

THE INFLUENCE OF FISCAL AND MONETARY POLICIES ON EXCHANGE RATE DYNAMICS IN NIGERIA

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ABSTRACT

This paper examines the effects of fiscal and monetary policies on exchange rate dynamics in Nigeria. It aimed to clarify the links and impacts of government spending, total government revenue, real interest rates, broad money supply, GDP growth, and inflation on the exchange rate. The article provides a thorough examination of these economic variables by analyzing data from 2000 to 2022 using an ARDL model and Granger causality tests. The ARDL results show that an increase in government expenditure initially causes currency depreciation. A large influence is also seen by total government revenue, with a coefficient of -0.005274. Real interest rates are related to currencies appreciation on the monetary side, whereas depreciation is caused by a large money supply. Granger causality tests show that changes in exchange rates have a considerable impact on adjustments to government spending and total government revenue. Real interest rate fluctuations are greatly impacted by inflation, indicating a link of interdependence between both factors. The analysis comes to the conclusion that maintaining economic growth and stabilizing the exchange rate require coordinated monetary and fiscal measures. In order to properly control government spending, it is advised that fiscal and monetary policies be coordinated in order to respond to economic shocks. Additionally, stable interest rates should be maintained in order to draw in foreign investment. To increase Nigeria's economic stability and resilience, it is also advisable to implement adaptive policy measures and ongoing monitoring based on real-time data.

KEYWORDS: Exchange rate dynamics, fiscal policy, monetary policy, ARDL model, Nigeria.

INTRODUCTION

Monetary and fiscal policies are vital tools for achieving macroeconomic stability and have significantly influenced Nigeria's economic landscape (Agbonkhese & Oligbi, 2020; Tule,

Onipede & Ebuh, 2020). The Central Bank of Nigeria (CBN) uses instruments such as open market operations (OMO), the Monetary Policy Rate (MPR), and the Cash Reserve Ratio (CRR) to control liquidity, maintain the naira's value, and influence inflation and economic growth (Osakwe, Udoye & Akuna, 2022; Ele & Ogbonnaya, 2023). Fiscal policy, implemented by the federal government, employs public spending, taxation, and debt management to stimulate growth and maintain stability.

Nigeria has transitioned from strict foreign exchange controls to a liberalized financial sector, adopting a managed float exchange rate system with multiple exchange rate windows. While aimed at stability, this approach has created distortions, encouraged arbitrage, and complicated policy implementation. The 2016 recession, triggered by a sharp fall in oil prices, exemplified these challenges, leading to GDP contraction, inflation peaking at 18.7%, and severe currency depreciation (Gloria & Blessing, 2022; Agri, Mailafia & Umejiaku, 2017). Exchange rate volatility remains critical in an import-dependent economy, affecting investor confidence, inflation, and the cost of goods and services.

Both fiscal and monetary authorities have introduced measures, adjusting the MPR, managing government expenditure, and intervening in forex markets, to stabilize the naira. However, Nigeria's reliance on oil revenue makes it highly vulnerable to external shocks, such as global oil price fluctuations, financial crises, and the COVID-19 pandemic, which exacerbate volatility (Beckman, Czudaj & Arora, 2020). Sustaining macroeconomic stability therefore requires well-coordinated policy measures and economic diversification.

STATEMENT OF THE PROBLEM

Despite strict policy measures, exchange rate volatility persists, eroding investor confidence and complicating long-term planning (Olujobi, 2022). The naira's instability aggravated by global crises, discourages foreign investment, increases inflation, and strains fiscal management. Existing studies focus largely on either fiscal or monetary policy in isolation (Frenkel, 2019; Ferrari, Kearns & Schrimpf, 2021; Effiong et al., 2023), neglecting their combined impact, especially under varying exchange rate regimes. Nigeria's multiple exchange rate system fosters arbitrage, speculation, and policy inefficiency (Nkechi & Nwadiubu, 2020), while heavy dependence on oil exports amplifies vulnerability to global price shocks. There is thus a pressing need for integrated analysis of fiscal-monetary interactions and their influence on exchange rate stability.

