Fiscal Dominance and the Effectiveness of Monetary Authority in Nigeria (1980-2020)

Abstract

The study examined the existence as well as the degree of fiscal dominance in Nigeria. Annual time series secondary data for the period 1980-2020 were employed in the study. Specifically, data on fiscal deficit, public debt, government expenditure, money supply, interest rate, and real Gross Domestic Product (GDP) for the study period were obtained from the Central Bank of Nigeria (CBN, 2020), and the World Development Indicators (WDIs, 2020). The study used descriptive statistics in form of tables, and the Dynamic Ordinary Least Squares (DOLS) for long run analysis. It was established in the study that government expenditure and outstanding debt have significant positive relationship with money supply. Specifically, ₦1 billion increase in public debt is expected to increase money supply by ₦1.2 billion ($t = 8.25$, $p < 0.01$). Similarly, ₦1billion increase in government spending will cause money supply to increase by ₦1.36 billion ($t = 4.29$, $p < 0.01$). Conversely, interest rate exhibited negative effect on money supply, such that one percent increase in interest rate will bring money supply down by 150 percent ($t = -2.0113$, $p < 0.05$). With a measure of fiscal dominance with the δ of 0.28, the study concluded that there is no case of fiscal dominance in Nigeria. The study recommends that with the active counterbalancing roles of monetary policy Nigeria, the government can aggressively pursue and sustain economic growth through fiscal expansion-backed borrowings and spending.

Keywords: Fiscal Dominance, Monetary Policy, Economic Performance, Money Supply, Public Debt

1.0 Introduction

The issue of fiscal dominance in economies around the world is yet to be settled. Although monetary as well as fiscal policies is available to governments for achieving economic objectives, the dynamism of the world economies and the recent series of global shocks in the form of dwindling crude oil prices, terrorism, economic recessions, and the COVID-19 pandemic, among others, favour one of the policy tools over the other. For advanced economies, the adoption of fiscal and monetary tools has been blended into an appropriate policy mix such that none is overshadowing the other. However, since both the developed and the developing economies have resorted to borrowing to cushion the effect of global shocks like dwindling crude oil prices, post-covid-19 emergencies, and inflation, stimulating economic growth through borrowing has reintroduced the debate on fiscal dominance.

Although some studies could not establish fiscal dominance in Nigeria (Sanusi, 2015; Sanusi & Akinlo, 2016; Afolabi & Atolagbe, 2018), they posited that the fiscal health of Nigeria appears weakened by excessive internal and external borrowing as well as weakening monetary policies, thereby calling for a revisit of fiscal dominance studies in Nigeria. The reduction of purchasing power of citizens is one of the effects of rising inflation, which encourages deficit financing, that could lead to price instability and the CBN's inability to control inflation, resulting in welfare loss. Funding of deficit expenditure leads to inflation, which runs contrary to the central bank's purpose of price stability (Ahmad, Aizeman & Jinjarak, 2020). This has the potential to disrupt the economic atmosphere in a country, impeding its economic output (Turner, 2011; Trenovski & Tashevska, 2015; Sanusi & Akinlo, 2016).

In addition, despite the high profligacy of fiscal authority in Nigeria across government levels over the years, particularly in the aftermath of the sharp drop in global crude oil prices in 2014 and the accommodative role played by the Central Bank of Nigeria (CBN), existing studies in Nigeria have not been able to establish evidence of fiscal dominance in Nigeria (Sanusi & Akinlo, 2016; Afolabi & Atolagbe, 2018). However, there is no doubt that the closeness between fiscal and monetary policy has increased over the years, particularly since the 2014 collapse of oil prices and the recessions that followed. The government has had to resort to continuous borrowing from the CBN and external sources to finance its deficits. Since 2015, the government has borrowed about ₦10 trillion from the CBN to fund its budget deficit (Debt Management Office, 2020). Thus, it should be noted that high levels of debt may limit the government's ability to finance its activities and put pressure on the CBN to keep interest rates low. This highlights the need to focus on the degree of accommodation of fiscal authority by the monetary authority rather than the absolute affirmation of fiscal dominance in Nigeria. In general, a high degree of fiscal dominance

means that the central bank is less independent and has limited control over monetary policy decisions. This can occur when the government's fiscal policy goals, such as funding budget deficits or promoting economic growth, conflicts with the central bank's functions of price stability. On the other hand, a low degree of fiscal dominance implies that the CBN has more independence and is able to make monetary policy decisions based on its own objectives, without undue influence from the government. This is important as it provides a better understanding of the risk the country may be facing, especially within the current economic context.

Furthermore, Nigeria has constantly recorded deficits spending over the last four decades, with intermittent instances of budget surplus. The role of fiscal deficits in an economy has been observed to enhance the productivity of economic agents, enhance aggregate demand, thereby increasing the overall economic output (Keynes, 1936). As perceived by Navaratnam & Mayandy (2016), deficit financing is regarded as a strategy of battling economic depression and poor performance of the economy. Therefore, fiscal deficit in itself is not necessarily a problem if it produces a stimulating effect on the economy. In such situation, budget deficit would be improving capacity and stimulate economic performance, thus, making it productive and justified. Despite the theoretical justification for government intervention in stimulating economic growth, there seem to be bounds to the capability to steady the economy, when there is persistent high deficit financing. Persistent fiscal deficits can generate economic distortion, thus resulting into rise in price level, impeding economic productivity and causing crowding as well as reducing the welfare level of the citizens (Blake, 2013).

