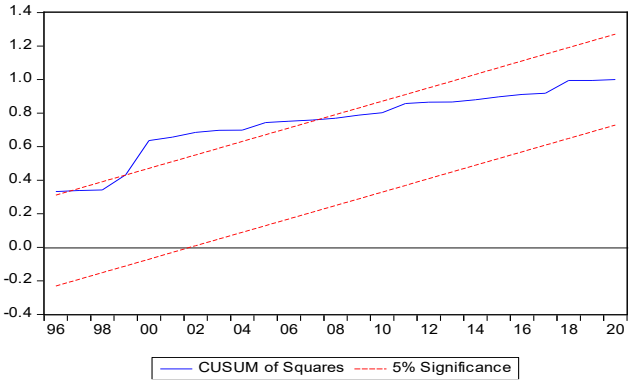

Figure 2. Cumulative Sum of Squares of Rec *Res*.

The CUSUM and CUSUMQ tests are presented in Figure 1 and Figure 2. As indicated by the CUSUM test, the model and estimated parameters are stable, because the recursive lines fall within the two critical lines. Therefore, the results suggest that the model and estimate parameters are stable. But, the CUSUM of squares test indicates that the model and parameters are not stable. The volatility in the model and parameters is connected to the shocks recorded in the economy during the study period like rising inflation, global economic crisis, rising both internal and external debt, fiscal imbalance, exchange rate volatility and other macroeconomic shocks. However, in estimating the response of inflation to the shocks of fiscal sustainability measures, this study used the impulse response function and the results are reported in Table 4.

Table 4: Dynamic response of inflation to fiscal sustainability measures' shocks

Period	Inflation	Debt/GDP	Debt S./Rev.	Debt /Exp.	Debt S./Exp.	Exchange Rate
t = 2	0.4973	-0.2499	0.0966	0.1859	-0.1177	-0.1508
t = 4	0.2750	-0.8574	0.5167	0.7017	-0.3775	-0.0322
t = 6	0.2382	-1.4479	0.8612	1.0762	-0.4940	-0.0822
t = 8	0.1690	-2.0288	1.2121	1.4760	-0.6477	-0.0827
t = 10	0.1059	-2.6107	1.5613	1.8700	-0.7970	-0.0994

Source: Authors' computation Using EViews Version 10.

The dynamic response of inflation to the accumulated shock of fiscal sustainability measures is shown in Table 4 at different time horizons. The results show a change in inflation as a result of one change in each of the variables. For instance, a 1% shock in debt to GDP ratio will lead inflation to negatively respond by about 0.25%, 0.86%, 1.45%, 2.02% and 2.61% in periods two, four, six and ten respectively. Thus, inflation reacted negatively to the debt-to-GDP shocks over time. Furthermore, the results suggested that shocks to debt service-to-revenue and debt-to-exports ratios will impulse positive shocks to inflation over the time horizon. Finally, inflation will respond negatively to the shocks of debt service-to-exports and exchange rate over the study period. The results suggest that a 1% depreciation of the naira raises inflation by 0.2% in period two. In addition, the pass through has increase to 0.03%, 0.08% and 0.09% in periods four, eight and ten respectively.

CONCLUSION

This study estimates the effect of fiscal sustainability measures on inflation in Nigeria using ARDL and impulse response function approaches. From the ARDL results, the study concludes that debt to GDP ratio and debt service to export ratio have significant negative effects on inflation in Nigeria, while debt service to income ratio, debt to export ratio, and exchange rate have significant positive effects on inflation over the period taken. In addition, the impulse response function results show that inflation responds negatively to shocks from debt to GDP ratio, debt

service to exports, and exchange rate, while it responds positively to shocks from debt service to income ratio and debt service to exports ratio.