JUSTIFICATION FOR THE STUDY

Grounded in the Mundell-Fleming model, which explains the differential effectiveness of fiscal and monetary policies under various exchange rate systems, this study examines Nigeria's policy mix within the managed float regime. The model's relevance to a small, open, import-dependent economy makes it an ideal framework for evaluating the naira's volatility. It is complemented by the Purchasing Power Parity (PPP) theory, which provides a long-term perspective on currency valuation. This dual theoretical approach addresses a research gap by jointly assessing the influence of broad money supply and real interest rates (monetary policy) alongside government spending and revenue (fiscal policy) on the exchange rate.

The study incorporates GDP growth and inflation as control variables to capture broader macroeconomic dynamics. Using annual data from 2000 to 2022 from the World Development Indicators (WDI) and CBN Statistical Bulletin, it applies the ARDL methodology to explore both short- and long-run relationships, ensuring robustness through post-estimation diagnostics. The findings aim to guide policymakers toward coordinated strategies that enhance exchange rate stability and economic resilience.

SCOPE OF THE STUDY

The analysis covers Nigeria from 2000 to 2022, examining the effects of fiscal and monetary policies on exchange rate movements. Monetary policy variables include real interest rate and broad money supply, while fiscal policy variables include total government spending and revenue. The exchange rate is the dependent variable, with GDP growth and inflation as control variables. Data is sourced from the 2023 editions of WDI and the CBN Statistical Bulletin.

LITERATURE REVIEW

Review of Relevant Theories

The Purchasing Power Parity (PPP) theory: primarily attributed to Gustav Cassel in the early 20th century, posits that in the long run, exchange rates should adjust so that the same basket of goods costs the same in different countries when priced in a common currency. The core assumption of PPP is the law of one price, which states that in the absence of transportation costs and barriers to trade, identical goods should sell for the same price when expressed in a common currency. There are two forms of PPP: absolute PPP, which suggests that price levels in different countries should be equal when expressed in a common currency, and relative PPP, which focuses on the rate of change in prices between two countries, predicting that the rate of exchange rate change will equal the difference in inflation rates between them. The relevance of PPP to the study of Nigeria's exchange rate dynamics is significant. Nigeria experiences frequent inflation due to various factors, including fiscal and monetary policies. PPP helps in understanding how these inflationary pressures translate into exchange rate movements. By analyzing the changes in price levels influenced by government expenditure, tax revenue, real interest rates, and money supply, PPP provides a framework to predict long-term adjustments in the exchange rate. However, the PPP theory has its limitations. It assumes the absence of transportation costs, trade barriers, and differences in goods across countries, which are often unrealistic. Moreover, PPP is better suited for long-term analysis and may not accurately predict short-term exchange rate movements due to market imperfections, speculative activities, and other short-term economic shocks.

The Mundell-Fleming model: developed by Robert Mundell and Marcus Fleming in the 1960s, extends the IS-LM framework to an open economy, incorporating the balance of payments (BP). The model operates under the assumptions of perfect capital mobility and different exchange rate regimes (fixed or floating). It demonstrates how fiscal and monetary policies affect national income and exchange rates. Under a floating exchange rate regime, monetary policy is more effective because changes in interest rates lead to capital flows that adjust the exchange rate,

thereby impacting the balance of payments and aggregate demand. Conversely, fiscal policy is more effective under a fixed exchange rate regime because government spending directly influences national income without changing the exchange rate. The relevance of the Mundell-Fleming model to the study is profound, especially for analyzing the short-term effects of fiscal and monetary policies on Nigeria's exchange rates. Nigeria's managed float system and multiple exchange rate regimes create a complex environment where both fiscal and monetary policies interact to influence exchange rates. The model helps to understand how changes in interest rates, government spending, and tax policies impact the exchange rate, capital flows, and overall economic stability in Nigeria. Despite its utility, the Mundell-Fleming model has limitations. It assumes perfect capital mobility, which is often not the case in reality due to capital controls and other restrictions. Additionally, the model's predictive power is limited in the presence of speculative attacks and other forms of market irrationality. It also simplifies the complexity of international financial markets by focusing primarily on interest rates and fiscal measures, potentially overlooking other crucial factors like investor sentiment and geopolitical risks.