Despite the existence of a number of empirical studies on this subject, there is still considerable debate on the relation of fiscal deficit and the performance of an economy (Oladipo & Ajisafe, 2015; Idris & Bakar, 2017; Ubi & Inyang, 2018). Although, many studies failed to affirm a case for fiscal dominance in Nigeria, the spate of government's borrowing and the possible interference with CBN's monetary functions require a re-examination of fiscal dominance in Nigeria. Furthermore, it should be noted that with or without a proof of fiscal dominance in the economy of Nigeria, the need to ascertain the level of fiscal sustainability that may hinder or aid economic growth, cannot be overemphasised. Hence, this study examined the existence or otherwise of fiscal dominance and the effectiveness of monetary authority in Nigeria. It also determined the sustainable level of fiscal deficit for economic performance in Nigerian.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Fiscal policy

Fiscal policy can be described as the use of public expenditure and taxation to shape a country's economic situation, specifically macroeconomic conditions involving employment, inflation, aggregate demand and supply of goods and services, as well as economic expansion. It can be further defined as actions undertaken by the government to deploy spending, proceeds, and borrowing with the intention of prompting total demand and aggregate supply to achieve full employment and sustainable economic growth (Agu, *et al*., 2015; Symoom, 2018). Fiscal policy is deeply rooted in the propositions of J.M. Keynes (1936), who sought more roles for government in stabilizing business cycle and economic output through fiscal spending.

2.1.2 Monetary policy

Monetary policy is a strategic stabilization tool used by the apex bank to regulate the circulation of money and attain macroeconomic targets that encourage the growth of an economy in a sustainable manner. It is a blend of procedures devised to control the supply, value, and cost of money in an economy, in harmoniousness with the projected level of economic activity (Onyeiwu, 2012; Nwoko, Ihemeje & Anumadu, 2016). In most economies, the primary objective of monetary authority is the maintenance of price stability and the balance of payments (BOP), as well as to promote development and employment rates. These goals are important for the achievement of inward and outer equilibrium, and the advancement of economic expansion in the long run (Gul, Mughal & Rahim, 2012; Sulaiman & Migiro, 2014).

2.1.3 Fiscal Dominance

Fiscal dominance is the term used to describe the supremacy of fiscal authority over the monetary authority in an economy. In specific terms, it shows the level of effectiveness of fiscal policy over monetary policy through fiscal expansion, which is often aided by borrowings. Fiscal dominance, by depiction, is how much government deficiencies shape up the expansion of the money in circulation. The term, fiscal dominance is often used to refer to the likelihood of an event in which government extravagance is being accommodated by the apex bank (Anshuman, 2021). It represents the circumstance wherein the apex bank accommodates completely all public

obligations. At the end of the day, the financial authorities oblige the monetary authorities at whatever point a spending deficiency is financed with a loan. The monetary policy's perceived accommodation of the fiscal excesses of government usually manifests in form of increment in present and/or impending seigniorage income as security to the loan and the cost of servicing the loan on the freshly acquired loan (Jevđović & Milenkovi, 2018). When fiscal power sets loans as its primary policy tool, it accomplishes fiscal dominance, making the inclinations of the national bank, and consequently its autonomy, unimportant (Martin, 2020). This infers that financial dominance is counter-useful to the dominant goal of central bank policy, which is to maintain the stability of prices, with plausibly inimical effects on the economy in total.

2.2 Theoretical Literature Review

This section covers a review of relevant theories on fiscal dominance and how it relates to economic performance.

2.2.1 Fiscal Theory of Price Level (FTPL)

Fiscal theory of price level establishes a connection between empirical relation of monetary policy with fiscal policy within an economy. Effectively, the theory asserts that fiscal policy of government, especially public spending influences the prices of commodities, thereby causing inflation. In effect, the theory posits that government's fiscal policy is the major determiner of price levels as against the perception that monetary policy does. Although, the fiscal theory of price level was originally propounded by Leeper (1991), a number of scholars have further worked on the theory, especially Sims (1994). The theory, which is closely related to fiscal policy, makes attempt to explain that changes in the inflation rate because of fiscal activity. This hypothesis asserts that where a country's status in terms of viability and buoyancy are in doubt, the independence of her central bank cannot truly be ascertained.

2.2.2 Keynesian School of Thought

As indicated by Keynesian economists, fiscal deficit influences output expansion. Keynesian economics is an aspect of the macroeconomic economic theory of total expenditure in an economy

and how it affects productivity, unemployment rate, and price level. Keynesian economics are counted as 'demand-side' theory, which emphasises short term variations in an economy. Keynes' hypothesis was quick to strongly isolate the investigation of monetary conducts and markets dependent on singular incentives from the investigation of macro level economic data. Keynes rejected the idea that the economy would return to its natural equilibrium condition. Instead, the author explained that once an economic downturn happens, for reasons unknown, the fear and gloom that it instigates among businesses, financial investors will become unavoidable and can lead to an increased time of substantial decline in economic activities and job loss. This results in Keynes push for counter-cyclic fiscal policy during a period of downturn in the economy. The author said that public authorities should adopt deficit spending to offset the decline in investment and lift household expenditure to stabilize total demand.