For future research, it is recommended that researchers explore other factors that may contribute to inflation, such as monetary policy, foreign investment, and other external factors that may affect the Nigerian economy. In addition, a comparative study between Nigeria and other countries in Africa or other developing countries could provide greater insight into the effect of fiscal sustainability on inflation. Research can also focus on analyzing specific sectors, such as agriculture or industry, to understand more detailed impacts. The use of alternative methodologies, such as panel dynamic models or qualitative analysis, can also provide new perspectives on the relationship between fiscal sustainability measures and inflation. Finally, conducting longitudinal research to monitor changes in the relationship between fiscal sustainability measures and inflation over time, especially during periods of economic crisis, would be beneficial. With these suggestions, it is hoped that future research can make a greater contribution to understanding the dynamics of inflation and fiscal sustainability policies in Nigeria and other developing countries.

BIBLIOGRAPHY

Adeosun, O. A., & Adedokun, S. A. (2019). Fiscal reaction functions and public debt sustainability in Nigeria: an error correction mechanism approach. *International Journal of Public Policy and Administration Research*, *6*(2), 116-132.

Aero, O., & Ogundipe, A. (2016). Fiscal deficit and economic growth in Nigeria: Ascertaining a feasible threshold. *Available at SSRN 2861505*.

Aimola, A. U., & Odhiambo, N. M. (2021). Public debt and inflation nexus in Nigeria: An ARDL bounds test approach. *Cogent Economics & Finance*, *9*(1), 1921905.

CBN. (2022). Central Bank of Nigeria Communiqué No. 143 of The Monetary Policy Committee Meeting Held on Monday 18th and Tuesday 19th July 2022. Retrieved from: www.cbn.gov.ng.

Didia, D., & Ayokunle, P. (2020). External debt, domestic debt and economic growth: The case of Nigeria. *Advances in Economics and Business*, *8*(2), 85-94.

DMO. (2022). 2021 report of the annual national Market Access Country (MAC) Debt Sustainability Analysis (DSA). Retrieved from: www.dmo.gov.ng.

Edame, G. E., & Okoi, O. B. (2015). Fiscal deficits and economic growth in Nigeria: A chow test approach. *International journal of economics and financial issues*, *5*(3), 748-752.

Ezeanyeji, C. I., Priscilla, I. C., & Ugochukwu, E. (2019). Public Debt and inflation in Nigeria: An econometric analysis. *International Journal of Applied Research*, *5*(3), 219-224.

Franz, X. (2021). An introduction to impulse response analysis with VAR models. Retrieved from: www.r-econometrics.com/timeseries/irf/.

Ijirshar, V. U., Joseph, F., & Godoo, M. (2016). The relationship between external debt and economic growth in Nigeria. *International Journal of Economics & Management Sciences*, *6*(1), 1-5.

International Monetary Fund -IMF (2020). Digital money across Borders: Macro-Financial Implications. IMF Policy Paper 2020/050, Washington, DC.

Okech, T. C., Mweni, F. T., & Njuguna, A. G. (2016). The effect of external debt on inflation rate in Kenya. *International Journal of Financial Research*, 7 (4),1972-2012.

Omotosho, B. S., Bawa, S., & Doguwa, S. I. (2016). Determining the optimal public debt threshold for Nigeria. *CBN Journal of Applied Statistics*, *7*(2), 1-25.

Saibu, O. M. (2018). Public Spending, Fiscal Sustainability and Macroeconomic Performance in Nigeria.

Udeh, S. N., Ugwu, J. I., & Onwuka, I. O. (2016). External debt and economic growth: The Nigeria experience. *European Journal of Accounting Auditing and Finance Research*, *4*(2), 33-48.

Umaru, A. D., & Gatawa, A. U. (2014). Fiscal deficit and economic growth in Nigeria (1970-2011): A disaggregated approach. *Journal of Research in National Development*, *12*(1), 01-09.

Van Bon, N. (2015). The relationship between public debt and inflation in developing countries: Empirical evidence based on difference panel GMM. *Asian Journal of Empirical Research*, *5*(9), 128-142.

Yusuf, A., & Muhammad, S. (2021). The impact of government debt on economic growth in Nigeria. *Cogent*

Economics & Finance, *9*(1), 1946249.