The Link between the Study and the Reviewed Theories

The Mundell-Fleming model and purchasing power parity (PPP) theory provide complete frameworks for comprehending the dynamics of exchange rates in connection to monetary and fiscal policy, and they serve as the theoretical cornerstones of this study. The Mundell-Fleming model clarifies the impacts of monetary and fiscal policy under various exchange rate regimes. It is an extension of the IS-LM model to an open economy. For a tiny open economy like Nigeria, which is prone to strong external impacts and swings in exchange rates, this model is especially pertinent. It makes the argument that while fiscal policy is still powerful under a fixed exchange rate system, monetary policy becomes less effective at affecting output. In contrast, monetary policy becomes more effective in a system with a floating exchange rate, while fiscal policy's impact is mitigated by exchange rate adjustments. Through the use of this model, the study seeks to analyze the relative effectiveness of monetary and fiscal policies in Nigeria for maintaining exchange rate stability, particularly in light of the nation's managed float system and past economic difficulties. This study is enhanced by the purchasing power parity (PPP) theory, which offers a long-term outlook on exchange rate determination. According to the PPP theory, exchange rates should be adjusted to bring two countries' pricing levels into line and guarantee that the cost of a basket of commodities is the same in both currencies. Understanding the fundamental worth of the naira in regard to the US dollar and other major currencies is made easier with the help of this theory, especially in an economy as import-dependent as Nigeria's. The PPP theory aids in determining how accurately the exchange rate represents the actual economic conditions and the relative price levels between Nigeria and its trade partners, given the substantial influence that inflation and price level fluctuations have on exchange rates.

This paper creates a solid theoretical framework to investigate the interaction between monetary and fiscal policies and their combined effects on exchange rate evolution by fusing the Mundell-Fleming model with PPP theory. An organised method for assessing how Nigeria's policy mix affects the exchange rate is provided by the Mundell-Fleming model, which places a strong emphasis on the effectiveness of policies under various currency rate regimes. In the meantime, the PPP theory provides guidance for determining the long-term equilibrium exchange rate and

helps determine whether the naira is overvalued or undervalued in relation to Nigeria's basic economic conditions. This combined theoretical approach is especially relevant for Nigeria, where the volatility of exchange rates affects investor confidence, economic stability, and strategic economic planning. Through an examination of these theories, the research not only looks into the short-term effects of monetary and fiscal policy, but also places these effects in the perspective of long-term price level changes and the overall economic environment. In addition to offering a thorough understanding of the variables influencing currency rate fluctuations in Nigeria, this integrated research attempts to offer actionable policy recommendations that would improve both exchange rate stability and overall economic performance.

Methodological Review

Ogunjimi (2020) focused on the effects of exchange rate dynamics on sectoral output in Nigeria from 1981 to 2016. The study aimed to understand both symmetric and asymmetric impacts of exchange rate movements on the agricultural, industrial, and services sectors. The study utilized the ARDL and NARDL frameworks, employing annual time-series data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin. Anifowose (2020) examined the effects of monetary policy shocks on exchange rates in Nigeria and South Africa over the period 2005 to 2017. The study employed Vector Autoregression (VAR) procedures on selected components of monetary policy instruments and exchange rate variables. The study's objective was to analyze the impact of these shocks on the exchange rate variability in both countries.

Henry and Sabo (2020) analyzed the impact of monetary policy on inflation in Nigeria from 1985 to 2019. Using Autoregressive Distributed Lag (ARDL) analysis, the study utilized time-series data to explore the effects of monetary policy rate, foreign exchange rate, and broad money supply on inflation. The study seeks to assess the effectiveness of monetary policy in achieving price stability. Ayinde and Bankole (2021) investigated fiscal dominance and exchange rate stability in Nigeria from 1981Q1 to 2018Q4. The study employed the Structural Vector Autoregression (SVAR) technique and ARDL methods, along with Granger causality tests. The objective was to test the fiscal dominance hypothesis and examine the shock transmission effects of fiscal deficit components on exchange rate movement.