2.2.3 Austrian Economics School of Thought

In contrast to the view of Keynesian theory on fiscal relation in an economy is the Austrian school. The school of thought accepts that budget shortfalls do not develop an economy; rather, they economic output and productivity. Ott (2003) noted that the Austrian model believes that public budget shortfalls negatively affect economic expansion and suggests a mix of expenditure reduction and tax breaks, contending that output is not boosted by increased public expenditure, it can only be achieved by increased private investment. Specifically, the Austrian School of thought posits that putting resources into physical infrastructure could not expand economic output, highlighting that employment does not increase considering an increase in government expenditure. According to them, indebtedness only burdens the economy more, highlighting the American Recovery and Reinvestment Act of 2009. This infers that the monetary authorities ought to incorporate explicit drives to build tax breaks for individuals who are probably going to be generally influenced by the absence of credit accessibility and for medium-sized firms that have credit burdens (Salomon, 2005).

2.2.5 Monetarist School of Thought

Monetarists believe in the efficacy of monetary policies above and over the fiscal means (public spending and tax plans). To the monetarist, public authorities could encourage a steady economy by focusing on the expansion rate of circulated money. Considering that the accessibility of funds in the economy expands demand in total, the surge in total demand invigorates the efficiency of production in the economy, which thus diminishes unemployment and lifts economic development. Essentially, this perspective hooked on the belief that the aggregate money in circulation is the essential determining factor of economic expansion. Regardless, the monetarist emphasizes the use of monetary policy over fiscal policy. Most Keynesians do not believe in stimulating the economy or lowering prices. Monetarism puts stock in incredibly restricted public authority mediation, though Keynesians contend that dynamic government interest in the economy is important. As indicated by the monetarist, an upgrade going through stimulus adds to the circulated money, but a shortage adds to a nation's national indebtedness. This could cause an increase in financing costs. Monetarism upholds that the role of the apex bank is more important in an economy in relation to public authorities, on the grounds that the central bank regulates the money in circulation.

2.3 Empirical Review

The debate on fiscal dominance has widely dominated discourse at country-specific and cross-country levels, and also variously among the developed and the developing economies. One of the earliest studies on fiscal dominance was by De Resende (2007), whose study provided parameters for measuring fiscal dominance. The study, adopted panel data on developed and developing countries from 1970-2005 and concluded that no country is completely free from fiscal dominance, but that the degree of fiscal dominance varies across countries. Jeanne and Wang (2012) in a similar cross-country study examined the relationship between monetary policy and public debt using dynamic stochastic general equilibrium. The study found that fiscal authority's overshadowing of monetary policies creates distortions in a normal price level. Corroborating the price level distortions by fiscal dominance, De Resende and Nooman (2008) investigated welfare effect of fiscal dominance on Canada, Mexico, South Korea and the United States. Using Bayesian techniques, influence of fiscal dominance was linked to increase in general price levels. Specifically, the study found that fiscal dominance in Mexico and South Korea resulted in welfare losses. Further investigation of fiscal-monetary policies nexus and the probable fiscal authority's dominance over the monetary policy was also carried out in a study by Jevodvic and Milenkovic (2018) on selected European countries in transition such as Bulgaria, Hungary, Romania, Serbia and Macedonia. It was found

that monetary authority has been subservient to fiscal authority. This is a clear case of fiscal dominance in the concerned countries.

In Africa, cases of fiscal policy dominating the monetary policy have equally been investigated on a cross-country basis. Tchamda (2017) was a recent effort in investigating the fiscal-monetary nexus on some selected Sub-Saharan African countries. Adopting Vector Autoregressive technique, the study found that fiscal dominance is prevalent in countries with high degrees of debt. In contrast, however, Ogunsakin (2021) investigated the likelihood of fiscal dominance over monetary authority on 33 sub-Saharan African countries. The study adopted Vector Autoregressive technique with time-series data covering 1995-2018. Findings revealed no evidence of fiscal dominance in the countries concerned.

Incidence of fiscal or monetary dominance is not peculiar to developing countries. Over time, studies have examined the likelihood of fiscal dominance in developed countries. Favero and Monucell (2003) investigated the incidence of monetary dominance in the United States between 1960 and 2000. Monetary dominance was found to have been prevalent in the US from 1960 to 1987, and the plausible interchange of dominance between the authorities were witnessed between 1987 and 2000. Kumhof, Nunes and Yakadina (2008) adopted the econometric modelling technique in the investigation of dominance between the monetary and fiscal authorities in the US. It was found that welfare gains from retorting to fiscal variables are minimal relative to the gains from eliminating fiscal dominance. Similarly, Turner (2011) investigated a case of dominance between fiscal authority and monetary authority (interest rate) in the UK.

Innovatively, Senbet (2011) opposed the joint investigation of the significance of monetary and fiscal policies in a model raising endogeneity and model specification error as possible problems. The study outcome gives credence to the fact that in influencing economic activity, fiscal policy is not as potent as monetary policy. The position of Senbet (2011) was supported by the work of Jemec Kastelec and Delakorda (2011) that inspected the manner in which macroeconomic dynamics are influenced by fiscal shocks spanning the duration of 1995Q1-2010Q4 in Slovenia. The foregoing evidently shows the inconclusive and inexhaustive investigations on the dynamics of fiscal dominance over monetary authority in the advanced countries.