Idris (2019) assessed the relative impact of monetary and fiscal policy on output growth in Nigeria from 1980 to 2017. The aim of the study was to determine the effectiveness of each policy in promoting sustainable growth. The study used Ordinary Least Squares (OLS) and co-integration tests on annual time-series data to evaluate the relationship between these policies and economic growth. Olakojo, Onanuga, and Onanuga (2021) studied the key determinants of economic growth cycles in Nigeria from 2010Q1 to 2019Q1. Using a plucking model of Friedman, Markov-switching, and threshold regression techniques, the study employed quarterly data. The study aimed to confirm the optimum monetary policy target and assess the role of fiscal policy in economic recovery.

Ibeto, Ezenekwe, Nzeribe, and Okeyika (2023) explored the determinants of exchange rate dynamics in Nigeria across different exchange rate sub-regimes from 1986 to 2020. The study used ARDL and structural VAR models on secondary data from various sources. Identifying the

factors influencing exchange rate movements under different regimes was the main aim of the study. Akpogheli (2022) investigated the impact of fiscal and monetary policies on the Nigerian industrial sector from 1986 to 2021. The objective was to determine the effectiveness of these policies in enhancing industrial sector performance. The study utilized the ARDL Bounds Testing Approach, along with unit root and Johansen co-integration tests.

Arikekpar (2020) examined the relationship between exchange rate volatility and monetary policy shocks in Nigeria from 1981 to 2018. The study used the Vector Error Correction Mechanism (VECM) and various diagnostic tests. The researcher tasked itself with the aim to analyze how monetary policy shocks influence exchange rate volatility. Iliyasu, Ibrahim, and Musa (2024) assessed the impact of monetary policy on exchange rate volatility in Nigeria from 1987 to 2023. The study employed Autoregressive Conditional Heteroscedasticity (ARCH), bootstrap bound test for co-integration, and Granger causality test within the vector error correction model. The objective was to investigate the relationship between monetary policy changes and exchange rate volatility.

Empirical Review

Ogunjimi (2020) found that exchange rate dynamics positively affect the agricultural and services sectors while negatively impacting industrial output. The study concluded that both positive and negative exchange rate movements have similar impacts on sectoral output, recommending improved exchange rate management to encourage investment. Anifowose (2020) revealed that monetary policy shocks significantly impact exchange rate variability in both Nigeria and South Africa, though these effects often deviate from theoretical expectations. The study concluded that monetary policy contractions are more likely to cause currency depreciation in Nigeria, suggesting a need for more predictable policy measures.

Henry and Sabo (2020) discovered that while the monetary policy rate and foreign exchange rate negatively affect inflation, broad money supply positively influences it. The study concluded that stabilizing the exchange rate and increasing investment in productive activities are crucial for reducing inflation and fostering economic growth. Ayinde and Bankole (2021) found a bi-causal relationship between budget deficits and exchange rate changes, while public debt did not granger cause exchange rate movements. The SVAR estimates indicated that exchange rate movements respond to financial openness shocks. The study recommended addressing fiscal imbalances to achieve exchange rate stability.

Idris (2019) found that both monetary and fiscal policies significantly and positively impact economic growth, with monetary policy being more effective. The study concluded that fiscal discipline is essential for achieving economic goals, as monetary policy alone cannot compensate for fiscal imbalances. Olakojo, Onanuga, and Onanuga (2021) showed significant asymmetry in growth cycles, with both monetary and fiscal policies being pro-cyclical. The study recommended coordinated pro-cyclical monetary and fiscal policies to achieve economic recovery, highlighting the importance of the Treasury Bill rate in promoting growth.