The case of fiscal dominance is a general expectation in developing countries. This is predicated on the level of need to stimulate economic activities on the heel of borrowings, thereby raising the likelihood of fiscal policy dominance of monetary policy in developing countries. The likelihood has been subjected to empirical investigations, which have produced inconclusive results. Nunes & Portugal (2009) distinguished between Brazil's monetary and fiscal-related policies towards inflation targeting. Bayesian approach to assess DSGE was adopted in the presence of monopolistic behaviour and rigidity in prices. The assessments exhibited a framework where the two strategies were dynamic. Furthermore, Kuncoro & Sebayang (2013) dissected the dynamism among monetary and fiscal approaches spanning 1999-2010 in Indonesia. In the first place, the authors suggest the response function among fiscal and monetary plans. Secondly, they distinguish the principal determinants of both connection choices, that is, the loan fee and the essential equilibrium excess. The results showed that in the short-term monetary policy responds to the fiscal policy in a way that governments could run a primary surplus. On the other hand, financial strategy reacts to the money related arrangement (loan cost) with the goal that monetary maintainability will be more dangerous to achieve given the contrary response of public authority to loan shocks.

Goncalves (2017), examined the empirical position on tight money paradox of Sargent and Wallace using Rigobon's method via heteroscedasticity technique in the case of Brazil. No case of fiscal dominance was established. This finding is supported by Lozano (2008), who investigated fiscal dominance and inflation over the period of 1955-2007 in Colombia using the VAR technique, and concluded that that there was a direct association between price level and money growth, and seigniorage and spending shortfalls. Moreover, Elbadawi Goaied and Tahar (2017) analysed the degree of favourable cyclicality of the monetary system and the source of fiscal policy under this system, spanning the post-mid-1990s positive oil shock in Arab countries that rely on oil. The outcome revealed that a critical level of oil revenue exists. Under this point, the economies are found to experience fiscal dominance. Ekpo *et al* (2014) investigated the presence of fiscal dominance in Ghana through Markov Regime Switching Model and could not establish a case of fiscal dominance in the Ghanaian economy. In a recent study, Sanusi (2020) tried to determine the extent of dominance of fiscal authority over the monetary authority in Nigeria and South Africa. The study used Dynamic Least Square (DOLS) technique. The outcome exhibited that both countries experience low dominance of fiscal policy, however, the economy of Nigeria fiscal dominance is lesser when compared with South Africa. Thus, the Apex bank in Nigeria is more unrestricted to control increase in price level. Nevertheless, inflation is lesser in South Africa than Nigeria.

Chibi, Chekouri, & Benbouziane (2021) analysed the dynamism between monetary and fiscal policies over a period dated 1963–2017 in Algeria. The study adopted Structural Vector Autoregression (SVAR) model and state-space procedure. It was found that there was a presence of fiscal dominance. Additionally, the State-space model with Markov-exchanging results showed that fiscal and monetary approaches in Algeria have cooperated in a neutralizing way for most of the period. The study concluded that the relationship could be likened to a game in which the first act is fiscal authority (or it is dynamic), while the central bank has a detached conduct deciding the obligation levels to the costs given by the fiscal authority.

Studies in Nigeria have rarely considered the comparative significance of fiscal policy over monetary policy. The studies have mostly ingeniously examined the dominance as a relation between fiscal and monetary policies variables. However, these have produced mixed outcomes, which requires further investigations. Regarding Nigeria, Sanusi and Akinlo (2016) used the structural VAR approach to decide if monetary strength existed in Nigeria for the period 1986–2013. The findings of their investigation revealed that the development of money-related bases responds not to stun but to financial shortfalls in the government. Accordingly, they found that no causality was discovered streaming in Nigeria from financial shortfalls to money related base development. The confirmations uncovered that financial predominance does not exist in Nigeria over the time of study. Nonetheless, recent grants on financial strength have shown that all nations experience some level of monetary predominance, but it is the degree that is unique. This investigation attempted other ways of investigating the extent to which fiscal dominance exists in Nigeria. Corroborating this study, Afolabi and Atolagbe (2018) dissected the fiscal dominance and the direction of money-related policy in Nigeria over 1986 to 2016. The study adopted VAR technique and revealed that spending deficits and indebtedness have no influence statistically on inflation. The study could not establish a case of fiscal dominance in Nigeria.

Suleiman, Alexander and Olure-Bank (2018) assessed the quantitative impacts of budget shortfall and Naira exchange rate and how they impact price levels in Nigeria. The study used SVAR and found a zero impact of the public spending shortfall and the Naira exchange rate on the price level. This finding stands contrary to the works of Oladipo and Akinbobola (2011), Danlani, Hidthiir and Hassan (2019) but was also supported by Adeleke and AbdulSalam (2016), who examined the influence of deficit spending on inflation

using the OLS procedure. The study concluded that deficit financing drives inflation in Nigeria. Going by various studies that have made contributions to the discourse on fiscal dominance in Nigeria, the need for further investigation cannot be overstated; hence, this study.

2.4 Identified Gap

Despite the fact that many studies in Nigeria could not establish fiscal dominance in Nigeria, the rate of borrowing of government, the widening fiscal deficit and the perceived unholy alliance between the fiscal and monetary authorities call for a review of the fiscal dominance status of Nigeria. Substantial evidence showed the potentially detrimental influences of fiscal dominance in an economy; hence, the need to constantly measure its existence and degree in order to make appropriate counter-balancing policies.

3.0 Methodology

This paper adopted descriptive research design and utilized time series secondary data for 1980-2020, which were obtained from the World Development Indicators (WDI, 2021) and the Statistical Bulletin of the Central Bank of Nigeria (CBN, 2021). Data on Real GDP, Fiscal Deficit, Money Supply, Public Debt, Government Expenditure, and Interest Rate were obtained from the quoted sources.