Ibeto, Ezenekwe, Nzeribe, and Okeyika (2023) revealed that determinants of exchange rate dynamics vary across different sub-regimes, with relative real income, inflation, and trade openness being significant factors. The study recommended effective trade and export policies to improve exchange rate stability.

Akpogheli (2022) found that fiscal and monetary policies significantly affect industrial sector output in both short and long terms. The study concluded that an appropriate mix of these policies is crucial for developing the industrial sector and improving living standards.

Arikekpar (2020) found that credit reserve requirements negatively impact the exchange rate, while broad money supply, interest rate, and inflation rate positively affect it. The study recommended increasing the credit reserve requirement and interest rates to stabilize the exchange rate. Iliyasu, Ibrahim, and Musa (2024) found that exchange rate volatility is driven by changes in money supply and previous fluctuations. The study concluded that controlling money supply shocks and exchange rate fluctuations is key to achieving stability, recommending a mix of fiscal and monetary policy tools for effective management.

Gap in the Literature

The literature assessment on the effects of monetary and fiscal policy on the dynamics of the exchange rate in Nigeria identifies a number of gaps that require more investigation. Notably, the majority of research focuses on the individual effects of fiscal and monetary policy, with few comprehensive research looking at their link. Furthermore, there isn't a thorough comparison of these measures' efficacy under different exchange rate regimes. Even while some research span long time periods, especially in light of the COVID-19 pandemic, they frequently do not include the most recent data. Additionally, even though sectoral studies have been carried out, more customized policy implications that are unique to each area are required. There is a dearth of research on the non-linear and asymmetric effects of combined monetary and fiscal policies, and studies that concentrate on particular policy tools rather than general policies are required. Filling in these gaps will allow for a more thorough and comprehensive understanding of how Nigeria's exchange rate fluctuations are influenced by both fiscal and monetary policy, particularly in light of the country's current economic difficulties.

METHODOLOGY

This study adopts an *ex-post facto* research design to examine how fiscal and monetary policies influence Nigeria's exchange rate dynamics using secondary data from 2000–2022 obtained from the World Bank's *World Development Indicators* (2023) and the CBN Statistical Bulletin (2023). Fiscal policy is proxied by total government expenditure (TGEXP) and total government revenue (TGR), while monetary policy is represented by the real interest rate (RINTR) and broad money supply (BMS). Exchange rate (EXR) serves as the dependent variable, with GDP growth (GDPG) and inflation rate (INF) as control variables.

Three hypotheses are tested:

1. Fiscal policy has no significant impact on the exchange rate in Nigeria.
2. Monetary policy has no significant impact on the exchange rate in Nigeria.
3. There is no significant causal relationship among fiscal policy, monetary policy, and the exchange rate in Nigeria.

The analysis is anchored on the **Mundell–Fleming model**, which predicts fiscal policy effectiveness under fixed exchange rates and monetary policy effectiveness under floating rates. Based on this framework, two regression models are specified:

$$EXR_t = \beta_0 + \beta_1 TGEXP_t + \beta_2 TGR_t + \beta_3 INF_t + \beta_4 GDP_{gt} \dots \dots \dots (6)$$

$$EXR_t = \beta_0 + \beta_1 RINTR_t + \beta_2 BMS_t + \beta_3 INF_t + \beta_4 GDP_{gt} \dots \dots \dots (7)$$

We can further specify the models in econometric form as written below:

$$EXR_t = \beta_0 + \beta_1 TGEXP_t + \beta_2 TGR_t + \beta_3 INF_t + \beta_4 GDP_{gt} + \mu_t \dots \dots \dots (8)$$

$$EXR_t = \beta_0 + \beta_1 RINTR_t + \beta_2 BMS_t + \beta_3 INF_t + \beta_4 GDP_{gt} + \mu_t \dots \dots \dots (9)$$

Where:

EXR_t = Exchange rate at time t

$TGEXP_t$ = Total government expenditure

TGR_t = Total government revenue

$RINTR_t$ = Real interest rate

BMS_t = Broad money supply

INF_t = inflation rate (CPI)

GDP_{gt} = GDP growth rate

μ_t = Stochastic variable

β_0 = Constant term of the models

$\beta_1, \beta_2, \beta_3$ and β_4 = Parameters of the variables

RESULTS AND DISCUSSIONS

Descriptive statistics

Fig 4.1 below presents the descriptive statistics of the data for total government expenditure (TGEXP), total government revenue (TGR), real interest rate (RINTR), broad money supply (BMS), exchange rate (EXR), GDP growth rate (GDPG), and inflation rate (INF) over 23 observations.

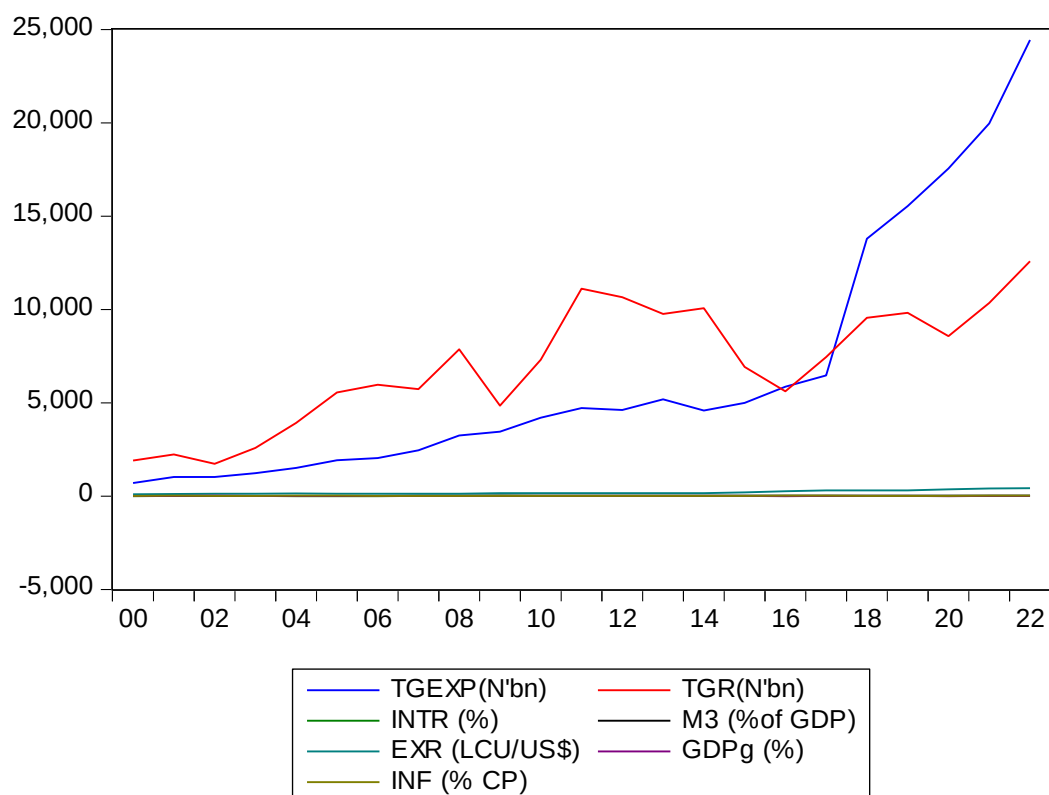


Fig 4.1

The mean values indicate that TGEXP and TGR are substantial, with TGR slightly higher. RINTR averages around 5.56%, BMS around 20.75, EXR about 199, GDPG about 5.15%, and INF about 12.63%. The median values are close to the means, suggesting a relatively symmetrical distribution for most variables. However, the maximum and minimum values show significant variation, particularly in TGEXP, TGR, and EXR. The standard deviations indicate high variability, especially in TGEXP and EXR. Skewness values reveal that TGEXP and EXR distributions are positively skewed, while TGR and BMS are negatively skewed. Kurtosis values suggest that GDPG is leptokurtic, indicating a peak distribution, while other variables are more platykurtic. The Jarque-Bera test statistics show that most variables are normally distributed, except TGEXP, which has a probability value below 0.05, indicating non-normality.