3.1 Model Specification

Drawing from the theoretical framework and following the work of De Resende (2007). The functional form of the model is specified as:

$$M_t = f(C_t, D_t) \tag{3.1}$$

where M_t is the money supply, D_t stand for government debt outstanding and C_t represents level of nominal private consumption.

In specific term, Equation (3.1) is expressed as

$$M_t = \alpha_0 + \alpha_1 C_t + \alpha_2 D_t + e_t \tag{3.2}$$

The degree of fiscal dominance, δ will be established by the coefficient of the debt outstanding. To evaluate equation (3.2), this study utilised the Dynamic Ordinary Least Squares (DOLS)

technique put forward by Stock and Watson (1993). The functional form of Equation 3.2 is stated as;

$$M_t = \alpha_0 + \alpha_1 C_t + \alpha_2 D_t + \sum_{s=-\lambda}^{\lambda} \xi_{1,s} \Delta C_{t-s} + \sum_{s=-\lambda}^{\lambda} \xi_{2,s} \Delta D_{t-s} + \mu_t, \quad 3.3$$

where $\xi_{j,s}$ for j = 1, 2 and s = −λ, − λ + 1, ……..., λ − 1, λ are constant coefficients with a lower absolute value of α_2 indicating high degree of fiscal dominance, that is, 1 – $|\alpha_2|$ would give the stock of government outstanding debt backed by monetary authority; the greater this value, the higher the level of fiscal dominance) and μ is the error term.

4.0 Presentation of Results and Discussion of Findings

4.1 Pre-Estimation Analyses

Prior to the estimation of time series data, the statistical properties of the important variables are first checked to determine the appropriateness of the estimation techniques and the predictive powers of the estimated parameters. In this study, the descriptive statistics of the variables, the stationarity test, the long cointegration test, lag selection criteria test, etc. are conducted prior to regression analyses.

4.1.1 Descriptive Statistics

Ascertaining the distributional characteristics of the estimation data is a necessary exercise in time series study. Important statistical measures like the mean, median, variability of the data, standard deviation, normality of distribution, and such other measures like the kurtosis, skewness, Jarque-Bera as well as probability distributions are obtained in the process. The descriptive analysis showed the data to be consistence with their respective A priori expectations, hence, they were found to have statistical characteristics that defined their appropriateness for use in the empirical analysis.

Table 4.1: Descriptive Analysis of the Variables

	Real GDP	Fiscal Deficit	Money Supply	Public Debt	Govt. Expend	Interest Rate
Mean	36,843.40	1,355.518	6,157.553	5,050.767	2,250.882	6.25
Median	25,914.08	198.8000	1,036.080	2,759.200	982.8433	6.75
Maximum	71,387.83	6,404.800	2,7885.35	2,5046.31	1,0164.56	11.06

Minimum	16,048.31	-861.4	16.16170	11.19000	9.636500	0.32
Std. Dev.	19,785.11	1,944.237	8,756.876	6,318.758	2,819.831	2.78
Skewness	0.631816	1.250674	1.231687	1.613823	1.290899	-0.53
Kurtosis	1.794414	3.369755	3.071444	4.965018	3.786526	2.52
Jarque-Bera	5.083673	10.65578	9.869134	24.39329	12.14051	2.28
Probability	0.078722	0.004854	0.007194	0.000005	0.002311	0.32
Sum	1473736.	54220.70	240144.6	207081.4	90035.27	249.90
Sum Sq. Dev.	1.53E+10	1.47E+08	2.91E+09	1.60E+09	3.10E+08	300.89

Source: Authors' computation, 2024

As observed in Table 4.1, all the variables are in their absolute values, which provides for ease of interpretation in terms of their monetary values. The relationship between the mean and the median for the real GDP, public debt, and interest rate appeared better represented due to the closeness of the values. However, for fiscal deficit, money supply, and government expenditure, the mean and the median appeared widely dispersed. This could be due to shocks, inconsistencies in public policy and others. Furthermore, the maximum value of economic output for the period 1980-2020 was ₦71,388 billion, while the minimum value was ₦16,048 billion. Similarly, the descriptive statistics also showed that for the period of the study, the maximum monetary value of public debt (₦25,046 billion) was more than the maximum monetary value of government expenditure (₦10,164 billion). This is a clear demonstration of fiscal recklessness on the part of the Nigerian government. It further reinforces the fact of huge indebtedness on the part of government, which could be a pointer to the likelihood of fiscal dominance.

However, the likelihood of fiscal dominance cannot be proven by the descriptive statistics as the maximum monetary value of the money supply (₦27,885 billion) within the same period is considerably high. Furthermore, the presence of high volatility was witnessed in fiscal deficit, money supply, public debt, and government expenditure. This is because the standard deviation values for the variables were higher than the mean values of the variables. However, while the real GDP showed mild presence of volatility, the interest rate showed the absence of volatility with an average value of 2.8 percent. By implication, this shows the presence of inconsistencies in policy formulation and implementation regarding fiscal and monetary variables and their relation to real economic output.

As further noted from Table 4.1, the normality of the data distribution and the probability values of the variables appeared to fall within the range of acceptance. Skewness revolved around acceptable zero values; Kurtosis revolved around the acceptable value of 3.0; while the Jarque-Bera values demonstrated normal distribution of the data. The descriptive statistics further showed that the variables, real GDP, fiscal deficit, money supply, public debt, government expenditure, and interest rate are not only useful for economic analysis but also that the outcome of the analysis is reliable.

4.1.2 Unit Root Test

Ascertaining the level of stationary of time series data is a precursory activity in the regression analyses. This process provides useful information about the predictive power of estimated parameters in a model. Importantly, the presence of a unit root means that the time series has a stochastic trend, which makes it difficult to analyse and model using standard techniques. Non-stationary time series is one that has a mean, variance, or autocorrelation structure that changes overtime. To avoid spurious regression, it is important to test for stationarity of the time series data and transform the data, if necessary, to make them stationary. The unit root test was carried out in this study using Augmented Dickey Fuller (ADF) test and Phillip-Peron (PP) tests. The outcomes of the Augmented Dickey Fuller (ADF) unit root test revealed that *RGDP, FCD, MS_2, GEXP, INTR* are non-stationary in their level forms. These variables became stationary after first differencing save for *PDBT* and *NPC* which are stationary at their levels. Using the Phillip-Peron (PP) unit roots tests, the stationarity tests indicate that *RGDP, FCD, MS_2, PDBT, GEXP, INTR* are integrated of order one while *NPC* was stationary without differencing. In conclusion, the unit root tests result suggest that the study variables are at different orders of integration, that is, the variables are stationary at levels and at first difference.

Table 4.2 Unit Root Test Result

Variable	ADF Test			PP Test		
	Level	1st Difference	Remarks	Level	1st Difference	Remarks

RGDP	-1.99 (0.29)	-1.99** (0.05)	I (1)	0.95 (0.99)	-2.01*** (0.04)	I (1)
FCD	-1.60 (0.10)	-6.17*** (0.00)	I (1)	-1.63 (0.09)	-6.20*** (0.00)	I (1)
MS2	4.05 (0.99)	-6.44*** (0.00)	I (1)	0.79 (0.99)	-6.43*** (0.00)	I (1)
PDBT	-3.56 (0.047)	-3.26** (0.02)	I (0)	-0.98 (0.75)	-2.60*** (0.02)	I (1)
GEXP	2.12 (1.00)	-6.35*** (0.00)	I (1)	1.24 (0.99)	-5.50*** (0.00)	I (1)
INTR	-2.61 (0.28)	-6.51*** (0.00)	I (1)	-2.52 (0.32)	-12.45*** (0.00)	I (1)
NPC	-4.34*** 0.00	-5.49*** (0.00)	I (0)	-4.79*** (0.00)	-8.79*** (0.00)	I (0)

Note: ADF, PP, and *, **, and *** represent 10%, 5%, and 1% level of significance. P-values are in parenthesis.
The variables are a combination of I(0) and I(1) variables at 1%, 5%, and 10% level of significance.
Source: Authors' computation, 2024

4.1.3 Cointegration Test

Establishing long run equilibrium between variables of interest is a necessary step in time series estimations. In most cases, researchers do not spend energy on a study where the major variables on interest do not have long run relationship. In this study, ARDL Bounds test was adopted to estimate the long run relationship. The results show the existence of long run relationship. This is shown in Table 4.3

Table 4.3 Co-integration Test Result (ARDL Bounds Testing Technique)

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.13	10%	2.75	3.79
K	5	5%	3.12	4.25
		2.5%	3.49	4.67
		1%	3.93	5.23

*, **, and *** represent 1%, 5%, and 10% level of significance respectively
Source: Authors' Computation

4.1.4 Lag Selection Criteria

Lag selection is a necessary condition in the autoregressive models. This is the process of selecting the appropriate lag(s) following some selected criterion determiners such as: sequential modified LR test statistic (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Information Criteria (HIC). Based on the selection criterions, 4 has been chosen as the appropriate lag length for the econometric analyses. The lag selection criteria result estimation model is presented in Table 4.4.

Table 4.4 Lag Selection Criteria

Endogenous variables: RGDP FCD MS2 PDBT GEXP INTR

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1660.22	NA	9.03e+33	95.21	95.48	95.31
1	-1414.07	393.84	5.68e+28	83.20	85.07	83.85
2	-1364.12	62.79	3.10e+28	82.41	85.87	83.60
3	-1287.02	70.49	5.18e+27	80.06	85.12	81.81
4	-1165.36	69.52*	1.57e+26*	75.16*	81.83*	77.47*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error; AIC: Akaike information criterion
SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion
Source: Authors' Computation

4.2 Regression Results on the Presence or Otherwise of Fiscal Dominance in Nigeria

The results of the regression as shown in Table 4.5 showed no affirmation of fiscal dominance in Nigeria. According to De Resende (2007), the parameter that determines the level of fiscal dominance over monetary authority is given as: $\delta = (1 - \alpha_2)$. Where the resultant value is closer to 1, then there is empirical affirmation of fiscal dominance. Conversely, where the value is close to zero (0), then, fiscal dominance is not taking place in the economy; rather, there is monetary dominance. With $\delta = 0.28$, the case of fiscal dominance in Nigeria cannot be established. On the contrary, there is evidence of monetary dominance, which arise from the CBN's policies to curb rising inflation by limiting the volume of money in circulation and hiking interest rates.