Table 4.1

Unit Root

Variables	ADF		Order of integration	t-stat/Prob	Critical values	Order of integration
	AT LEVEL	AT 1 ST DIFF				
TGEXP	0.69526 0.9992(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Non Stationary	-4.18550 0.0176(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary

TGR	-2.330835 0.4018(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Non stationary	-4.185551 0.0176(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary
RINTR	-3.338428 0.0887(@)	-4.498307(*) -3.658446(**) -3.268973(***)	Non Stationary	-4.242619 0.0174(@)	-4.532598(*) -3.673616(**) -3.277364(***)	Stationary
BMS	-1.98787 0.5756(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Non Stationary	-3.88967 0.0314(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary
EXR	-0.09758 0.9909(@)	-4.498307(*) -3.658446(**) -3.268973(***)	Non Stationary	-4.52202 0.0095(@)	-4.498307(*) -3.658446(**) -3.268973(***)	Stationary
GDPg	-4.45324 0.0097(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Stationary	-6.38847 0.0002(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary
INF	-3.41802 0.0746(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Non Stationary	-4.64178 0.0081(@)	-4.532598(*) -3.673616(**) -3.277364(***)	Stationary
PHILLIP-PERRON						
AT LEVEL						
AT 1 ST DIFF						
Variables	t-stat/Prob	Critical values	Order of integration	t-stat/Prob	Critical values	Order of integration
TGEXP	0.848005 0.9995(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Non Stationary	-4.18550 0.0176(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary
TGR	-2.34640 0.3944(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Non Stationary	-4.36788 0.0122	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary
RINTR	-4.08986 0.0204(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Stationary	-8.46353 0.0000(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Non Stationary
BMS	-1.98787 0.5756	-4.440739(*) -3.632896(**) -3.254671(***)	Non Stationary	-3.83164 0.0351(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary
EXR	0.107566 0.9951(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Non Stationary	-3.72833 0.0427(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary
GDPg	-4.48889 0.0091(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Stationary	-8.29493 0.0000(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary
INF	-3.53981 0.0596(@)	-4.440739(*) -3.632896(**) -3.254671(***)	Non Stationary	-17.7212 0.0000(@)	-4.467895(*) -3.644963(**) -3.261452(***)	Stationary

Values with (@), (), (**), (***) indicates probability value, 1%, 5% and 10% significant levels respectively*

From the table 4.1 above, the unit root test results indicate that most variables are non-stationary at their levels but become stationary after first differencing, suggesting they are integrated of order one, I(1). For instance, total government expenditure (TGEXP), total government revenue (TGR), real interest rate

(RINTR), broad money supply (BMS), exchange rate (EXR), and inflation rate (INF) were all non-stationary at level but stationary at first difference. This implies that shocks to these variables have persistent effects, making them unpredictable in their raw form, but their changes are more stable and predictable. The GDP growth rate (GDPg) is an exception, being stationary at both level and first difference, indicating a more stable economic measure.

Table 4.2

Co-integration Test

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
EXR	-4.427353	0.3280	-20.75537	0.3437
TGEXP	-3.667413	0.6235	-17.24475	0.6141
TGR	-4.121863	0.4388	-16.78397	0.6492
RINTR	-7.832820	0.0026	-31.20439	0.0044
BMS	-4.428506	0.3276	-20.70392	0.3474
GDPG	-5.723570	0.0660	-26.34352	0.0703
INF	-5.575164	0.0813	-25.74538	0.0871

*MacKinnon (1996) p-values.

Warning: p-values may not be accurate for fewer than 25 observations.