Table 4.5 Determination of Existence or Otherwise of Fiscal Dominance and Its Degree

Dependent Variable: Money Supply

Variable	Coefficient	Std Error	t-Stat	Prob.	R-Sqd	Adj. R-Sqd	$\delta = (1 - \alpha_2)$
NPC	9.23	9.78	0.94	0.35	0.99	0.99	0.28
DDO	1.28	0.16	8.25***	0.00			
GEXP	1.37	0.32	4.29***	0.00			
INTR	-150.61	74.88	-2.01**	0.05			

*, **, and *** represent 10%, 5%, and 1% level of significance; Note: R-Sqd is R-Squared

Source: Author's Computation

From Table 4.5, debt outstanding (DDO), government expenditure and interest rate have statistically significant relationship with money supply, though, the effects and impacts are different. In relation to the existence or otherwise of fiscal dominance, the results showed no evidence of fiscal dominance in the Nigerian economy. The results corroborate the findings of Sanusi & Akinlo (2016); Afolabi & Atolagbe (2018). Additionally, fiscal policy variables in Table 4.5, debt outstanding and government expenditure have positively significant relationship with money supply. Specifically, ₦1 billion increase in public debt is expected to increase money supply by ₦1.2 billion ($t = 8.25$, $p < 0.01$). Similarly, ₦1 billion increase in government spending will cause money supply to increase by ₦1.36 billion ($t = 4.29$, $p < 0.01$). Conversely, interest rate exhibited negative effect on money supply, such that a percentage increase in interest rate will cause money supply to decline by 150 percent. The coefficient of determination of the model as revealed in the R-squared and Adjusted R-Squared values of 0.99 and 0.99, respectively, is good.

5.2 Conclusion

Although, the rate of government's borrowing and spending since Nigeria's return to democracy suggests the likelihood of fiscal dominance over monetary authority effectiveness. This conjecture has been debunked by empirical findings of this study. Interestingly, though, the rate of economic growth has tended towards fiscal expansion, the monetary authority's activities have also been effective over the same period. Variables of interest like fiscal deficit, public debt, government spending, money supply, and interest rate, have adequately captured the essence of this study. Therefore, it is hereby concluded that there is no case of fiscal dominance over monetary authority in Nigeria.

5.3 Recommendations

The failure to establish fiscal dominance in Nigeria points to the fact that government can still pursue economic growth agenda through the expansionary fiscal drives. Meanwhile, rather relying more on external borrowing with soaring international interest rates, it recommended that government considers internal borrowing, which are not only having assurance of lower interest rates, but also the repayment of same will boost local economy.

Author's Contributions

Williams Adeyemi conceived the idea, downloaded articles, conducted literature review, carried out econometric analyses and wrote the manuscript, while while Dr. M. A. Orisadare reviewed the manuscript and made useful recommendations.

Conflict of Interest

There is no conflict of interest relating to the study.

Funding

The authors have received no funding support in carrying out the study.

Data Availability

The study was conducted using free and open-sourced data as indicated in the article.

References

Adeleke, A. O. & AbdulSalam, I. A. (2016). The Impact of Budget Deficit on the Economic Growth in Nigeria. *journal of Economic and sustainable Economics*, 7(14), 1 – 11.

Afolabi, J. O. & Atolagbe, O. (2018). Empirical analysis of Fiscal Dominance and the Conduct of Monetary Policy in Nigeria. MPRA Paper No. 88786.

Agu, S. U., Okwo, I. F. Ugwunta, O. D. & Idike, A. (2015). Fiscal Policy and Economic Growth in Nigeria: Emphasis on Various Components of Public Expenditure. *SAGE Open*, 1–12.

Ahmed, R., Aizenman, J. & Jinjarak, Y. (2020). *Inflation and Exchange Rate Targeting Challenges under Fiscal Dominance*. NBER Working Paper 25996.

Anshuman K. (2021) *Fiscal dominance in India: Through the windshield and the rear-view mirror.* IEG Working Paper No. 429.

Blake, T. (2013). Measuring the impact of the Jamaican Government on the economy via fiscal multipliers. Journal of Business, Finance & Economics in Emerging Economies. 8(1), 26-35.

Chibi, A. Chekouri, A. M. & Benbouziane, M. (2021). Interaction Between Monetary and Fiscal Policy in Algeria: An Application of a Model with Markovian Regime Switching. *Les Cahiers du Cread*, 37(01)173-210.

Danlani, I. A., Hidthiir, M. H. & Hassan, S. (2019). Dynamic Analysis of the Effect of Fiscal Deficit on Inflation in Nigeria. *Academic Journal of Economics Studies*, 5(2), 159 -161.

De Resende, C. (2007). *Cross-country Estimates of the Degree of Fiscal Dominance and central bank independence*. Working Papers Bank of Canada: 07-36

De Resende, C., & Nooman, R. (2008). *The Welfare Implication of Fiscal Dominance*. Bank of Canada, International and Research. Ontario: Bank of Canada.

Ekpo, A. H., Asiama, J. P. & Akosah, N. K. (2014) The Impact of Fiscal Dominance on Monetary Policy in Ghana. *The West African Economic Review*, 2(2), 9 -34.

Elbadawi I., Goaied, M., & Tahar M. B., (2017). *Fiscal-Monetary Interdependence and Exchange Rate Regimes in Oil Dependent Arab Economies*. In Economic Research Forum Working Papers (No. 1116).

Favero, C., & Monacelli, T. (2003). *Monetary-Fiscal mix and Inflation Performance: Evidence from the U.S*. Working Papers, 234, 1–28).

Goncalves C. E. (2017). Is Fiscal Dominance for Real? Evidence from Brazil's High Frequency Data.

Gul, H., Mughal, K. & Rahim, S. (2012). Linkage between Monetary Instruments and Economic Growth, Universal Journal of Management and Social Sciences, 2 (5), 69-76.

Idris, M. & Bakar, R., (2017). Public Sector Spending and Economic Growth in Nigeria In Search of a Stable Relationship. Asian Research Journal of Arts & Social Sciences. 3(2):1-19.

Jeanne, O. & Wang, H. (2012). *Fiscal Challenges to Monetary Dominance*. Department of Economics, Johns Hopkins University Publication.

Jemec, N., Kastelec, A. S. & Delakorda, A. (2011). How do Fiscal Shocks Affect the Macroeconomic Dynamics in the Slovenian economy? *Številka 2, Letnik XVII*. German

Jevđović, G. & Milenković, I. (2018). Monetary Versus Fiscal Dominance in Emerging European Economies. *Economics and Organization*, 15(2), 125 – 133.

Kumhof, M. Nunes, R. & Yakadina, I. (2008). *Simple Monetary Rules Under Fiscal Dominance*. International Finance Discussion Papers Number 937.

Kuncoro H., & Sebayang K., (2013), The Dynamic Interaction between Monetary and Fiscal Policies in Indonesia. *Romanian Journal of Fiscal Policy*, 4(1), 47-66.

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

Lozano, L. I. (2008). *Budget Deficit, Money Growth and Inflation: Evidence from the Colombian case*. Borradores de Economía; No. 537.

Martin, F. M., (2020). *Fiscal Dominance*, Federal Reserve Bank of St. Louis Working Paper 2020-040. URL

Nwoko, N. M., Ihemeje, J. C., Anumadu, E. (2016). The Impact of Monetary Policy on Economic Growth in Nigeria. *African Research Review*, 10(3), 192 – 101.

Navaratnam, R. and Kasavarajah, M. (2016). "Causal nexus between fiscal deficit and economic growth: Empirical evidence from South Asia." International journal for innovation education and research 4 1-19.

Nunes A. F. N., & Portugal M. S., (2009). *Active and passive fiscal and monetary policies: an analysis for Brazil after the inflation targeting regime*. In Proceedings of the 37th Brazilian economics meeting.

Ogunsakin S. (2021). Fiscal Dominance and Monetary Policy Effectiveness in Sub-Saharan Africa. *IOSR Journal of Economics and Finance*, 12(1), 43-52.

Oladipo, S. O. & Ajisafe, R. A. (2015). Dynamic interactions among budget deficit, economic growth and poverty level towards capacity building strategy for sustainable development and poverty alleviation in Nigeria (1980-2012). Journal of emerging Trends in Economics and Management Sciences, 6(7), 169-174.

Oladipo, S. O & Akinbobola, T. O. (2011). Budget Deficit and Inflation in Nigeria: A Causal Relationship. *Journal of Emerging Trends in Economics and Management Sciences*. 2(1), 1-8.

Onyeiwu, C. (2012). Monetary policy and economic growth of Nigeria. Journal of Economics and Sustainable Development, 3 (7); 62 – 70.

Ott, M. (2003). The Fiscal rule Insulating Nigeria's Financial Policy from Oil Price and Revenue Volatility. Third Annual Monetary Policy Conference Proceedings on Issues in Fiscal Management: Implications for Monetary Policy in Nigeria: Lagos, Central Bank of Nigeria Publications.

Salomon, B. (2005). Banker's Trust York Corporation: Risk Management. United States Equity Research.

Sanusi, K. A. (2020) Fiscal Dominance and Inflation: Evidence from Nigerian and South African's Experiences, *Cogent Economics & Finance*, 8(1)

Sanusi, K. A., & Akinlo, A. E. (2016). Investigating Fiscal Dominance in Nigeria. European *Journal of Sustainable Development*, 8(1), 125–131.

Senbet, D. (2011). The Relative Impact of Fiscal Versus Monetary Actions on Output: VAR approach. *Business and Economics Journal*, 1-11.

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

Stock, J. H., & Watson, M. W. (1993). A Simple Estimator of Cointegrating Vectors in Higher Order Integrated Systems. *Econometrica: Journal of the Econometric Society*, 61(4), 783–820.

Sulaiman, L. A., & Migiro, S. O. (2014). The Nexus between Monetary Policy and Economic Growth in Nigeria: A Causality Test. *Public and Municipal Finance*, 3(2); 35 – 40.

Suleiman, Alexander and Olure-Bank (2018). An Econometric Analysis of the Nexus between Exchange rate, Inflation and Budget Deficit. Journal of World Economic Research, 7(1), 1-13.

Symoom T. (2018). *The Impact of Fiscal Policy on Economic Growth: Empirical Evidence from Four South Asian Countries*. Master Thesis, Eastern Illinois University.

Tchamda, C. (2017). *The Fiscal Theory of the Price Level in Sub Saharan Africa: A Structural Break Analysis*. Thesis and Dissertations. 1139, South Dakota State University

Trenovski, B. & Tashevska, B. (2015). Fiscal or Monetary Dominance in a Small, Open Economy with Fixed Exchange Rate – The Case of the Republic of Macedonia, Proceedings of Rijeka Faculty of Economics: *Journal of Economics and Business*, 33 (1), 125-145.

Turner, P. (2011). *Fiscal Dominance and Long-term interest rate*. Financial Market Group Special Paper. Sp99.

Ubi, P. & Inyang, J. (2018). Fiscal Deficit and Nigeria's Economic Development. *International Journal of Economics, Commerce and Management*. Vol. VI, Issue 5.