Intermediate Results:

	EXR	TGEXP	TGR	RINTR	BMS	GDPG	INF
Rho - 1	-0.943426	-0.783852	-0.762908	-1.418382	-0.941087	-1.197433	-1.170245
Rho S.E.	0.213090	0.213734	0.185088	0.181082	0.212507	0.209211	0.209903
Residual variance	466.6885	2471682.	2069503.	11.00339	5.421095	5.472598	8.899385
Long-run residual variance	466.6885	2471682.	2069503.	11.00339	5.421095	5.472598	8.899385
Number of lags	0	0	0	0	0	0	0
Number of observations	22	22	22	22	22	22	22
Number of stochastic trends**	7	7	7	7	7	7	7

**Number of stochastic trends in asymptotic distribution

Table 4.2 above summarizes the co-integration test results reveal that there is no significant cointegration among the variables examined: exchange rate (EXR), total government expenditure (TGEXP), total government revenue (TGR), real interest rate (RINTR), broad money supply (BMS),

GDP growth rate (GDPG), and inflation rate (INF). The tau-statistic and z-statistic values for all variables are not statistically significant at conventional levels, with p-values far above 0.05, indicating the absence of a long-run equilibrium relationship among these variables. Specifically, while the tau-statistic for RINTR is the closest to being significant, with a p-value of 0.0026, and its z-statistic of 0.0044, other variables like TGEXP, TGR, and EXR show high p-values, underscoring non-cointegration. This implies that these macroeconomic variables do not move together in the long run, suggesting that policies affecting these variables may have independent and uncorrelated long-term impacts on Nigeria's economy.

Discussion Findings

The ARDL results show that fiscal policy variables, particularly tax revenue (TGR) and government expenditure (TGEXP), significantly influence the exchange rate. While current TGEXP has a negative but insignificant effect, lagged values indicate that fiscal expansions may initially weaken the naira but stabilize it over time. This aligns with Ayinde and Bankole (2021), who found a bi-causal link between budget deficits and exchange rates, underscoring the need to address fiscal imbalances.

Monetary policy variables - broad money supply (BMS) and real interest rate (RINTR) - also have notable effects. Higher interest rates tend to appreciate the naira by attracting foreign capital, while increases in BMS lead to depreciation, consistent with Henry and Sabo (2020). These results reinforce Anifowose's (2020) findings that monetary shocks significantly influence exchange rate variability.

Granger causality analysis reveals that EXR predicts changes in TGEXP and TGR but not vice versa, suggesting fiscal policy is reactive to exchange rate movements. Inflation (INF) Granger causes RINTR, in line with Arikekpar (2020) and Iliyasu et al. (2024), highlighting inflation's role in shaping monetary tools. GDP growth (GDPG) significantly influences EXR, supporting Olakojo et al. (2021) on the pro-cyclical nature of Nigerian policies. Overall, the results confirm nuanced but important interactions between fiscal and monetary policy in shaping exchange rate trends.

Conclusion

This study examined the effects and causal relationships between fiscal and monetary policies and Nigeria's exchange rate from 2000–2022 using ARDL and Granger causality methods. Results indicate that government expenditure can initially depreciate the currency but may stabilize it in the long run, while revenue changes also significantly affect exchange rate movements. On the monetary side, higher interest rates tend to appreciate the currency, whereas broad money supply growth contributes to depreciation.

Causality tests suggest fiscal measures respond to exchange rate changes, and interest rates are largely driven by inflation trends. These findings stress the importance of coordinated fiscal and monetary responses to maintain currency stability and promote sustainable growth.

Policy Recommendations

Strengthen Fiscal Discipline – Manage government expenditure prudently, avoid excessive deficits, and prioritize productive investments that support growth without fueling inflation.

Stabilize Monetary Conditions – Maintain interest rates at levels that attract investment while controlling inflation, and monitor money supply growth to avoid depreciation pressures.

Enhance Policy Coordination – Align fiscal actions with monetary objectives to ensure both policies reinforce rather than counteract exchange rate stability.

Adopt Evidence-Based Adjustments – Continuously review macroeconomic data and adapt policies swiftly to changing conditions to strengthen economic resilience.

By implementing these measures, Nigeria can improve exchange rate stability, attract investment, and achieve more sustainable economic growth.

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